San Miguel County
All Hazard Mitigation Plan

COUNTY ADOPTED 5.23.2018

FEMA APPROVED 5.31.2018

BLANK PAGE

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

BACKGROUND AND SCOPE 3
GOALS AND OBJECTIVES 5
VULNERABILTY REVIEW AND CONCLUSIONS 6
MITIGATION ACTIONS SUMMARY 9

JURISDICTION PROFILES 19

San Miguel County 19
LOCATION, TOPOGRAPHY AND ENVIRONMENTAL FEATURES 19
COUNTY PROFILE AND DEVELOPMENT TRENDS 19
GEOGRAPHY AND CLIMATE 20

Incorporated Areas 21
TELLURIDE 21
MOUNTAIN VILLAGE 22
OPHIR 23
NORWOOD 24
SAWPIT 25

Fire Protection Districts 26
NORWOOD FIRE PROTECTION DISTRICT 26
TELLURIDE FIRE PROTECTION DISTRICT 27
EGNAR/SLICK ROCK FIRE PROTECTION DISTRICT 28

THE PLANNING PROCESS 29

10-Step Planning Process 30

Phase 1 Organize Resources 31
STEP 1 ORGANIZE THE PLANNING EFFORT 31
STEP 2 PUBLIC INVOLVEMENT 35
STEP 3 DEPARTMENTS AND AGENCIES COORDINATION 36

Phase 2 Assess the Risk 37
STEP 4 IDENTIFY THE HAZARDS 37
STEP 5 ASSESS THE RISKS 37

Phase 3 Develop the Mitigation Plan 37
STEP 6 SET GOALS 37
STEP 7 REVIEW POSSIBLE ACTIVITIES 37
STEP 8 DRAFT THE PLAN 38

Phase 4 Implement The Plan And Monitor Progress 39
STEP 9 ADOPT THE PLAN 39
STEP 10 IMPLEMENT, EVALUATE AND REVISE THE PLAN 39

RISK ASSESSMENT 40

HAZARD IDENTIFICATION 42
PREVIOUS RISK ASSESSMENT PROCESS 43
DECLARED DISASTER HISTORY 46

Hazard Profile Analysis *47*
AVALANCHE 48
DEBRIS FLOWS, LANDSLIDES AND ROCKFALL 54
DAM FAILURE 60
DROUGHT 62
EARTHQUAKES 65
EXTREME WINTER WEATHER 71
FLOODS 75
SEVERE WEATHER 86
WILDFIRES 89
COMMUNICABLE DISEASE 97
HUMAN CAUSED HAZARDS 103
HAZARDOUS MATERIAL INCIDENTS 104

COUNTY MITIGATION CAPABILITIES 107

LOCAL COMPREHENSIVE PLANS 107
HAZARD SPECIFIC CAPABILITIES 111
COUNTY PLANS 123
OTHER COUNTY CAPABILITIES 125
COUNTY ALERT AND WARNING SYSTEMS 129
HAZMAT RESPONSE 129
TOWN OF TELLURIDE CAPABILITIES 130
TOWN OF MOUNTAIN VILLAGE CAPABILITIES 133
TOWN OF NORWOOD CAPABILITIES 134
OPHIR CAPABILITIES 134
SAWPIT CAPABILITIES 135
STATE AND FEDERAL CAPABILITIES 136

VULNERABILITY ASSESSMENT 141

WILDFIRE 144
DROUGHTS 146
LANDSLIDES/DEBRIS FLOWS AND ROCKFALL 147
EXTREME WINTER WEATHER 148
SEVERE WEATHER 149
CRITICAL INFRASTRUCTURE FAILURE 149
AVALANCHE 150
FLOOD 151
DAM FAILURE 154
HAZARDOUS MATERIALS RELEASE 155
TRANSPORTATION ACCIDENTS 155
TECHNOLOGICAL HAZARDS 156
TERRORISM 156
COMMUNICABLE DISEASE OUTBREAK 156

PLAGUE 157
WEST NILE VIRUS 158
EARTHQUAKES 158
VULNERABILTY REVIEW AND CONCLUSIONS 160

CRITICAL INFRASTRUCTURE INVENTORY 162
CRITICAL FACILITIES POTENTIALLY AT RISK 168

MITIGATION STRATEGY 171

IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS 172
IMPLEMENTATION OF MITIGATION ACTIONS 172
MITIGATION ACTION WORK PLAN 173

ADOPTION, IMPLEMENTATION AND MAINTENANCE 181

APPENDICES I

APPENDIX 1: MITIGATION ACTION WORK PLAN I
APPENDIX 2: SUPPORTING DOCUMENTS XLVIII
APPENDIX 3: ADOPTION DOCUMENTATION LXVI
APPENDIX 4: INFORMATION SOURCES LXXV

TABLE AND FIGURE REFERENCES

Figure Reference

Figure 1 Bear Creek Avalanche 2003 49
Figure 2 Ophir Avalanche Hazard Map (Source Arthur I. Mears) 50
Figure 3 2008 Ophir Slide Photos (Courtesy of Road and Bridge Department) 51
Figure 4: Ophir Slide Path Map (Source Arthur I. Mears) 52
Figure 5: Rockfall Zones (Source: Town of Telluride) 54
Figure 6: Primary Rockfall zones in Telluride (Source Town of Telluride) 59
Figure 7: US Drought Monitor 64
Figure 8 Earthquake Acceleration Source: http://earthquake.usgs.gov 68
Figure 9: Earthquake Hazard Map 69
Figure 10 Faults In San Miguel County 70
Figure 11: Hazardous Transportation Routes Colorado and San Miguel County 105
Figure 12 Wildfire Risk Analysis Scoring 116
Figure 13 Parcel Level Risk Assessment results in the Telluride Fire Protection District 117
Figure 14 Timeline for Transmission Line 120
Figure 15 Nucla Sunshine Transmission Line Project Map 122
Figure 16 Database Development Critical Infrastructure Graphic 162
Figure 17: Telluride and Mountain Village Critical Facilities Map 163
Figure 18: Norwood Critical Facilities Map 164
Figure 19: Critical Infrastructure Ophir 164
Figure 20 Essential Services Infrastructure (Source GIS Dept) 165
Figure 21 Utility, Communication and Dam Infrastructure (Source GIS Dept) 166
Figure 22 Transportation Critical Infrastructure (Source GIS Dept) 167

Table Reference

Table 1 Mitigation Action Summary 9
Table 2 Completed Mitigation Actions – 2010 Plan 16
Table 3: The 2010 Risk Perception worksheet with averaged results 44
Table 4 Declared Disaster History 46
Table 5 Dams in San Miguel County 61
Table 6 Mercalli Intensity Scale 66
Table 7: Extreme winter weather 72
Table 8: Temp Averages for Telluride, Colorado 1900-2014 73
Table 9: Temp Averages for Norwood, Colorado 1924-2014 73
Table 10: Telluride, Colorado, monthly snowfalls 1985-2017 74
Table 11: National Climatic Data Center Storm Event Database Records for Floods 82
Table 12: NCDC Hail Events 1981-2004 86
Table 13: National Climatic Data Center Property Damage Lightning Events 87
Table 14: National Climatic Data Center Wind Events 88
Table 15 Fires in San Miguel County 91
Table 16: CWPP Hazard Ratings 94
Table 17: San Miguel County National Flood Insurance Program Participation Details 109
Table 18 County Land Use Codes in Use 126
Table 19: 2005 Plan Completed Mitigation Actions 139
Table 20: Total Assessed Value, San Miguel County 2017 142

Table 21: Structures and Population by Jurisdiction 2017 _____ *143*
Table 22: Norwood/Redvale Fire Protection District WUI Communities _____ *144*
Table 23: Telluride Fire Protection District WUI Communities _____ *145*
Table 24: Egnar/Slickrock Fire Protection District WUI Communities _____ *146*
Table 25 Flood Insurance Policy Numbers 2017 _____ *151*
Table 26: Critical Facilities Information _____ *168*
Table 27: Implementation Strategy _____ *181*

EXECUTIVE SUMMARY

The San Miguel County All Hazard Mitigation Plan was created to reduce and eliminate losses from natural hazard events and to better protect the people and property of County from the effects of hazard events. The County's original All Hazard Mitigation Plan was completed and approved by Federal Emergency Management Agency (FEMA) in June of 2005. The plan was revised and heavily updated in 2010 and 2011 and received FEMA approval in June of 2011.

This Hazard Mitigation Plan is a multi-jurisdictional plan that covers the following local governments and special districts that participated in the planning process and who identified mitigation actions for their jurisdictions:

- San Miguel County
- Town of Telluride
- Town of Mountain Village
- Town of Norwood
- Town of Ophir
- Town of Sawpit
- Egnar/Slickrock Fire Protection District
- Norwood/Redvale Fire Protection District
- Telluride Fire Protection District

This document is intentionally written so that all stakeholders can understand more about the County's hazard risks and mitigation strategies. As a result of reading this, we hope that readers will recognize that mitigation responsibility rests with everyone – not just with county and other public agencies. We all continue to encourage people to do mitigation planning at every level, at home, in the workplace and in their communities.

The plan update covers the San Miguel County response area, which includes the entirety of San Miguel County as well as a portion of Montrose County where the Norwood/Redvale Fire Protection District spans both counties. Additionally, approximately 66% of the land is owned and managed by the U.S. Forest Services (USFS), the Bureau of Land Management (BLM) or the State of Colorado. While the federal government ultimately has jurisdiction in these parts of the County, this plan could be used to support federal hazard mitigation efforts. In particular, the hazard profiles and risk assessments in the plan update could be useful for supporting the federal government's efforts related to wildland fire and watershed protection.

This plan was also developed to allow San Miguel County and its participating jurisdictions to be eligible for certain federal disaster assistance, specifically, the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) Program, and Pre-Disaster Mitigation (PDM) program, as well as earning credits for the National Flood Insurance Program's Community Rating System. This hazard mitigation plan documents the multi-

jurisdictional, multi-hazard mitigation planning process, which is intended to meet the requirements of the Federal Disaster Act of 2000.

As in previous versions, the planning process followed a methodology laid out by FEMA. Many of the forms used in this planning process were taken from other jurisdictional plans, including the Mesa County Hazard Mitigation Plan (2015), Montezuma County Hazard Mitigation Plan (2016).

The San Miguel County All Hazard Mitigation Plan is considered a living document and is revisited on an annual basis for updates, in the event of a hazard related disaster and if priorities of local jurisdictions should change. Updates to the plan will occur through the San Miguel County All Hazard Planning Group quarterly meetings and are facilitated by the county Emergency Manager.

A copy of the most up to date version of this plan, attachments and other county and town comprehensive plans are available on the San Miguel County website: https://www.sanmiguelcountyco.gov/411/All-Hazard-Planning.

BACKGROUND AND SCOPE

This plan update was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002 (44 CFR §201.6) and finalized on October 31, 2007. Hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act or DMA.

While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet in order for a local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act. Because San Miguel County is subject to many kinds of hazards, access to these programs is vital.

The planning process began with the solicitation for participation by all the towns and special districts in the county. Then a Hazard Mitigation Planning Team (HMPT) comprised of key stakeholders was formed. The Planning Team conducted a risk assessment that identified and profiled hazards that pose a risk to San Miguel County. Hazards captured in the previous plan were reviewed as well as hazards which are required to be reviewed by FEMA following their methodology. The HMPT then assessed the County's vulnerability to these hazards, if applicable, and examined the capabilities in place to mitigate them.

The County is vulnerable to several hazards that are identified, profiled and analyzed in this plan. Wildfire, drought, extreme winter weather, critical infrastructure failure and debris flow (to include landslide and rock falls) are among the hazards that can have a significant impact on the County. Based upon the risk assessment, the HMPC identified goals and objectives for reducing risk to these high hazards as well as hazards ranked medium and low.

The Hazard Mitigation Plan will be formally adopted by the San Miguel County Board of County Commissioners and all the governing bodies of each participating jurisdiction. The plan will be updated and revised within a five-year timeframe or as required by FEMA.

FEMA Adoption

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

FEMA

R8-MT

May 30, 2018

San Miguel County Board of County Commissioners
San Miguel County Courthouse
333 W Colorado Avenue, 3rd Floor
P.O. Box 1170
Telluride, CO 81435

Dear Commissioners:

We are pleased to announce the approval of the San Miguel County All Hazard Mitigation Plan as meeting the requirements of the Stafford Act and Title 44 Code of Federal Regulations §201.6 for a local hazard mitigation plan. The plan approval extends to San Miguel County; the Towns of Telluride, Norwood, and Ophir; and the Telluride Fire Protection District.

The jurisdictions are hereby eligible for FEMA Hazard Mitigation Assistance grant programs. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular programs under which the application is submitted. Approved mitigation plans may be eligible for points under the National Flood Insurance Program Community Rating System.

The plan is approved through May 29, 2023. A local jurisdiction must revise its plan and resubmit it for approval within five years to continue to be eligible for mitigation project grant funding. We have provided recommendations for the next plan update on the enclosed Plan Review Tool.

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

Sincerely,

Jeanine D. Petterson
Mitigation Division Director

Enclosure
cc: Steve Boand, State Hazard Mitigation Officer, Colorado Department of Homeland Security and Emergency Management

www.fema.gov

GOALS AND OBJECTIVES

The goals and objectives of this hazard mitigation plan are to:

Goal 1: Reduce risk to the people, property, and environment of San Miguel County from the impacts of natural and technological hazards.

Objectives:

A. Minimize the vulnerability of existing and new development to hazards.
B. Increase education and awareness of hazards and risk reduction measures.
C. Improve comprehensive wildfire planning, funding and mitigation.
D. Enhance assessment of multi-hazard risk to critical facilities and infrastructure.

Goal 2: Minimize economic losses

Objectives:

A. Strengthen disaster resiliency of government, business and community members.
B. Promote and conduct continuity of operations and continuity of governance planning.
C. Reduce financial exposure of county and municipal governments.

Goal 3: Implement the mitigation actions identified in this plan

Objectives:

A. Engage collaborative partners, community organizations, businesses and others
B. Integrate mitigation activities into existing and new community plans and policies.
C. Monitor, evaluate, and update the mitigation plan.

VULNERABILTY REVIEW AND CONCLUSIONS

The group review the Risk Perception rankings from the previous plan and modified accordingly. Below is a table of the hazards considered high by the planning team.

High Risk Hazards in San Miguel County
Hazard
Wildfire
Drought
Extreme Winter Weather
Critical Infrastructure Failure
Landslide, Rockslide, Debris Flow

After reviewing and updating the risk assessment, defining the current mitigation capabilities and reviewing the vulnerability of each jurisdiction to each hazard, the current planning team confirms reaffirms the following general conclusions:

1. Wildfire continues to be a significant threat to the county and its residents. This threat is growing with more development in forested areas and with increased winter drought conditions in 2017/2018. The County's Wildfire Coordination Group, the County Community Wildfire Prevention Plan, community assessments and incentive programs and the continuing partnership with the West Region Wildfire Council will continue to be valuable tools to mitigate future losses.

2. Flooding will continue to be a threat to existing development within the San Miguel River floodplain. Floodplain management ordinances for the Town of Telluride and the county have been effective in reducing risk to future growth in floodplains, but much of the existing Town of Telluride is at risk. Flood insurance is currently the most appropriate mitigation option in Telluride for existing structures, given that the high property values and historic structures in town make acquisition/ elevation projects technically and financially difficult.

3. Avalanches have been responsible for more lives lost than any other recent hazard, but this is primarily due to unwise backcountry travel. Portions of the Town of Ophir and certain county roads and state highways are at risk to large avalanches. Avalanches can restrict access into and out of the County on Highway 145 over Lizard Head Pass for days, as well as access in and out of Ophir.

4. Landslides, mud and debris flows, and rockfall come with the territory of steep, eroding slopes in the eastern county. Debris and mudflows have inundated Telluride and the Downvalley area several times in the past 100 years. Many of the culverts are undersized to handle a flood and debris flow on Cornet Creek. The county and the Town of Telluride have geohazard regulations in their respective land use codes. Transportation corridors remain at risk and pose safety concerns to travelers and emergency responders. More rockfall control efforts are needed along the State Highways in the County.

5. Ongoing drought has impacted the tourism and agriculture economies within the county, and contributed to increasing the wildfire hazard in the past, and it will continue to do so in the future. The 2017/2018 winter season is proving to be the driest on record in 30 years.

6. Problems associated with severe weather and extreme winter weather occur almost every year and exacerbate problems with geologic hazards, avalanches, flooding and wildfire. The technological impacts of severe winter weather, power loss, internet loss, etc., will be prevalent issues for citizens moving forward.

7. Power plant and power outages from severe weather and avalanches are an ongoing concern.

8. Earthquakes pose a low probability but high consequence event, particularly with the presence of historic building stock located in Telluride.

9. Transportation routes over mountain passes are susceptible to severe weather avalanches and rockslides, potentially limiting emergency ingress and egress and causing dangerous driving conditions for commuters and tourists. HazMat spills will continue to be a concern along transportation corridors. With the increased capabilities of the Telluride Hazardous Emergency Response Team the capability of addressing this hazard has improved.

10. Facilities that store gas, propane, chemicals and other hazardous materials could cause additional health and safety concerns if impacted by a natural or man-caused event, these event can also cause a disruption in the services they provide creating more potential issues.

11. Many plans, procedures, and policies exist that either promote public safety or wise development procedures within the county and the incorporated towns. Often the implementation of these capabilities is hindered by lack of funding, staffing, political or public pressures, and respect for private property rights.

MITIGATION ACTIONS SUMMARY

To meet identified goals and objectives, the Planning Team recommends the following new and ongoing mitigation actions:

Table 1 Mitigation Action Summary

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
1	Egnar Slickrock FPD	GPS units for response vehicles	New	1A,C	All Hazards
2	Egnar Slickrock FPD	Satellite Phones	New	1A	All Hazards
3	Egnar Slickrock FPD	Improved radio coverage in area	Ongoing	1A	All Hazards
4	Egnar Slickrock FPD	Update mapping for the district	Ongoing	1A,E	All Hazards
5	Egnar Slickrock FPD	Improved emergency communication to local residents through encouraging the public get NOAA weather radios and sign up for CodeRED	Ongoing	1B;3A	All Hazards
6	Egnar Slickrock FPD	Smoke Detectors	New	1B	All Hazards
7	Egnar Slickrock FPD	Pursue PPE for HAZMAT and continuing training or Department Personnel	Ongoing	1A;3A	All Hazards
8	Egnar Slickrock FPD	Fire mitigation and fuels reduction on Public Lands	Ongoing	1C	Wildfire
9	Mountain Village	All Hazard Education	New	1A,B;2A,C;3A	All Hazards
10	Mountain Village	Mountain Village Town Hall Backup Generator	New	1A,E;2B;3B	All Hazards
11	Mountain Village	Maintenance Facility Upgrade	New	1A,E	All Hazards
12	Mountain Village	Public Education Campaign on Drought	Ongoing	1A,B	Drought
13	Mountain Village	Continued Compliance with the NFIP program and implementation of measures to help improve CRS ratings where appropriate	New	1A,B;2A;3A	Erosion, Flood, Landslide
14	Mountain Village	Pandemic Flu education	New	1A,B;2A,;3A	Pandemic

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
15	Mountain Village	Address Community Wildfire Protection Plan Actions and prioritize fuels reduction projects	Ongoing	1A,C;2A,C;3A,B	Wildfire
16	Mountain Village	Water Infrastructure improvements	New	1A,B,E;2A,C;3B	Wildfire
17	Mountain Village	Secondary ingress/Egress road	New	1A,B;2A,C;3A,B	Wildfire
18	Norwood FPD	Obtain land for Gurley Fire Station #4	New	1A	All Hazards
19	Norwood FPD	Frontline fire apparatus replacement for fire protection/EMS/rescue with Wildland Urban Interface fire engine	New	1A,C;2C	All Hazards
20	Norwood FPD	Installation of Power-PRO XT powered ambulance cot system into ambulance 2	New	1A	All Hazards
21	Norwood FPD	2000 gallon water tender apparatus replacement for fire protection throughout non-hydrant areas within NFPD	New	1A,C;2C	All Hazards
22	Norwood FPD	MDT's for Fire-EMS-Command Vehicles	New	1A	All Hazards
23	Norwood FPD	Develop a system for testing warning siren systems	New	1A,B;2A	All Hazards
24	Norwood FPD	Natural Gas generator for NFPD station 1	New	1A;2A	All Hazards
25	Norwood FPD	Burn building and Training Center	New	1A;2A	All Hazards
26	San Miguel County	Update GIS imagery (aerial photos) for response and analysis	New	1A,B,C,D,E;2A,C	All Hazards
27	San Miguel County	Obtain good digital data for mapping critical infrastructure in the County	New	1A,B,C,D,E;2A,C;3B	All Hazards
28	San Miguel County	EOC Backup Generator Project	Ongoing	1A; 2B	All Hazards
29	San Miguel County	Identify and prioritize action if needed for abandoned mines in the County	New	1A,B;2C;	All Hazards

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
30	San Miguel County	Communicable Disease PIO	New	1A,B;2A;3B	All Hazards
31	San Miguel County	Replace bridge that provides access to Applebaugh Subdivision	Ongoing	1A,E;2C	All Hazards
32	San Miguel County	Obtain technology infrastructure support to maintaining web based communication during emergencies	Ongoing	1A,E;2B,C;3B	All Hazards
33	San Miguel County	Work with CDPHE and other health resources to develop or improve continuity of operations plans for clinics	Ongoing	1A,B;2A,B	All Hazards
34	San Miguel County	Hazmat Transportation Regulation	Ongoing	1A,B,E;2A,C;3A,B	All Hazards
35	San Miguel County	Continue to refine SMC's Avalanche Control Program through training opportunities	Ongoing	1A,B;2C;3B	Avalanche
36	San Miguel County	Continued Ophir Avalanche studies and Improved Control work	New	1A,B,E;2C;3B	Avalanche
37	San Miguel County	Inventory Snow Removal Capabilities Geographically	Ongoing	1A;2C	Avalanche
38	San Miguel County	Improve and continue Avalanche control work	Ongoing	1A;2C	Avalanche
39	San Miguel County	Landslide Mapping	Ongoing	1A,B,E;2C;3A,B	Erosion, Exp Soils, Landslide
40	San Miguel County	Continue to participate with CDOT in the bridge inspecting program	Ongoing	1A,D,E	Erosion, Flood, Landslide
41	San Miguel County	Continue Stream Bank Erosion Mitigation Projects	Ongoing	1A,E	Erosion, Flood, Landslide
42	San Miguel County	Continue Culvert Improvements and Bridge Maintenance	Ongoing	1A,E	Erosion, Flood, Landslide
43	San Miguel County	Floodplain Regulations	New	1A,D	Flood

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
44	San Miguel County	Identify areas where snow drifting is problematic and install snow fences to reduce problem	Ongoing	1A,E	Flood
45	San Miguel County	Map the FEMA floodplain in populated areas of the County in digital format	New	1A,B,D;2A,C	Flood, Landslide
46	San Miguel County	Conduct annual workshop for protective and preventative response measures for pandemic flu	New	1A,B;2B	Pandemic
47	San Miguel County	Upgrade County Snow equipment	Ongoing	1A,C,E;2C	Severe Weather
48	San Miguel County	Obtain GIS satellite imagery for wildfire risk analysis	New	1A,B,C	Tornado
49	San Miguel County EM	Promote Disaster Preparedness	Ongoing	1A	All Hazards
50	San Miguel County EM	Test Warning System Capability	Ongoing	1A,B;2C	All Hazards
51	San Miguel County EM	NOAA Radio Transmitter for Telluride Region	Ongoing	1A,B	All Hazards
52	San Miguel County EM	SAR Card Public Education	Ongoing	1A,B	All Hazards
53	San Miguel County EM	Target Notification Campaign	Ongoing	1A,B,D	All Hazards
54	San Miguel County EM	Public Education for Ingress/Egress Issues	Ongoing	1A,B,C;2A	All Hazards
55	San Miguel County EM	Severe Weather Alert List for NWS	Ongoing	1A,B;3A	All Hazards
56	San Miguel County EM	All Hazard Publication Education	Ongoing	1A,B;2A,B	All Hazards
57	San Miguel County EM	Remote controlled Quadcopter/Drone	New	1A,C,D,E	All Hazards
58	San Miguel County EM	Recruit Weather Spotters	Ongoing	1A,B	All Hazards
59	San Miguel County EM	Expand Event Pre-Warn Capability with the NWS	Ongoing	1A,B	All Hazards
60	San Miguel County EM	Identify Special Needs Population	Ongoing	1A,B	All Hazards

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
61	San Miguel County EM	Develop Skyward/HAM Alternate Communication Capability	Ongoing	1A	All Hazards
62	San Miguel County EM	Drought Public Education	Ongoing	1A,B	Drought
63	San Miguel County EM	Water Conservation	Ongoing	1A,B	Drought
64	San Miguel County EM	Landslide Public Education	Ongoing	1A,B,D;2A,C	Landslide
65	San Miguel County EM	Wildfire Mitigation Fuels Reduction	Ongoing	1A,B,C	Wildfire
66	San Miguel County EM	Conduct Wildfire Education Workshops	Ongoing	1A,B,C	Wildfire
67	Telluride FPD	Secure AreaRAE	New	1A,E;2A,C	All Hazards
68	Telluride FPD	New Station (Fire/EMS) at Lawson Hill	New	1A	All Hazards
69	Telluride FPD	Provide GIS map books in all TFPD vehicles/ apparatus	Ongoing	1A,C;3B	All Hazards
70	Telluride FPD	Increase rural fire delivery	Ongoing	1A,C	All Hazards
71	Telluride FPD	Training Officer	Ongoing	1A,B	All Hazards
72	Telluride FPD	Assign additional personnel to Station 4	Ongoing	1A,C	All Hazards
73	Telluride FPD	Continue existing apparatus replacement program	Ongoing	1A;2C	All Hazards
74	Telluride FPD	Acquire hose couplings that match regional jurisdictions for interoperability	New	1A,C	All Hazards
75	Telluride FPD	Communications tower HWY 62 at mile marker 10	New; in progress	1A	All Hazards
76	Telluride FPD	HazMat Team Leader/Employee	New	1A,B,E	HazMat
77	Telluride FPD	Hazardous Materials Response Engine	New	1A	HazMat
78	Telluride FPD	Install dry hydrants	Ongoing	1A,C	Wildfire
79	Telluride FPD	Operations Plan	New	1A,B,C	Wildfire
80	Telluride FPD	New Type III Fire Engine	New	1A,C	Wildfire
81	Town of Norwood	Weather Shelter Map	Ongoing	1A,B;2A	All Hazards

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
82	Town of Norwood	Map Critical Infrastructure	Ongoing	1A,E;2A;3B	All Hazards
83	Town of Norwood	Infrastructure Upgrade	Ongoing	1A,E	All Hazards
84	Town of Norwood	Drought awareness Education Campaign	Ongoing	1A,B,C	Drought
85	Town of Norwood	Establish water usage schedule	Ongoing	1A,B,C	Drought
86	Town of Norwood	Installation of Irrigation System	Ongoing	1A;2C	Drought
87	Town of Norwood	Acquire additional potable water tanks	Ongoing	1A,C,E;2C	Drought
88	Town of Norwood	Pandemic Flu Prevention	Ongoing	1A,B	Pandemic
89	Town of Norwood	Increase snow removal equipment	Ongoing	1A	Severe Weather
90	Town of Ophir	Emergency Response	New	1A,B,E;2B,C	Severe Weather
91	Town of Ophir	Update and expand medical equipment	New	1A,E	All Hazards
92	Town of Ophir	Install street signs and update maps	New	1A,B,C,E;2C	All Hazards
93	Town of Ophir	Bury the Power Line through the Ophir Valley	New	1A,E;2C	All Hazards
94	Town of Ophir	Obtain a fire engine for new fire station near Ophir	New	1A,C,E;2C	All Hazards
95	Town of Ophir	Bury Waterfall Canyon water supply line	New	1A,E	All Hazards
96	Town of Ophir	Road Infrastructure and Drainage	New	1A,E	All Hazards
97	Town of Ophir	Create alternative power source	New	1A,E;2C	Avalanche
98	Town of Ophir	Update town's snowplow equipment	New	1A,E;2C	Avalanche
99	Town of Ophir	Acquire a snow cat/snowmobile for emergency use during road closures	New	1A,E;2C	Avalanche, Severe Weather
100	Town of Ophir	Conduct Rockfall Mitigation on Ophir Loop on HWY 145	New	1A,E;2C	Landslide
101	Town of Sawpit	Address ingress/ egress issues in the Town of Sawpit	Ongoing	1A,B,C,E	All Hazards
102	Town of Sawpit	Continue to insist that Hwy 145, which runs through Sawpit, remain an non-designated	Ongoing	1A,B,E;2C	All Hazards

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
		Hazardous Materials transportation route			
103	Town of Sawpit	Storm water Drainage Maintenance	Ongoing	1A,D,E;2C	Erosion, Flood, Landslide
104	Town of Sawpit	Map 100 and 500 Year floodplains in the Town of Sawpit	Ongoing	1A,B,D,E;2A, B,C	Erosion, Flood, Landslide
105	Town of Telluride	Telluride Regional Wastewater Treatment Plant Upgrade (TRWWTP)	New	1A,B,E;2C	All Hazards
106	Town of Telluride	Resurfacing highway 145 Spur	New	1A,C,D,E;2A, C	All Hazards
107	Town of Telluride	San Miguel River Restoration on the valley floor	New (phase 1 complete)	1A,D;2C	Erosion, Flood
108	Town of Telluride	Increase public awareness about riverine flooding and debris flow in Telluride	Ongoing	1A,B,D,E;2A,; 3A	Erosion, Flood, Landslide
109	Town of Telluride	Storm Drainage Improvements	Ongoing	1A,D,E;2C	Erosion, Flood, Landslide
110	Town of Telluride	Replace Pacific Ave. culverts with a span bridge	Ongoing	1A,D,E	Erosion, Flood, Landslide
111	Town of Telluride	Cornet Creek Channel Maintenance	Ongoing	1A,D,E;2C	Erosion, Flood, Landslide
112	Town of Telluride	Continue to remove sediments from in-stream sedimentation basin at Bear Creek/ San Miguel confluence	Ongoing	1A,D,E	Erosion, Flood, Landslide
113	Town of Telluride	Storm water Runoff Mitigation	New	1A,D,E	Flood

The HMPT worked together to capture an implementation plan for each action, which identifies priority level, background information, and ideas for implementation, responsible agency, timeline, cost estimate, potential funding sources and more. The Mitigation Action Work Plan with this detail can be found in Attachment 1.

Several Mitigation Actions have been completed from the previously adopted version.

Table 2 Completed Mitigation Actions – 2010 Plan

Jurisdiction	Mitigation Action Title	Description	Status
Egnar Slickrock FPD	Add high visibility signage and implement speed reductions along hazardous transportation routes	Hwy 141 is a designated HAZMAT corridor that has heavy wildlife migration and hazardous winter driving conditions. These elements contribute to potential accidents and spills	Complete
Egnar Slickrock FPD	Uniform signage for roads and addresses	There is inadequate signage for emergency response which creates confusion when emergency responders are dispatched to rural areas. Currently street addresses do not correspond with County-issued addresses	Complete
Egnar Slickrock FPD	Exercise HazMat Annex	HWY 141, Specifically Slickrock Hill, has previously been a site for a hazardous materials spill. It would be beneficial to exercise the hazardous materials annex plan, relying on the surrounding agencies for response.	Complete
Norwood FPD	Hire a full time Fire Chief, EMS Coordinator	The town of Norwood and the population that the Norwood Fire Protection District serves is increasing quickly. Hiring full time paid positions would help provide structure and accountability for the District.	Complete
San Miguel County	Hire a FTE Emergency Manager	Current part time nature of Emergency Management Coordinator (EMC) and Sheriff role as EM. A FTE EM would increase program development in core areas of emergency management, expand county capacity to be more effective and resilient in responding to and planning for large scale disasters.	Complete
San Miguel County	Obtain technology infrastructure for redundant based communication during emergencies	Technology infrastructure is currently vulnerable to impact by all hazards	Complete
San Miguel County	Increase public awareness about prairie dog population on the Valley Floor and the risk of plague	County Public Health feels it is important to educate the public about the risks of Plague outbreak in the County	Complete

San Miguel County Emergency Management	Hazmat Training	Continue to support response training and readiness for Hazardous material spills for public safety personnel	Complete
Telluride Fire Protection District	Natural Gas Generator Station 1 and 3, NG back up power	Backup power is needed	Complete
Telluride Fire Protection District	Replace Brush 33-2015, Replace Engine 15-2016, Replace Engine 39-2016	Apparatus replacement program-replaces 25+ year old apparatus	Complete
Telluride Fire Protection District	Replace Truck 1 and 2 with one Truck	Truck 100+ aerial	Complete
Telluride Fire Protection District	replace regional SCBA/ cylinders with 2013 compliant air packs	Update SCBA equipment	Complete
Telluride Fire Protection District	Purchase a type II tender for Station 4	Currently, station 4 does not have any tender equipment. Therefore, volunteer fire fighters must use equipment from Mountain Village fire station.	Complete Replaced with two Type I engines, Eng 4 and Eng 38
Town of Norwood	Update Building Codes	Update the town's building codes to better prepare new construction for heavy snow loads on building roofs.	Complete
Town of Sawpit	Replace street signs	signs are old and need to be replaced	Complete
Town of Telluride	West Galena Ave. Drainage Improvements	Cornet Creek historically drained through W. Galena Ave and through the Telluride School sports fields to the Pearl Property. Improve hydraulic connection by improving street scapes and drainage features.	Complete
Town of Telluride	Adopt 2009 updated Rockfall maps	A 2009 study updated rockfall hazards information in the Town of Telluride. While not significantly different from the existing rockfall hazard mapping, it is more refined.	Complete 2015
Town of Telluride	Review current rockfall codes to determine needs for improvement	A 2009 study updated rockfall hazards information in the Town of Telluride. While not significantly different from the existing rockfall hazard mapping, it is more refined	Complete 2015

Plan Review and Analysis

This update of this mitigation plan involved an extensive and comprehensive review and update of each section of the 2010 plan. The process followed to review and revise this plan was similar to the planning process for the previous version. As part of this plan update, all sections of the plan were reviewed and updated to reflect new data and knowledge of hazards and risk, risk analysis process, capabilities, participating jurisdictions and stakeholders and mitigation strategies. Valid information from the 2010 plan was carried forward and remains in this plan update.

JURISDICTION PROFILES

SAN MIGUEL COUNTY

LOCATION, TOPOGRAPHY AND ENVIRONMENTAL FEATURES

San Miguel County is located in Southwestern Colorado, approximately 360 miles SW of Denver. The County is approximately 1,287 square miles that ranges from southwestern semi-arid desert to high alpine mountains. The County has five designated planning regions as defined in the County's Comprehensive Development Plan: the Telluride Regional Area, the Telluride/Ophir High Country Area, the San Miguel Canyon, the West End and Wright's Mesa. There are five incorporated areas within San Miguel County: Telluride, Mountain Village, Ophir, Sawpit and Norwood. In addition, there are also several clustered development areas, subdivisions and/or wildland-urban interface areas within the County.

COUNTY PROFILE AND DEVELOPMENT TRENDS

The County Seat is located in the Town of Telluride which is approximately 65 miles from the nearest city of any size, and therefore serves as a hub for the smaller towns within the County. San Miguel County has two major highways which serve as the major transportation routes for motorists and freight. Although historically present, there is no railroad service in the County. San Miguel's main economic bases are tourism, ranching, and recreation. San Miguel hosts one of Colorado's major ski areas at Telluride/Mountain Village.

The towns of Telluride, Mountain Village, Ophir, Sawpit and Norwood serve as hubs for the County as well as several small unincorporated communities such as Lawson Hill, Telluride Ski Ranches, Trout Lake, Ames, San Juan Vista, The Bluffs, Placerville, Wilson Mesa, Ilium Valley, Brown Ranch, Aldasoro Ranches, Miramonte Ranches and Egnar. Many of these communities are situated next to Wilderness Areas, Forest Service and BLM lands. The entire County population as of the 2010 Census was 7359 persons, with just under 3000 living in unincorporated areas. The State Demography Office estimates the 2016 population to be 8000.

Additionally, the County is a tourist destination and has an estimated peak season population of up to 15,000. Population increases are most likely to occur during the three months of the summer tourism season, four months of hunting season and the five months of the ski season.

San Miguel County also hosts many events which bring thousands of visitors to the Town of Telluride and the Mountain Village. Large festival events such as the Film Festival, Bluegrass Festival, Ride Festival, Mountain Film and Blues and Brews; ski meets, races and events, the San Miguel Basin Fair and Rodeo

and Telluride's 4th of July parade and fireworks display are population surge events. Across the county, various bike races and runs are also held throughout the summer. These are just a few of the many other activities and events that attract people to the area.

GEOGRAPHY AND CLIMATE

San Miguel County has over 800 miles of maintained state highways and county roads, not including many more miles of trails and bike paths. The county has over 700 miles of waterways and has combined water storage capacity of approximately 21,421 acre-feet in reservoirs, dams and lakes. The San Miguel and the Dolores Rivers are the major rivers in the County, into which numerous creeks, streams and ditches empty.

San Miguel's water supply varies from reservoir storage to wells. The Town of Telluride is supplied by the Stillwell and Mill Creek water treatment facilities. The Mountain Village water supply is provided by wells. Some of the remote subdivisions are served by independent wells and others by central systems supplied by wells or reservoirs. Sewage for both Telluride and Mountain Village is processed by the Telluride Regional Wastewater Treatment facility at Society Turn. The Town of Norwood's water is supplied by Gurley Reservoir and Lone Cone Mountain, known locally as 'The Lone Cone.' Sewage from the town of Norwood is processed by the town's sewer treatment plant.

Of the 1,287 square miles of land within San Miguel County, about 64% are public lands and are controlled by agencies like the US Forest Service, Bureau of Land Management, Bureau of Reclamation, Colorado State Land Board or Division of Wildlife. This percentage is based on GIS land use data layers.

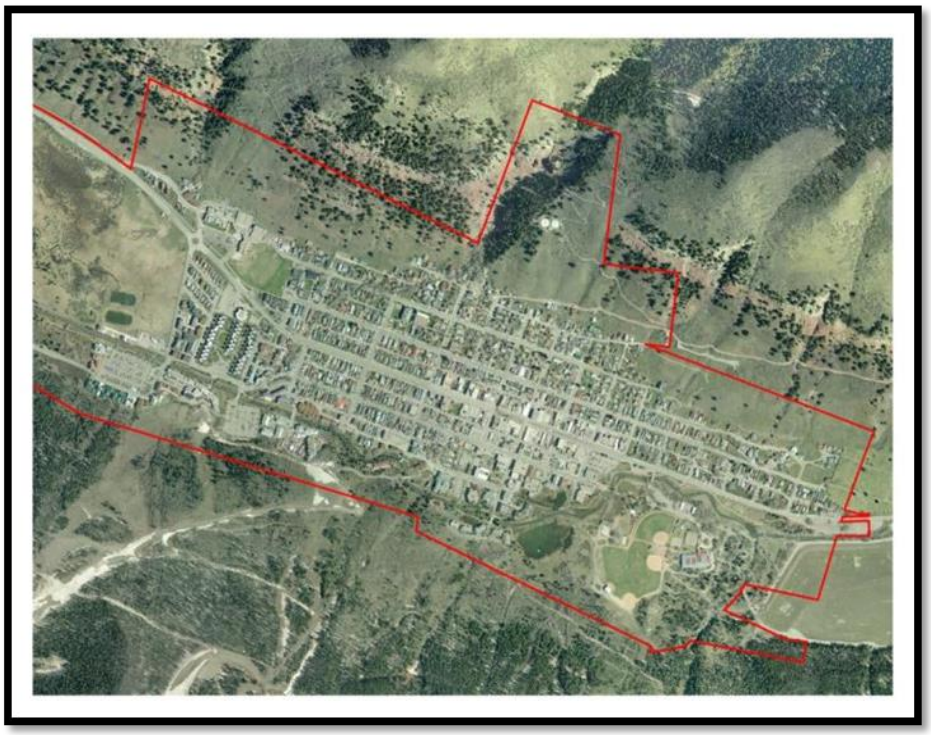
San Miguel County attracts outdoor enthusiasts of all types. Summer heat is moderated by higher elevations and proximity to mountain ranges which allow for seasonal monsoonal weather patterns. Winter brings snow which tempts skiers, snowmobilers and winter sport participants. Besides permanent residents, there are many seasonal homes within the County which are occupied only part of the year. Many homes are built close to amenities and major transportation routes, while others are in extremely remote locations, often near wilderness, Forest Service or BLM lands.

San Miguel County's growing season is relatively short, making the climate not conducive for growing produce outdoors; however, the area does produce a hay crop which relies heavily on water availability from snowpack spring run-off. There are still many large ranches in the County and hay is grown for the purpose of feeding the local livestock.

INCORPORATED AREAS

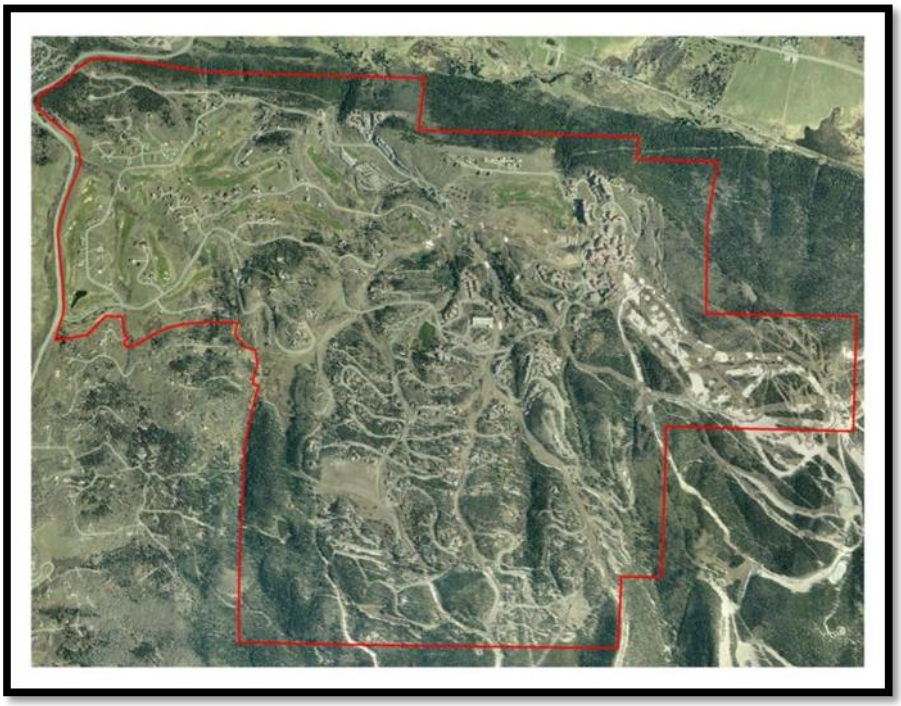
TELLURIDE

The Town of Telluride is the County seat for San Miguel County and is located at the beginning of the San Miguel River. The Town is comprised of roughly fifty square blocks and according to 2009 census information the town is estimated to have 2400 residents. Telluride Elementary, Intermediate School and High School have students from the entire county, although private education opportunities do exist. The three-mile entrance spur of Highway 145 becomes Colorado Avenue, the main street of the commercial core. The town of Telluride is rich in historically significant architecture, open space, and traditional design elements. Tourism brought by historical significance and summer/ winter recreation opportunities drives the economy in Telluride.



MOUNTAIN VILLAGE

The Town of Mountain Village is located just over the mountain from the Town of Telluride and serves as the main resort area for the Telluride Ski Area. The Town of Mountain Village in association with the homeowners association operate and manage the Gondola, which serves as free transportation between Telluride and Mtn. Village. Many homes in Mountain Village serve as vacation or second homes. The 2009 Census estimated that the population in Mtn. Village was approximately 1389 people. The Ski Resort, mountain lodges and hotels are significant contributors to Mountain Village's economy.



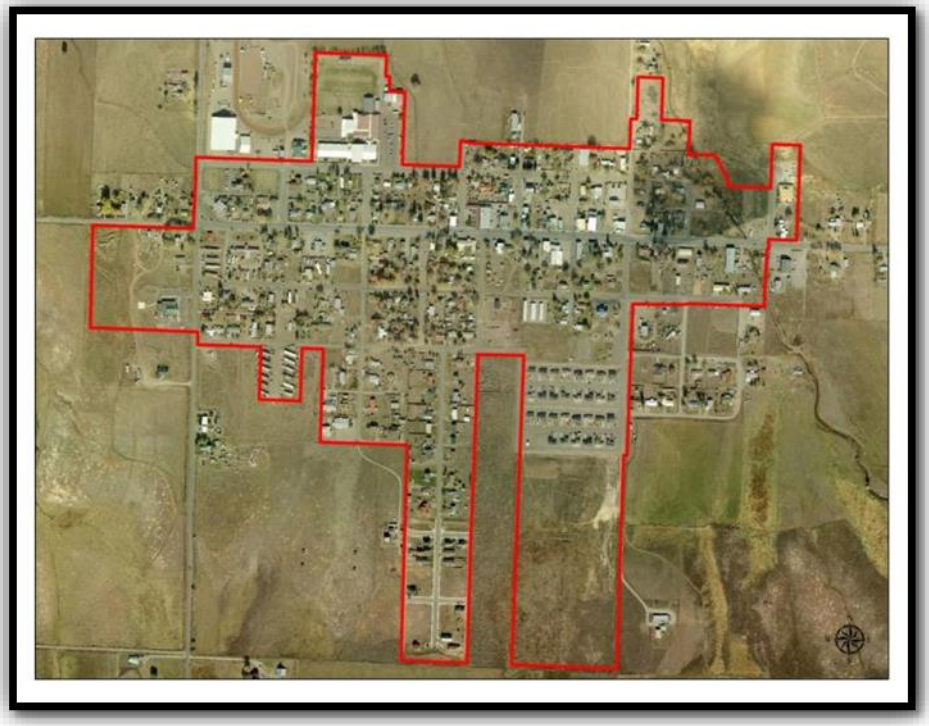
OPHIR

The town of Ophir is a small high mountain community within the Telluride Fire Protection District that offers residents a secluded lifestyle. The road that leads to Ophir off Hwy 145 is often closed in the winter due to avalanches that block access and occasionally knock out power lines. Ophir's population was estimated to be 128 by 2009 Census information. Most Ophir residents commute to the towns of Telluride and Mountain Village to work and purchase commodities.

NORWOOD

The Town of Norwood is located above the San Miguel River Canyon on Wright's Mesa. Norwood's main industries are ranching and tourism. Norwood is a statutory town and has an elected mayor and a board of trustees composed of the mayor and four or six additional members elected at large.

Norwood is the home of the County's Fair Grounds, which hosts a major Fair and Rodeo every July. The Norwood School District (K-12) has 238 students and is comprised of students from Wright's Mesa and the West End of neighboring Montrose County. It is also home to the Prime Time Early Learning Center which offers daytime care for infants, toddlers and preschool aged children. The 2011 Census estimated that Norwood's population was 524 people.



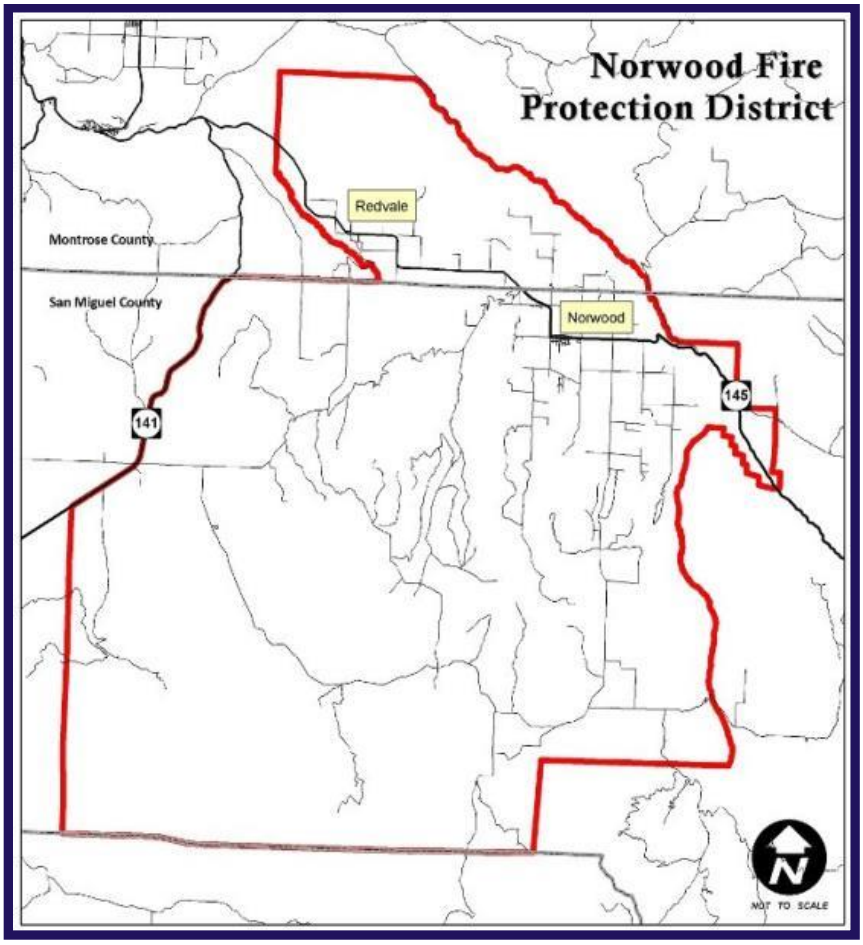
SAWPIT

Sawpit is located on the San Miguel River just a few miles downstream from the Town of Telluride. Residents rely on the Towns of Telluride, Mountain Village and other surrounding communities for job opportunities. There is a small general store and gas station located just off of HWY 145. The 2010 Census estimated that 23 people permanently reside in the town of Sawpit.

FIRE PROTECTION DISTRICTS

NORWOOD FIRE PROTECTION DISTRICT

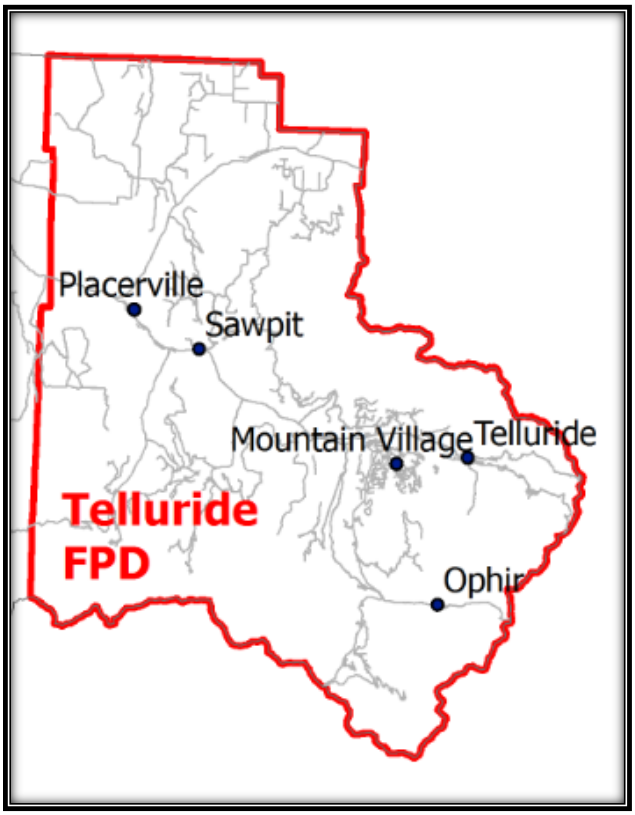
The Norwood Fire Protection District was established in 1953 and originally consisted of 70 square miles around the towns of Norwood and Redvale. In 2008 the district was expanded to an area of just under 400 square miles. The district serves a population of approximately 2,500 in south central Montrose County and central San Miguel County. A five member elected board of directors oversees the operation and budgets for the Norwood ambulance and Norwood fire rescue. There are two full time paramedics on staff as of 2017 who serve as the District Chief and EMS Chief.



TELLURIDE FIRE PROTECTION DISTRICT

Established in 1966, the Telluride Fire Protection District (TFPD) covers 350 square miles of mountainous terrain, encompassing the historic town of Telluride, the Town of Mountain Village, multiple bedroom communities and the Telluride Ski Resort. Volunteer firefighters have been serving the community since 1878 when gold mining was the primary choice of occupation. Since the formation of TFPD, the Telluride Volunteer Fire Department, Telluride EMT Association and the Placerville Volunteer Fire Department have joined the District.

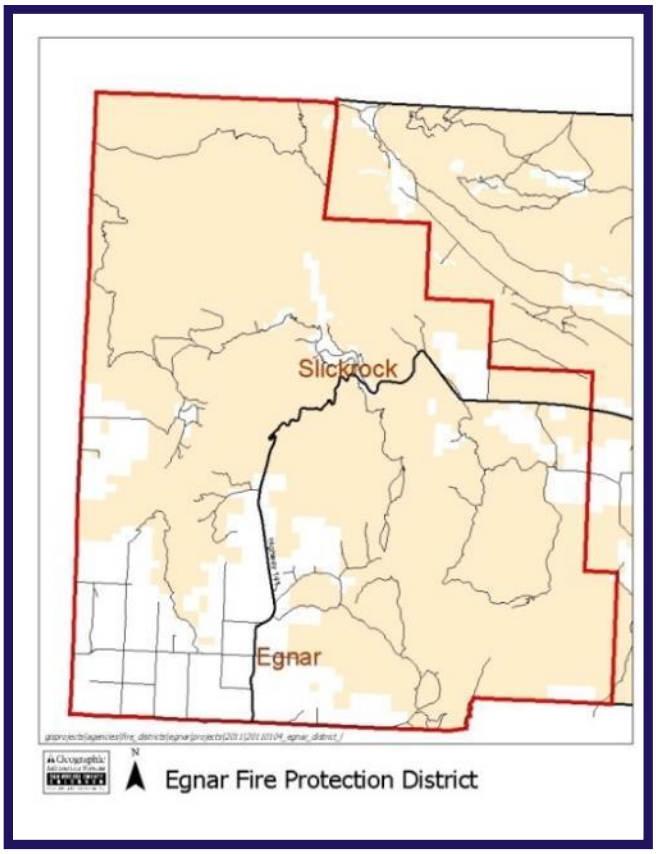
With the highly trained Fire and EMS personnel, the District continues to serve this community and its ever growing needs. TFPD now has a well-staffed fire department and EMS organization with a combination of eight career and over 100 volunteer members who deliver fire suppression service (both structural and wildland), advanced life support emergency medical services, rescue services, fire/accident/injury education and prevention services and hazardous materials incident mitigation services.



EGNAR/SLICK ROCK FIRE PROTECTION DISTRICT

The Egnar-Slickrock Volunteer Fire Protection District (EFPD) was formed in the late 1970s to serve the west end of San Miguel County adjacent to Dolores County to the south and the Utah state line to the west. Once a thriving little town serving the uranium and copper mines of Slickrock and Disappointment Valley, as well as the Dolores River corridor, Egnar now is a quiet agricultural community dispersed across 350 square miles of remote farmland, high desert valleys and canyon country.

Portions of EFPD district can only be accessed from Utah. The main fire station is located in Egnar. Medical services are provided by the Dove Creek Ambulance service which is based in Dove Creek, Colorado in Dolores County to the south.



THE PLANNING PROCESS

Hazard mitigation is defined by FEMA as any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event. It was once thought that each dollar spent on mitigation saves society an average of $4 in avoided future losses in addition to saving lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2005). Recently, information released from a study commissioned by FEMA puts that number now to $5 in avoided future losses. (Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities).

The rising costs of natural and human-caused disasters at the end of the 20th century led many leaders to consider how to better protect people and their communities. Congress passed the Disaster Mitigation Act of 2000 to establish a unified national hazard mitigation program. The Disaster Mitigation Act amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act), which in turn had amended the Disaster Relief Act of 1974. The Disaster Mitigation Act placed new emphasis on hazard mitigation planning in state and local units of government, requiring adoption of mitigation plans as a prerequisite for certain assistance programs.

A multi-hazard or “All Hazards” approach to mitigation planning encompasses both natural and human caused hazards. The Colorado Department of Homeland Security and Emergency Management (DHSEM) and FEMA have a goal for all communities within the state of Colorado to establish local hazard mitigation plans as a means to reduce and mitigate future losses from natural or man-made hazard events and update these plans regularly at five year increments.

Several projects captured in the previous plan were completed, are ongoing or deferred. Following is a brief project update, from the goals, objectives and projects identified in the Approved 2011 Plan.

10-STEP PLANNING PROCESS

San Miguel County used FEMA's Local Multi-Hazard Mitigation Planning Guidance and the State and Local Mitigation Planning How-To-Guides, which include Multi-Jurisdictional Mitigation Planning. The process used by San Miguel County meets the funding eligibility requirements of the Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, Community Rating System, and Flood Mitigation Assistance program.

This plan is structured around an established four phase approach; organize resources, assess risks, develop the mitigation plan, and implement the plan and monitor progress; however, as in the previous version a more detailed 10-step planning process was used to accommodate FEMA's Community Rating System and Flood Mitigation Assistance programs.

Therefore, the more detailed process meets the requirements of six major programs: FEMA's Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, CRS, Flood Mitigation Assistance Program, Severe Repetitive Loss program, and new flood control projects authorized by the U.S. Army Corps of Engineers (USACE).

PHASE 1 ORGANIZE RESOURCES

Step 1: Organize The Planning Effort	201.6(c)(1)
Step 2: Public Involvement	201.6(b)(1)
Step 3: Departments And Agencies Coordination	201.6(b)(2) and (3)

PHASE 2 ASSESS RISK

Step 4: Identify The Hazards	201.6(c)(2)(i)
Step 5: Assess The Risks	201.6(c)(2)(ii)

PHASE 3 DEVELOP THE MITIGATION PLAN

Step 6: Set Goals	201.6(c)(3)(i)
Step 7: Review Possible Activities	201.6(c)(3)(ii)
Step 8: Draft and Action Plan	201.6(c)(3)(iii)

PHASE 4 IMPLEMENT THE PLAN AND MONITOR PROGRESS

Step 9: Adopt The Plan	201.6(c)(5)
Step 10: Implement, Evaluate, And Revise The Plan	201.6(c)(4)

PHASE 1 ORGANIZE RESOURCES

STEP 1 ORGANIZE THE PLANNING EFFORT

44 CFR Requirement 201.6(c) (1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

44 CFR Requirement §201.6(a)(3): Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.

This plan is an update to the 2011 Hazard Mitigation Plan. All sections of the plan were analyzed and revised where appropriate as part of the update process. Additions were made where appropriate.

The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the multi-jurisdictional hazard mitigation plan. Each jurisdiction that chose to participate in the planning process and development of the plan was required to meet minimum plan participation requirements of attending at least one planning meeting. In addition, each jurisdiction committed to participate in the plan update and provided a Letter of Intent to reflect this. Each jurisdiction's letter can be found in the supporting document's section.

The county planning effort began with an initial kickoff meeting August 25, 2015. The San Miguel County Sheriff's Office Emergency Management Coordinator emailed letters to county, town, district, state and federal stakeholder representatives inviting them to participate in the process. The correspondence and mailing list can be found in supporting documents.

The final meeting occurred October 17, 2017. The plan development took longer than expected, due to the nature of the part-time emergency management staffing within San Miguel County Sheriff's Office. During the planning process, a new full-time Emergency Manager was hired (this was a completed Mitigation Action). The Emergency Management Coordinator worked closely with Mitigation Specialists within the Division of Homeland Security and Emergency Management to keep the plan relevant and on track.

Planning Team

An initial planning team was created that includes representatives from each participating jurisdiction, departments of the County, and other local, state, and federal agencies responsible for making decisions in the plan. The following agency representatives participated in the planning process as needed:

Agency	Representative
San Miguel County Sheriff's Office	Jennifer Dinsmore, EM Coordinator; Henry Mitchell, Emergency Manager
San Miguel County	Heather Widlund, GIS; Lynn Black, County Administrator; Steven Zwick, County Attorney; Karen Henderson, Planning; Mitch Markiewitz, County Building Inspector; Sara McKee, Dept. of Health EPR Coordinator; Ryan Righetti, Superintendent; Janet Kask, Open Space Director; Lynn Padgett, Gov't Affairs and Natural Resources.
Telluride Fire Protection District	John Bennett, District Chief; Gary Freedman, HazMat Team Lead
Norwood Fire Protection District	Joe Conway, Chief
Egnar Fire Protection District (stakeholder)	Connie Sprague, District Administrator, Melony Hemphill, Volunteer
Town of Telluride	James Kolar, Chief Marshal; Michelle Haynes, Planning Director; Karen Gugliemone, Public Works
Town of Mountain Village	Chris Broady, Chief of Police, Finn Kjome, Public Works Director
Town of Norwood	Patty Grafmeyer, Administrator
Town of Sawpit (stakeholder)	Mike Kimball, Mayor
Town of Ophir	Randy Barnes, Administrator
West Region Wildfire Council	Lilia Falk, Director
National Weather Service	Jim Pringle
Uncompaghre Medical Center	Amanda Pierce, Risk Management

Telluride Medical Center	John Garner, Executive Director
Telluride Historical Museum	Kiernan Lannon
Lone Cone Library District	Carrie Andrew
USFS	Corey Robinson

Emergency Management staff within the Sheriff's Office serve as planning coordination for the update of this plan. The Emergency Management Coordinator and Emergency Manager (hired in May of 2017) worked to accomplish the following:

- Oversee, manage, and document completion of all project tasks
- Serve as lead coordinating agency
- Assist with collection of documents, GIS data and other information
- Coordinate logistics for all project meetings
- Hosting and managing project collaboration and sharing
- Responding to general inquiries from the public, stakeholders, etc.
- Coordinating with all participating jurisdictions

Key representatives at this meeting agreed to act as members of the Hazard Mitigation Planning Team (HMPT). Established Team members participated in the entire process, which included the following:

- Participate in HMPC meetings
- Collect data, make decisions on plan process and content
- Develop and Update plan content for their jurisdiction
- Complete and return all required worksheets
- Identify mitigation actions for the plan
- Review and comment on plan drafts
- Inform the public, local officials and other interested parties about the planning process and provide opportunity for them to comment on the plan
- Facilitate formal adoption of the Hazard Mitigation Plan in their jurisdiction

Meetings were held with the Hazard Mitigation Planning Team to gather data, develop and update mitigation actions and review the draft plan. The agendas, sign in sheets, and sample worksheets used to collect data are included in the supporting documents section.

The following table details the meeting schedule how jurisdictions participated in Hazard Mitigation Planning Team Meetings.

Meeting	Topic	Date
Kickoff Meeting	Introduction of planning process and discussion of hazards	August 25, 2015
HMPT #2	Review of goals & objectives; review of risk assessment and hazards; review/update capability assessments	September 21, 2015
HMPT #3	Mitigation Actions; finalize capability assessments; develop mitigation actions	December 14, 2015
HMPT #4	Review and prioritization of mitigation actions; discussion of plan maintenance; review of updated plan and final planning	October 17, 2017

The following table details how jurisdictions participated in the Hazard Mitigation Planning Team Meetings. Those jurisdictions not present at meetings the EM Coordinator met with one on one to complete necessary documents and information gathering.

Meeting Date ➔ Jurisdiction 🡻	August 25, 2015	September 21, 2015	December 14, 2015	October 17, 2017
San Miguel County	✓	✓	✓	✓
Town of Mountain Village	✓	✓	✓	✓
Town of Norwood	✓	✓	✓	✓
Town of Ophir	✓	✓	✓	✓
Town of Telluride	✓	✓	✓	✓
Norwood/Redvale FPD	✓		✓	✓
Telluride FPD	✓	✓	✓	✓

The planning team was given several worksheets to begin the data collection process. A brief summary of each is listed below and were developed from the Mesa County Hazard Mitigation Plan.

1. Worksheet #1 is the Historical Hazard Event Data Collection Sheet which is used to gather historical events that have occurred in the county.
2. Worksheet #2 is the Vulnerability worksheet used to determine the vulnerable populations, buildings, critical facilities, and infrastructure for each hazard that affects our jurisdiction. For this specific exercise, the planning team made the decision to focus on the top three hazards affecting our county which include wildfires, extreme winter weather, and debris flow.
3. Worksheet #3 is the Capabilities Matrix which is filled out by each participating jurisdiction identifying various capabilities that exist with each entity that are not represented in the current plan.
4. Worksheet #4 is the actual Mitigation Project Worksheet and was used to develop mitigation projects identified during the planning process and provide additional details about the project.

STEP 2 PUBLIC INVOLVEMENT

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

The Planning Team discussed options for involving the public during the development of this plan and it was decided to use the County's new website as a forum for collaborating between partners as well as for the public to view and comment on the planning process, comment on drafts and see the final product. The website can be used for public participation in as we continue to go through the maintenance process. Other ideas for public outreach include:

- Create public interest through the use of social media and the maintenance of a project website
- Solicit citizen input and engage targeted stakeholders in the plan update process
- Educate community on identified hazards, and potential mitigation and climate adaptation strategies
- Create web 'dashboard' for the public and planning partners to access throughout the process.
- Post hard copies at the Lone Cone Library and Wilkinson Library

In addition, the All Hazard Planning Group was asked to review the draft plan both prior to and during the public involvement stage and report back comments to the Emergency Management Coordinator

(EM Coordinator). Several comments were received from various parties. Those comments were evaluated for content and were either noted and/or included in the final version of this plan.

STEP 3 DEPARTMENTS AND AGENCIES COORDINATION

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interested to be involved in the planning process. (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Planning Steps 2 and 3 are to include all jurisdictions in the planning process and coordinate with other departments and agencies. All the special districts within the county, as well as all incorporated areas and any other stakeholder that was deemed significant to the planning process, were asked to participate.

San Miguel County and the participating communities also used a variety of comprehensive planning mechanisms, such as land use and general plans, emergency operations plans, and municipal ordinances and building codes as references.

Copies of the draft plan were distributed to emergency managers in the all hazard planning region to include the counties of Ouray, Montrose, Hinsdale, Gunnison and Delta. These counties were invited to provide input and comment on the plan. Additionally, the Colorado Division of Emergency Management Field Manager for the West All Hazard Region was invited to comment and provide input. Federal agencies were invited to be part of the planning process, including the BLM and the USFS.

PHASE 2 ASSESS THE RISK

STEP 4 IDENTIFY THE HAZARDS

During the August kickoff meeting, the Planning Team discussed past events, impacts, and future probability for each of the hazards required by FEMA for consideration in a local hazard mitigation plan. The Planning Team discussed the current rankings as determined by the scores associated with each of the factors, i.e., occurrences, probability of future occurrences, magnitude and severity from the current plan version and how they might be different now. For the most part the team agreed with the previous plan's scoring of high, medium and low hazards with few exceptions. The location, likelihood and severity of the hazards did not change from the previous plan analysis.

STEP 5 ASSESS THE RISKS

After reviewing the hazard profiles for identified hazards in San Miguel County the EM Coordinator collected information from the jurisdictions to confirm the likely impacts of future hazard events in the participating jurisdictions using the vulnerability assessment and capability assessment worksheets.

The vulnerability assessment involved an inventory of assets at risk to natural hazards and in particular wildfires, extreme winter weather, debris flow and drought. These assets included total number and value of structures; critical facilities and infrastructure; natural, historic and cultural assets; and economic assets.

The capability assessment consists of identifying the existing mitigation capabilities of participating jurisdictions. This includes government programs, policies, regulations, ordinances, and plans that mitigate or could be used to mitigate risk to disasters. Participating jurisdictions collected information on their regulatory, personnel, fiscal, and technical capabilities as well as ongoing initiatives related to interagency coordination and public outreach.

PHASE 3 DEVELOP THE MITIGATION PLAN

STEP 6 SET GOALS

The Planning Team representatives identified possible locations and possible mitigation actions that could be integrated into existing planning.

STEP 7 REVIEW POSSIBLE ACTIVITIES

Through the planning process and through solicitation via email and on the Web site, Mitigation Actions were identified and prioritized. As required, each team member identified at least one mitigation action for identified hazards and to address each of the plans goals. Individual jurisdictions are responsible to ensure their project is completed. Completed projects will be reported to the EM Coordinator so that the plan may be updated accordingly.

STEP 8 DRAFT THE PLAN

A draft of the updated plan San Miguel County All Hazard Mitigation Plan was developed by the EM Coordinator and submitted to the Planning Team for review and on the Web site. Team input was received and comments were incorporated. Next, a 'Final Draft' of the plan was made available online for review and comment by the public. At this time, other agencies and interested stakeholders were asked to share their comments on the plan. Any received input was analyzed, evaluated and incorporated into the final draft for submittal to the Colorado Division of Homeland Security and Emergency Management (DHSEM). After review and approval by DHSEM the plan is submitted to FEMA Region VIII for final approval.

PHASE 4 IMPLEMENT THE PLAN AND MONITOR PROGRESS

STEP 9 ADOPT THE PLAN

Once the State of Colorado and the Federal Emergency Management Agency approve the plan it will then be implemented. To implement the plan, the governing bodies of each participating jurisdiction adopted the plan with a formal resolution. Scanned copies of resolutions of adoption are included in the supporting documents section.

STEP 10 IMPLEMENT, EVALUATE AND REVISE THE PLAN

The Planning Team developed and agreed upon the overall strategy for plan implementation and for monitoring and maintaining the plan over time. This strategy is further described in the plan implementation section.

Plan Implementation

San Miguel County and the incorporated jurisdictions and special districts continue to utilize a variety of planning documents and mechanisms to guide growth, development, economic activity and hazard mitigation planning. The County seeks to integrate existing planning efforts and policies to further implement mitigation actions and hazard preparedness and awareness into the communities. The County recognizes that as it continues to expand, hazard identification and mitigation is crucial for ensuring safety to the communities.

This plan seeks to implement goals and work plans from other previously existing County documents and plans and utilize this document (as a reference and guide for reducing property damage, loss of life or injury due to the natural and human caused hazards profiled in this plan. At the September 21st meeting, stakeholders were asked to list pertinent plans from their agency. San Miguel County seeks to implement information from the following documents to assist with the update of this plan.

RISK ASSESSMENT

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

Risk to natural hazards is a combination of hazard, vulnerability, and capability. The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards.

The Planning Team used a variety of sources to identify and profile the hazards in San Miguel County. Where available, GIS data on hazards was obtained and utilized. Previous planning efforts to identify hazards in the County were incorporated into the Hazard Identification process. Additional data from the National Oceanic and Atmospheric Administration (NOAA), the National Climatic Data Center (NCDC), and the State of Colorado Natural Hazard Mitigation Plan were used to revisit and re-evaluate the hazards of significance to the participating communities within the planning area.

FEMA defines risk as "the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage."

The risk assessment process allows a community to better understand their potential risk and associated vulnerability to natural hazards. This information provides the framework for a community to develop and prioritize mitigation action strategies and plans to help reduce both the risk and vulnerability from future hazard events. The risk assessment for this All Hazard Mitigation Plan followed the methodology described in the FEMA publication 386-2 "Understanding Your Risks – Identifying Hazards and Estimating Losses" (FEMA, 2002) and was based on a four-step process:

- Identify hazards
- Profile hazard events
- Inventory assets
- Estimate losses

After hazards are identified and profiled, the County's assets will be inventoried and potential for loss will be estimated. The end of this section will include a detailed profile of the County's existing mitigation capabilities. Existing mitigation capabilities are another component of risk assessment. Here, risk and vulnerability are analyzed in light of what existing mitigation capabilities exist.

Each hazard was profiled in more detail that included the geographical area affected, the specific impact or problem areas, the frequency/likelihood of future occurrence, hazard severity and other hazard specific details secondary. Members of the AHPG were given a worksheet where they were asked to rank each hazard's likelihood of future occurrence and the severity of impact in terms of percentages of the planning area that would be affected. The worksheet included the 2005 risk perception and severity. Subsequently, the Planning Coordinator analyzed the responses from each worksheet and averaged out the answers to come up with each hazard's likelihood of future occurrence and overall risk perception.

HAZARD IDENTIFICATION

Requirement §201.6(c)(2) (i): [The risk assessment shall include a] description of the type…of all natural hazards that can affect the jurisdiction.

The Planning Team reviewed data and discussed the impacts of each of the hazards required by FEMA for consideration, which are listed below, to determine the hazards that continue to threaten the county and its jurisdictions:

- Avalanche
- Coastal Erosion
- Coastal Storm
- Dam/Levee Failure
- Drought
- Earthquake
- Expansive Soils
- Extreme Heat
- Flood
- Hailstorm
- Hurricane
- Land Subsidence
- Landslide
- Severe Winter Storm
- Tornado
- Tsunami
- Volcano
- Wildfire
- Windstorm

The following human caused hazards were also reviewed and discussed:

- Power Outages
- Critical Infrastructure Failure
- Technological Hazards
- Terrorism
- Transportation Accidents
- Hazardous Material Incidents

Some hazards were eliminated as they do not occur in the state or San Miguel County or their impacts were not considered significant in relation to other hazards. The table below captures these hazards and the reasoning for not considering them in this plan.

Hazard	Explanation For Removal From Plan
Coastal Erosion	County is not near coastal area.
Coastal Storm	County is not near coastal area.
Hailstorm	Hailstorms occur, but large-sized damaging hail is rare. Past damage has been negligible.
Hurricane	County is not near coastal area.
Tsunami	County is not near coastal area.
Volcano	The last eruption in the state was 4,000 years ago (Dotsero near Glenwood)

PREVIOUS RISK ASSESSMENT PROCESS

The following process occurred during the initial risk assessment process in the previous plan version but is included in the current plan for reference. In the update to this plan, the only modification made by the planning team to the hazard risk assessment was to move debris flow, landslides and rockfall up from a medium to a high hazard.

After the hazards were identified by the original Planning Group, the next step in the planning process was to determine what impact the identified hazards could potentially have on structures, populations, critical facilities and infrastructure. This section attempts to quantify the perceived risk for the hazards identified in the previous section. The Risk Assessment methodology used the following steps:

The Planning Coordinator and Emergency Management Coordinator created a Risk Perception Worksheet that profiled each hazard identified by the planning group. AHPG participants were asked to fill out the 2010 perceived risk and the impact categories for each hazard in each jurisdiction and for the County as a whole. Each category was given a numerical value and responses were analyzed and averaged.

From the results, each hazard was identified as being high, medium or low risk to the County as a whole and to each of the eight jurisdictions. Risk perception results were also reached by:

1. *Assessing the exposure of people and property in the entire County and by each jurisdiction.*
2. *Obtaining hazard maps, where available.*
3. *Utilizing previous risk assessments where available.*

Summarizing what is at risk to the High and Medium risk hazards using one of the following methods, according to existing data availability:

1. *GIS analysis, where possible*
2. *Interpreting impacts based on hard copy hazard maps*
3. *Estimating losses based on past events-Assessing, where possible, how future development trends may increase or decrease risk*
4. *Likelihood of Occurrence was ranked accordingly: Highly Unlikely: 0, Unlikely: 1, Likely: 2, Highly Likely: 3*
5. *Severity of Impact was also determined for each hazard: Extremely limited: 0, Limited: 1, Critical: 2 and Catastrophic: 3*

Based on these factors the hazard was given a rating based on its 'score' from 0 to 6.

- *Low (0.0-3.0)*
- *Medium (3.1-4.25)*

- *High (4.26-6.0)*

Table 3: The 2010 Risk Perception worksheet with averaged results

Jurisdictional Risk Perception						
Hazard	**SMC**	**Telluride**	**Mtn. Village**	**Ophir**	**Sawpit**	**Norwood**
Wildfire	High 5.53	Med 4.0	High 5.5	Med 3.5	High 5.53	High 6.0
Drought	High 4.73	Med 4.0	High 5.5	Low 3.0	High 4.73	High 6.0
Extreme Winter Weather	High 4.42	Med 4.0	Med 4.0	High 4.5	High 4.42	Med 4.0
Critical Infrastructure Failure	High 4.33	Med 4.0	Med 4.0	Low 2.0	High 4.33	Med 4.0
Severe Weather	Med 3.72	Med 3.8	Med 4.0	Low 3.0	Med 3.72	Low 3.0
Riverine Flooding	Med 3.52	Med 4.0	Low 3.0	Med 4.0	Med 3.52	Low 3.0
Hazardous Materials Spill	Med 3.5	Low 3.0	Med 4.0	Low 2.0	Med 3.5	Low 2.0
Pandemic Flu	Med 3.41	Med 4.0	Med 4.0	Med 3.41	Med 3.41	Med 4.0
Avalanche	Med 3.25	Low 1.0	Low 1.0	High 4.5	Low 0	Low 0
Debris Flow, Landslides and Rockfall	Med 3.25	High 5.0	Low 3.0	Med 4.0	High 4.25	Low 0
Street Flooding	Low 2.81	Med 4.0	Low 1.5	Low 3.0	Low 3.5	Low 3.0
Earthquake	Low 2.65	Low 2.0	Low 3.0	Low 3.0	Low 2.65	Low 1.0
Terrorism	Low 2.53	Low 2.5	Low 2.5	Low 2.0	Low 2.53	Low 0.0
Ice Jam Flooding	Low 2.25	Low 2.0	Low 1.0	Low 0.0	Low 2.25	Low 1.0
West Nile	Low 2.0	Low 0.0	Low 1.0	Low 2.0	Low 2.0	Low 3.0
Plague	Low 2.0	Low 0.0	Low 1.0	Low 2.0	Low 2.0	Low 2.0
Dam Failure	Low 1.8	Low 0.0	Low 1.0	Low 0.0	Low 1.8	Low 1.0
Transportation Accidents	Low 2.8	Low 0.0	Low 1.0	Low 1.0	Low 2.5	Low 1.0

Technological Hazards	Low 2.0	Low 2.0	Low 2.0	Low 1.0	Low 1.0	Low 1.0

Perceived Risk Summary

Based on the results from the AHPG Risk Perception worksheet, the Hazards were grouped into High, Medium and Low Risk categories for the entire County. Each Jurisdiction has specific results that differ from the County results**.** The hazards are not ranked in order within each category:

High Risk

- Wildfire
- Drought
- Debris Flow, Landslides and Rockfall
- Extreme Winter Weather
- Critical Infrastructure Failure

Medium Risk

- Riverine Flooding
- Severe Weather
- Hazardous Material Spill
- Pandemic Flu
- Avalanche

Low Risk

- Street Flooding
- Earthquake
- Terrorism
- Ice Jam Flooding
- West Nile
- Plague
- Dam Failure
- Transportation Accidents
- Technological Hazards

DECLARED DISASTER HISTORY

According to the Town of Telluride Master Plan, revised in 2012, floods and railroad disasters devastated and isolated the community several times in the period before World War I. The table below highlights some of the more recent events that have affected the County that resulted in a disaster declaration.

The County has been declared as part of two Presidential Disaster Declarations, most recently in 2002 for the statewide wildfires (DR-1421-CO) and in 1984 for the Western Slope Floods (DR-719-CO) as one of 15 counties declared. The following table details these and other events. Additional details and history are included in the following hazard profiles.

Table 4 Declared Disaster History

EVENT/ HAZARD	YEAR	DECLARATION TYPE	REMARKS/DESCRIPTION
Flood	1984	Presidential	Included in 1984 Presidential Disaster Declaration with 14 other Western Slope Counties
Drought	2000	USDA	Included in Statewide USDA declaration
Drought	2002	USDA	Included in Statewide USDA declaration
Wildfire	2002	Presidential	Included in Statewide declaration
Drought	2013	USDA	Designated as Primary Affected County and Included with 12 other Colorado Counties

HAZARD PROFILE ANALYSIS

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the …location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Requirement §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. The description shall include an overall summary of each hazard and its impact on the community.

The hazards identified in this section are profiled individually and a summary of the probability of future occurrence and potential magnitude is provided. For the current revision, this section was appraised and updated accordingly by the planning team. Detailed profiles for each of the identified hazards include the following information:

Hazard Description
This section consists of a general description of the hazard and the general community impacts.

Past Occurrence
This section includes information on historic incidents, including impacts and costs, if known.

Geographic Location
This section describes the geographic extent or location of the hazard in the planning area

Frequency/Likelihood of Occurrence
This section includes information on historic incidents, including impacts and costs, if known and the likelihood of future occurrences. Based on historical data, the probably of future occurrence is categorized as follows and given a corresponding score:

- **3 Highly Likely** – Near 100% chance of occurrence next year or happens every year
- **2 Likely** – 10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less
- **1 Unlikely** – 1-10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years
- **0 Highly Unlikely** – Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years

Severity of Impact

This section summarizes the severity of impact or extent of hazard event in terms of deaths, injuries, property damage, and interruption of essential facilities and services. Magnitude and severity is classified in the following manner:

- **Catastrophic** —Multiple deaths; property destroyed and severely damaged; and/or interruption of essential facilities and service for more than 72 hours
- **Critical** —Isolated deaths and/or multiple injuries and illnesses; major or long-term property damage that threatens structural stability; and/or interruption of essential facilities and services for 24-72 hours (2)
- **Limited** —Minor injuries and illnesses; minimal property damage that does not threaten structural stability; and/or interruption of essential facilities and services for less than 24 hours
- **Extremely Limited** — No or few injuries or illnesses; minor quality of life loss; little or no property damage; and/or brief interruption of essential facilities or services.

AVALANCHE

Hazard Description

Avalanche hazards occur mostly in mountainous regions of Colorado above 8,000 feet. The vast majority of avalanches occur during and shortly after winter storms. Avalanches occur when loading of new snow increases stress at a rate faster than strength develops, and the slope fails. While most avalanches are caused by the weight of accumulated snow, other triggers can be caused by human activities (e.g., skier, snowshoe, and snowmobiler). An avalanche is a rapid flow of snow down a sloping surface.

After initiation, avalanches usually accelerate rapidly and grow in mass and volume as they entrain more snow. If the avalanche moves fast enough some of the snow may mix with the air forming a powder snow avalanche, which is a type of gravity current. There are four ingredients of an avalanche: a steep slope, a snow cover, a weak layer in the snow cover and a trigger. About 90% of all avalanches start on slopes of 30-45 degrees; about 98% of all avalanches occur on slopes of 25-50 degrees.

Avalanches release most often on slopes above timberline that face away from prevailing winds (leeward slopes collect snow blowing from the windward sides of ridges.) Avalanches can run, however, on small slopes well below timberline, such as gullies, road cuts, and small openings in the trees. Very dense trees can anchor the snow to steep slopes and prevent avalanches from starting; however, avalanches can release and travel through a moderately dense forest.

Generally, the avalanche season extends from late fall to early spring. The most avalanche-prone months are February, March, and January (in order). Avalanches caused by thaw occur most often in April (*Source: Colorado Avalanche Information Center).*

Figure 1 Bear Creek Avalanche 2003

Factors contributing to avalanche include temperature patterns, precipitation patterns, wind patterns, steep slopes and triggers (i.e. human body weight, snowmobile). The avalanche danger increases with major snowstorms and periods of thaw. The State of Colorado has the most deaths due to avalanches in the United States. Due to the steep mountainous terrain, high elevations, and winter snows in San Miguel County there are avalanches every winter. The San Juan Mountains that form the dramatic scenery in eastern San Miguel County are regarded as one of the most avalanche prone regions in Colorado and ranks high among avalanche prone areas on earth *(Source: Colorado Avalanche Disasters, Jenkins).* San Miguel County is ranked ninth within the top ten counties for avalanche fatalities in Colorado with 10 fatalities between 1950 and 2014.

Past Occurrences

Historical data indicates that the County has had 13 fatalities due to avalanches between 1950 and 2014. Most of the fatalities were caused by triggers from backcountry travelers and recreationists. (Source: Colorado Avalanche Information Center). The 1986-87 winters were a particularly deadly season. According to research of historical data, Ophir has had at least six avalanches (1860, 1885, 1918, 1951, 1958, and 1959) in the past 157 years that have either reached or closely approached the town.

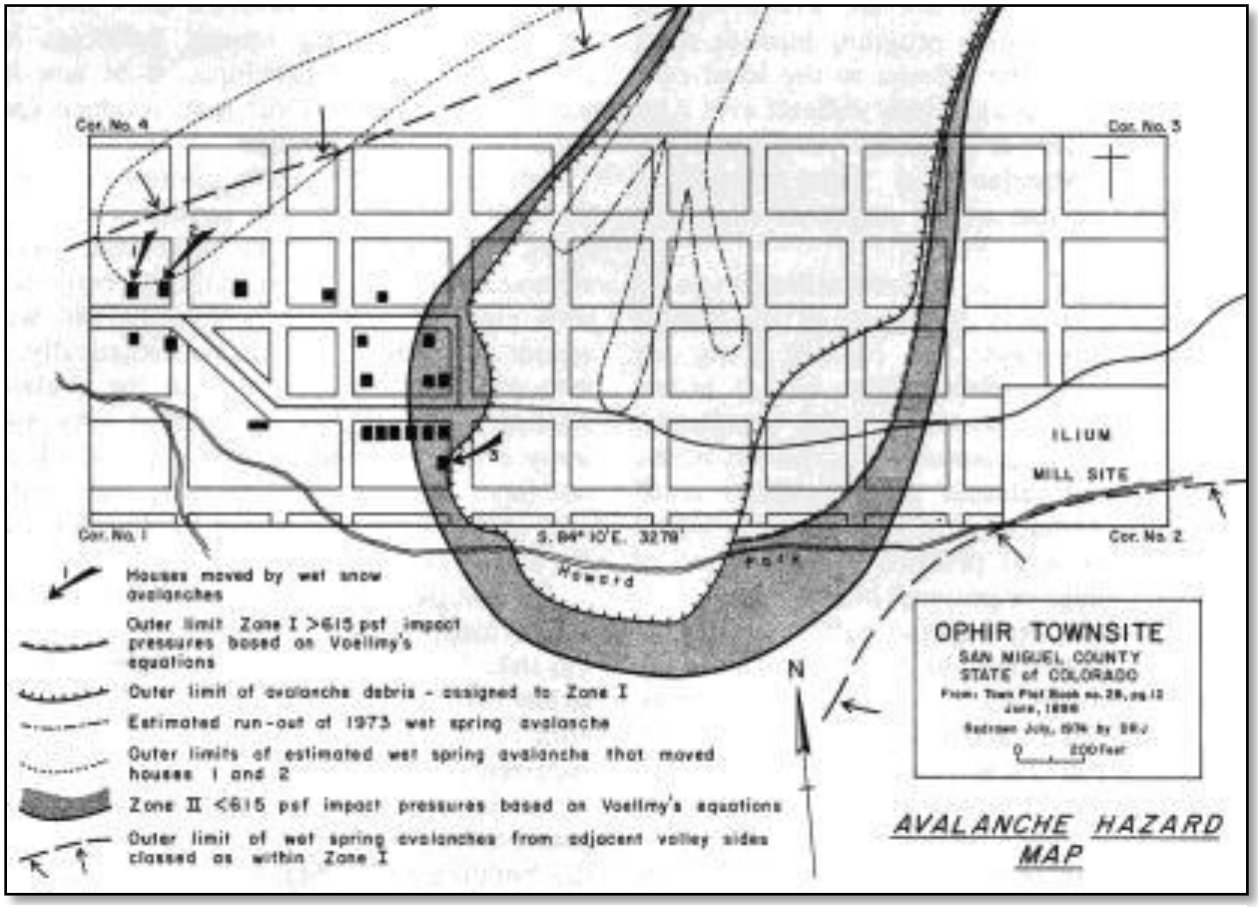


Figure 2 Ophir Avalanche Hazard Map (Source Arthur I. Mears)

San Miguel County Road and Bridge Department performs planned avalanche triggers whenever possible. This is meant to help mitigate against avalanche danger that could cause significant property damage and life loss.

During the spring of 2004 a snowstorm loaded the avalanche prone slopes above and around the Town of Ophir. During the course of a single day more avalanches ran than had been seen by locals in more

than a decade. The avalanches snapped a power line tower, engulfed a horse barn, closed the three-mile access road to town and trapped residents for three days. Highway 145 over Lizard Head Pass was closed for two days. A company that does avalanche hazard consultation used a helicopter and hand-tossed bombs to trigger avalanches on remaining unsafe areas so that County road crews could begin digging out. These spectacular avalanches were captured in the 2004 Film "Out of Ophirica" by Judah Kuper, who witnessed the events as a stranded Ophir local. http://www.mountainphotographer.com/out-of-ophirica/.

Figure 3 2008 Ophir Slide Photos (Courtesy of Road and Bridge Department)

There is much historical evidence that avalanches have consistently wreaked havoc in the mountainous areas of San Miguel County. Specifically, historic mining activity and winter living in the Telluride and Ophir areas were often disrupted by avalanche events. On February 28, 1902 an avalanche struck the Liberty Bell Mine above Telluride, killing 16-19 miners and destroying boarding and bunkhouses *(Source: Colorado Avalanche Disasters, Jenkins).*

Geographic Location

The Town of Ophir and its access road are subject to the threat of avalanche activity seasonally. State Highway 145 from the Ophir turn-off to the edge of the County line on Lizard Head Pass are also impacted

seasonally by avalanche activity or the threat of avalanche occurrence. As State Highway 145 continues into neighboring Dolores County, avalanche danger continues. Avalanches also pose a serious threat to backcountry recreationists, but developed areas and transportation corridors within avalanche run-out zones are at risk as well.

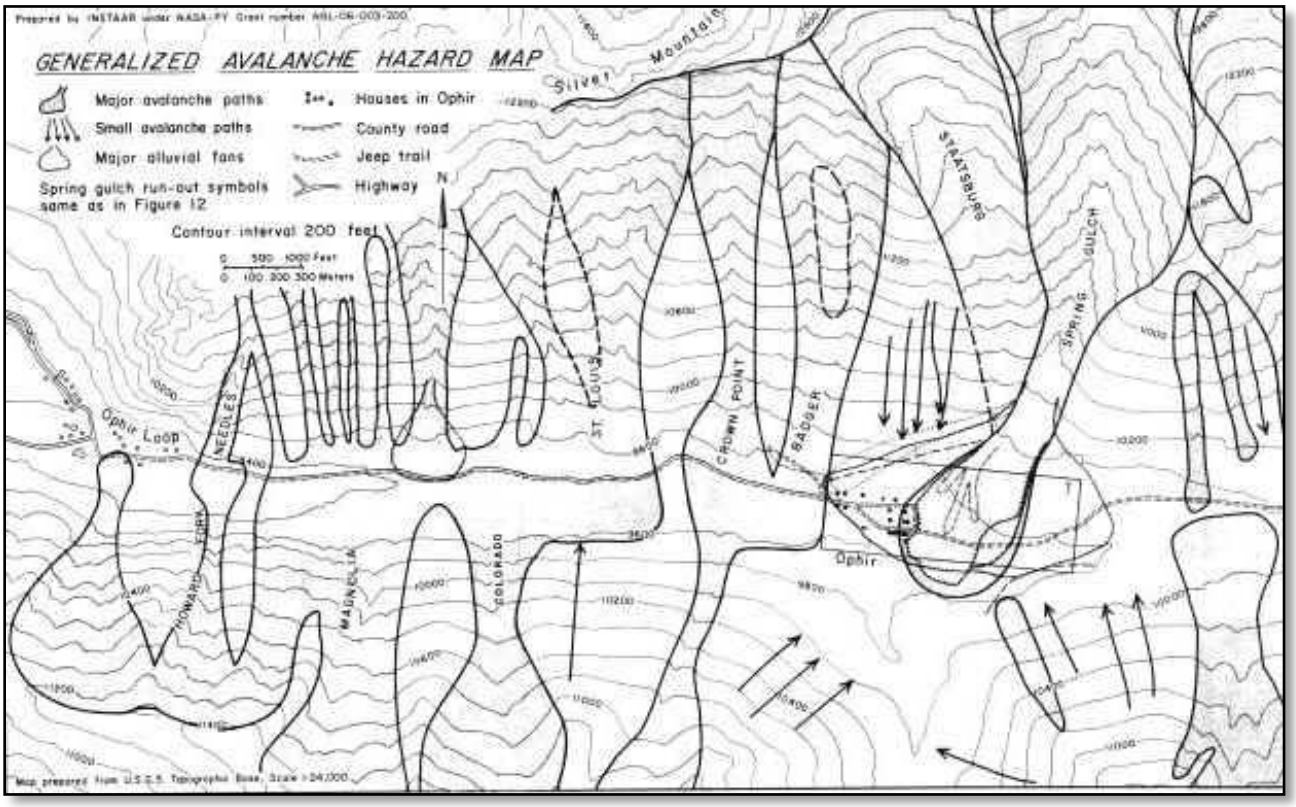


Figure 4: Ophir Slide Path Map (Source Arthur I. Mears)

Frequency/Likelihood of Occurrence

Highly Likely Due to the high frequency of past occurrences, the areas specified above in San Miguel County are Highly Likely to experience avalanche activity in the future. Studies of major avalanches in the Ophir area indicate an average recurrence interval of approximately 20 years or a 5% chance any given year.

Severity of Impact, Severity Ranking – Catastropic

Please add the Severity Ranking here: Catastrophic, Critical, Limited, or Extremely Limited. A road closed due to avalanche activity can result in serious transportation disruptions due to the limited number of

roads and access into and out of County and area communities. Stranded travelers or commuters are often faced with a lack of lodging availability or affordability.

Up until November of 2017, he region's primary source of power was a 92-mile, 115 kilovolt (kV) transmission line operated by Tri-State and San Miguel Power Association (SMPA) that originates at the Hesperus Substation near Durango and traverses over Coal Bank, Molas and Ophir Passes. Not only was it the only line in to the east end of the county, it was vulnerable to avalanche, rockfall and wildfires. Before the Telluride Reliability Project, if the line experienced an outage then loss of power, reduced power or rolling blackouts occurred.

In 2004, avalanche impacts on this line did result in rolling brownouts in Telluride for three days. Brownouts are controlled power reductions in which the utility company decreases the voltage on the power lines, so customers receive weaker electric current. Brownouts can be used if total power demand exceeds the maximum available supply.

DEBRIS FLOWS, LANDSLIDES AND ROCKFALL

Mud and Debris Flows

According to the Colorado Geological Survey, a mudslide is a mass of water and fine-grained earth materials that flows down a stream, ravine, canyon, arroyo or gulch. If more than half of the solids in the mass are larger than sand grains-rocks, stones, boulders—the event is called a mud or debris flow. Due to the geology and steep topography in San Miguel County, mud and debris flows occur in the eastern portion of the County and in the San Miguel River Canyon following heavy rains. Debris and mudflows generally occur during the late summer monsoon season. Many of Colorado's older mountain communities built in major mountain valleys are located on or near debris fans. A debris fan is a conical landform produced by successive mud and debris flow deposits, and the likely spot for a future event.

The mud and debris flow problem can be exacerbated by wildfires that remove vegetation that serves to stabilize soil from erosion. Heavy rains on the denuded landscape can lead to rapid development of destructive mudflows. Nearby La Plata County experienced damaging mudflows in the area burned by the Missionary Ridge fire in 2002. Debris flows and mudslides can occur rapidly with little warning during torrential rains.

Figure 5: Rockfall Zones (*Source: Town of Telluride*)

Landslides

A landslide is a general term for a variety of mass-movement processes that generate a down slope movement of soil and rock. Landslides, for the purposes of this plan, include slumps and mud and debris

flows. Some of the natural causes of ground instability are stream and lakeshore erosion, heavy rainfall, and poor quality natural materials. In addition, many human activities tend to make the earth materials less stable and, thus, increase the chance of ground failure. Human activities contribute to soil instability through grading of steep slopes or overloading them with artificial fill, by extensive irrigation, construction of impermeable surfaces, excessive groundwater withdrawal, and removal of stabilizing vegetation. Landslides typically have a slower onset compared to debris flows and can be predicted to some extent by monitoring soil moisture levels and ground cracking or slumping in areas of previous landslide activity.

Rockfall

Rockfall is the falling of a detached mass of rock from a cliff or down a very steep slope. Weathering and decomposition of geological materials produce conditions to support rockfall. Rockfalls are caused by the loss of support from underneath through erosion or triggered by ice wedging, root growth, or ground shaking. Changes to an area or slope such as cutting and filling activities can also increase the risk of a rockfall. Rocks in a rockfall can be of any dimension, from the size of baseballs to houses. Rockfall occurs most frequently in mountains or other steep areas during the early spring when there is abundant moisture and repeated freezing and thawing. Rockfall events are a serious geological hazard that can threaten human life, impact transportation corridors and communication systems and result in other property damage.

Rockfall hazard areas in San Miguel County usually are marked by the presence of fist to boulder-sized rocks (at least 10 inches in diameter) that accumulate below cliff areas, steep slopes, or talus fields on mountainsides. Spring is typically the landslide/rockfall season in Colorado as snow melts and saturates soils and temperatures enter into freeze/thaw cycles.

Past Occurrences - Landslide

The Town of Telluride lies primarily on the alluvial fan of Cornet Creek, which drains to the San Miguel River. Cornet Creek has been responsible for the majority of Telluride's historic flooding problems. On average, under existing conditions, overbank flows occur along reaches of Cornet Creek one in every two years. Two destructive debris flows occurred on July 27, 1914, and August 1, 1969, and caused deposits of mud and rock with widespread depths of about 2 feet ranging to as much as 6 feet in localized areas (Mears et al., 1974).

In 1914 the debris flow originated from a cloudburst above the Cornet Creek drainage that set previously saturated mud and rock into motion. One life was lost and the damage was estimated at around $250,000 (1914 dollars). The event of 1969 was not as destructive and affected the western edge of town *(Source: Flood Insurance Study, San Miguel County 1978).*

The most recent flood event occurred on the fan on July 23, 2007, blocked culvert and bridge crossings and damaged property on the north side of town. Most of the significant debris flow events have been caused by heavy rainfall following saturation of the soils in the basin, while most of the flood events have been caused by localized, high-intensity summer rainstorms.

In addition to delivering large amounts of debris during flood events, Cornet Creek conveys a significant amount of sediment on an annual basis. In recent years, the bed of the creek has aggraded by up to 3 feet in certain areas over the period of a single year. As a result, the Town's Public Works Department has routinely removed sediment from the channel under permits obtained from the U.S. Army Corps of Engineers (Source: Cornet Creek Drainage Maintenance and Flood Mitigation Study, Colorado).

During the 1984 spring floods landslides destroyed several irrigation ditches in San Miguel and Ouray Counties. During this incident, a large landslide that slid onto Haskell Hill Road (X48 Road) stopped traffic for extended periods. In 1987 a section of the airport runway constructed on Mancos Shale experienced a landslide that deposited onto Highway 145 on the Keystone Hill. During this event, Telluride Gravel was severely impacted.

Nearly all twelve of the flood events listed in the National Climatic Data Center (NCDC) Storm Event database (1996-2004) had serious mudslide and rockfall activity associated with them. These mud and debris flows have been responsible for major disruptions in traffic as well as property damage, according to the NCDC records.

Rains during July 1999 produced numerous small debris flows, rockfalls, and sediment-charged water floods originating in the steep cliffs both between Placerville and Ilium along Hwy 145 and along Leopard Creek along Hwy 62. Water and debris washed across State Highway 62, undercutting the roadbed causing extensive damage.

Mud flows and flooding in 2001 closed Highway CO 145 between Sawpit and top of Keystone Hill for approximately 12 hours due to almost 100 small slides. Once again, heavy rains produced numerous small debris flows, rockfalls and sediment-charged water floods originating in the steep cliffs between Placerville and the top of Keystone Hill along Hwy 145. There were approximately 100 vehicles trapped.

Elk Meadows, west of Lawson Hill, experienced a mudslide in 2009. During this event, (shown in Photo 1) the residences did not experience any damage; however, the area had to be evacuated for a short time. This landslide event was classified as a rotational slump with a classic headwall scarp at the crest and an earthflow/debris flow lobe at the toe, consisting of a massive log jam in a muddy matrix.

The 2010, 2014 and 2016 summer monsoon seasons brought many mud and debris flows across Hwy 145 from Keystone Hill to the bottom of Norwood Hill. The Hwy was closed several times for several hours to allow for debris and mud removal. The San Miguel river canyon also experienced a fire early in

the summer season, which left the ground susceptible for mud and debris flows when summer rains saturated the soil. Closures to the highway lasted from 5-30 minutes.

The cost of CDOT repairs and responses from 2010 to 2017 including benefits, internal/overtime labor, equipment costs, services, materials and expenses amounts to $221,948.74.

Photo 1 2009 Elk Meadows Slide May (Source Buckhorn GeoTech)

Past Occurrences - Rockfall

Rockfall is a common occurrence throughout the county and occurs literally on a daily basis. Significant sized rockfall has occurred near the Sheriff's Office in Ilium Valley, where a large rock is said to have fallen from above and 'bounced where the Sheriff's Office sits now, landing along the San Miguel River to the South (Source: Road and Bridge Department).

A prolonged power outage occurred President's Day weekend (one of the busiest for the Telluride Ski Report) occurred in 2016 due to rockfall. An electric transmission power pole in Ilium Valley was destroyed by a falling rock, and the transmission and distribution lines were broken. Because the damaged lines comprised what engineers call a "radial feed," there was no backup. Therefore, residents and businesses had to wait almost two days while crews from Tri-State and SMPA worked through the night to re-install the power pole, lines and components.

Geographic Location

There are a few major areas in San Miguel County that are considered to be vulnerable to landslide, mud and debris flows and rockfall activity. These areas are listed below:

- Towns of Telluride/Telluride Fire Protection District and Ophir
- Along Colorado Highway 145
- Norwood Hill just east of Norwood
- Keystone Hill below Society Turn
- East of the Ophir Road, Ophir Curves

In addition, the Sawpit, Fall Creek and Placerville community developments have also been effected by debris flows after cloud burst rains and heavy monsoonal patterns. Other areas at the base of steep slopes, near steep mountain drainages or debris fans are at risk. The Town of Telluride is built on the debris fan formed from Cornet Creek. The Town of Telluride's cemetery is located on another debris fan. All cliffs above the North side of the Town of Telluride and most along the only access road to the town are a serious source of rockfall hazard to residents and buildings.

Severity of Impact

Debris Flows, Landslides and Rockfall events happen frequently in San Miguel County. Debris flows and rockfall events have closed roads in the past, becoming an inconvenience for travelers and commuters. The monsoon season occurs late July and/or early August which coincides with higher surge populations during the summer. Historically debris flows have also gone through houses causing property damage.

Likelihood of Future Occurrence

Debris flows and rockfall events are **highly likely** to occur in the future for the areas specified above. Landslides are likely to occur in the areas specified above if the necessary soil moisture content or saturation point is reached.

Severity of Impact

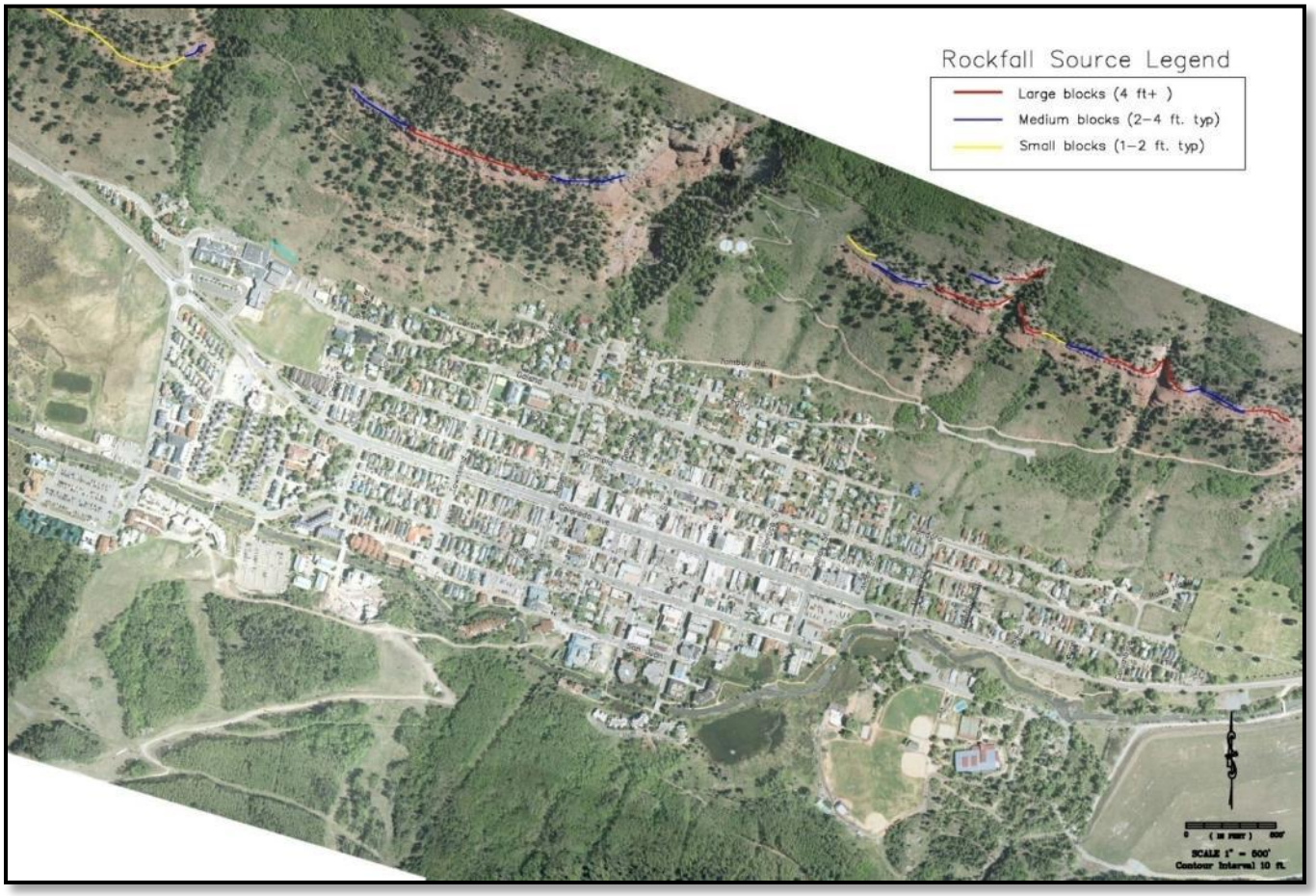


Figure 6: Primary Rockfall zones in Telluride (*Source Town of Telluride)*

DAM FAILURE

Hazard Profile

In San Miguel County, dams help mitigate flooding activity, provide for water storage and supply for agriculture and human use, serve as recreational areas and supply power generation. There are several factors that influence the potential for dam failure and the severity of its impacts. These factors have to do with the amount of water that is held back by the dam, the design and construction of the dam and the amount/type of development that is located below the dam.

There are many potential factors that may cause a dam to fail:

- Heavy prolonged rainfall (can result in overtopping)
- Earthquake (can severely damage the structural integrity of the dam)
- Improper design, structure maintenance or negligent operation
- Secondary impact from the failure of an upstream dam
- Deliberate destruction through criminal or terrorist activity

An enormous amount of water is often released when a dam failure occurs. Loss of life and property, along with catastrophic damage to roads, bridges and other forms of infrastructure could potentially occur.

Dam failure can occur quickly or it can be a result of degradation resulting in small leaks that eventually weaken the structure to the point of failure. However, if dams are inspected regularly then warning signs can be addressed. Dams can fail at any time of the year, but failures due to natural phenomena usually occur during the late winter or early spring when rains combined with rapid snowmelt can cause overtopping events.

Past Occurrences

San Miguel County has experienced dam failure in the past. In September of 1909 a dam above Trout Lake failed, which subsequently caused Trout Lake dam to fail and inundate houses from Ames to Placerville along the South Fork and main stem of the San Miguel River. The train track from Vance Junction to Placerville was washed out. There were no human fatalities, but several animals died *(Source: Conversations at 9000 feet).* According to the local officials, Blue Lake and Alta Lake dams have failed in the past, but specific dates and impacts were not known, but estimates were that it was around the 1960s.

In addition to man-made dams, San Miguel County has many beaver dams that are subject to breaching during high flows. This occurred during the 1984 flood event when a beaver dam breached above Forest Access Road 625, sending water at high velocities down a steep hillside, destroying portions of the road *(Source: 1984 Flooding After Action Report).*

The following dams are rated "high hazard" according to the projected destructive forces and impacts if the dam accidentally failed. The rating does not reflect the structural integrity or maintenance level of the dam. A failure of these dams, however, would inundate areas of San Miguel County and could result in losses of life and property.

DAMS IN SAN MIGUEL COUNTY

Table 5 Dams in San Miguel County

DAM	STREAM or RIVER	STORAGE CAPACITY (ACRE-FEET)	AFFECTED JURISDICTION	OWNER
Trout Lake Dam	San Miguel River, Lake Fork	2,572	San Miguel County & Sawpit	Public Service Company
Miramonte Reservoir	West Naturita Creek San Miguel River	6,857	Norwood, San Miguel County Wrights Mesa	Colorado Div. of Wildlife
Gurley Reservoir	Gurley Canyon San Miguel River	10,039	San Miguel County	Farmer's Water Developmen t Co.
Lone Cone Reservoir	Goshorn Creek, San Miguel River	1,840	Norwood San Miguel County	Lone Cone Ditch

Geographic Location

Areas most affected areas are the inundation areas downstream from the Trout Lake Dam and the towns of Sawpit and Placerville and, to some extent, the town of Norwood downstream from the Gurley Reservoir. Note: Specific impacts and downstream areas are listed with the *Emergency Preparedness Plan* for each dam on file at the County Sheriff's Office. Due to the sensitive nature of this information it is not replicated in this publicly available plan.

Likelihood of future Occurrence

There are no official recurrence intervals calculated for dam failures. The possibility for future dam failure remains, but the likelihood as a result of natural hazards is extremely low. It is **unlikely** that a dam will fail in San Miguel County. However, acts of terrorism and the chance of other natural phenomenon make it extremely difficult to predict future occurrence intervals for this hazard.

Severity of Impact

If a dam were to fail catastrophically in San Miguel County, the potential for property damage, road damage and road closures exist. The human factor of a catastrophic dam failure would be significant, with the possibility of mass evacuations, loss of life and potential public health impacts as well. The economic impact of a catastrophic dam failure would be incalculable.

DROUGHT

Hazard Description

Droughts are typically long-term hazard events which have impacts that can potentially last for long periods of time. Unlike most hazard events which typically have quick on-sets, a response and recovery phase, it is difficult to place a start and end date to a drought period.

Drought occurs when the normal amount of moisture is not available to satisfy and area's usual water consumption trends. Drought is a condition of climatic dryness, which is severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems. Lack of annual precipitation and poor water conservation practices could result in drought conditions. A number of secondary hazards are associated with drought. This will result in an increased fire danger in urban natural areas and the wildland/urban interface as well as wildland/open space areas. This also increases the risk to public safety personnel as they respond to these incidents. The reduction in vegetation cover will expose soil to wind and erosion. The quality of rivers and lake water will change and sediment transport regimes of streams will be altered. Deterioration in water quality is the result. The onset of drought is typically very slow and can take years before the consequences are realized. Droughts can be a short-term event over several months or a long-term event that lasts for years or even decades.

FEMA has four categories of drought:

- Meteorological drought: is defined solely on the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- Hydrological drought: is related to the effects of precipitation shortfalls on stream flows and reservoir, lake and groundwater levels.

- Agricultural drought: is defined principally in terms of soil moisture deficiencies relative to water demand of plant life, usually crops.
- Socioeconomic drought: associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of a weather related supply shortfall.

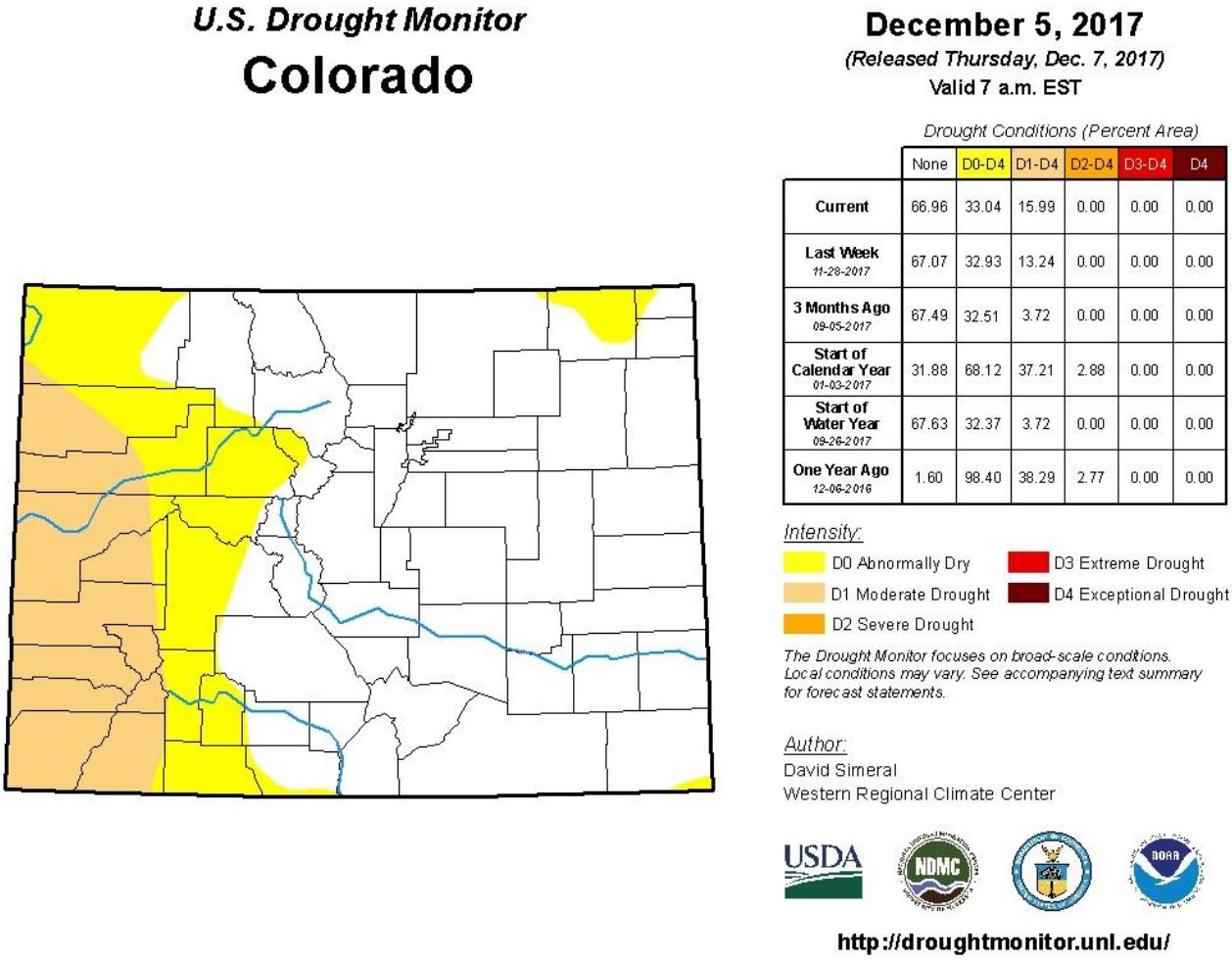
The onset of drought in western mountainous counties such as ours is usually signaled by a lack of significant winter snowfall. The County receives the majority of its precipitation as snow in the higher elevations during the months of November-April. Hot and dry conditions that persist into spring, summer and fall can aggravate drought conditions, making the effects of drought more pronounced as water demands increase during the growing season and summer months.

The AHPG also discussed the impact that a 'winter drought' would have on the County, specifically the towns of Telluride and Mountain Village. The amount of precipitation in the winter time determines the snowpack and therefore the spring runoff. The AHPG wanted to bring specific attention to winter drought for the economic impact that it would potentially have on the ski towns and the County overall. If a winter drought were to occur, revenue from winter tourism would decline significantly having an economic impact on local industries etc. The magnitude of the drought's impact will be directly related to the severity and length of the drought. Secondary effects include increased susceptibility to wildfires and pine beetle infestations. This particular hazard affects the entire geographic area included in this plan.

FEMA explains that there is not a "precise and universally accepted definition [which] adds to the confusion about whether a drought exists, and if it does the degree of severity." FEMA also explains that "drought impacts are less obvious and are spread over a larger geographic area." Because Colorado has a semi-arid climate, drought will occur in the future.

Past Occurrences:

San Miguel County and Colorado has been in a multi-year drought that began in 1997 and continued into 2004. The winter of 2005 brought plentiful snow that helped to alleviate drought conditions. San Miguel County has not been considered to be in a drought since the 2005 plan.



	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	66.96	33.04	15.99	0.00	0.00	0.00
Last Week 11-28-2017	67.07	32.93	13.24	0.00	0.00	0.00
3 Months Ago 09-05-2017	67.49	32.51	3.72	0.00	0.00	0.00
Start of Calendar Year 01-03-2017	31.88	68.12	37.21	2.88	0.00	0.00
Start of Water Year 09-26-2017	67.63	32.37	3.72	0.00	0.00	0.00
One Year Ago 12-06-2016	1.60	98.40	38.29	2.77	0.00	0.00

Figure 7: US Drought Monitor

Source: Http://drought.unl.edu/dm

Colorado has experienced other droughts in 1996, 1994, 1990, 1989, 1979-1975, 1965-1963, 1957-1951, 1941-1931, and 1905-1893 *(Source: Colorado Drought Mitigation and Response Plan, 2001).* Although drought conditions can vary across the state, it is likely that San Miguel County suffered during these dry periods.

Geographic Location

The entire County is at risk to drought conditions including the populated areas of local communities and San Miguel County (domestic needs) and widespread areas of the County (agricultural needs). The impacts will vary throughout the County, but a severe drought will affect the entire economy, particularly the skiing and tourism industry in the eastern County and the agricultural industry in the West End.

Likelihood of Future Occurrence

Because of San Miguel County's geographic location, climate type and historical records, it is **highly likely** that the County will experience drought conditions in the future. The United States Department of Agriculture (USDA) issued a disaster designation to San Miguel County in late 2014. Assistance to local farmers was offered by the Small Business Association (SBA). SBA eligibility covers both the economic impacts on businesses dependent on farmers and ranchers that have suffered agricultural production losses caused by the disaster and businesses directly impacted by the disaster.

Severity of impact

Colorado is divided into seven water divisions by major river basins. They are the South Platte, Arkansas, Rio Grande, Gunnison-Uncompahgre, Colorado Mainstem, Yampa-White and San Miguel-Dolores-San Juan. Each division has its unique precipitation patterns and seasonality. Some divisions' wet seasons might be another division's dry season. Even within a water division, precipitation varies greatly by elevation. Due to such climate diversity, it is not common that drought would spread over the entire state.

Drought is one of the few hazards that has the potential to directly or indirectly impact each and every person within San Miguel County, as well as adversely affect the local economy. The impacts have the potential to result in mandatory water restrictions associated with domestic supplies, agricultural losses and economic impacts associated with those losses (ski area impact), economic impacts to tourism and recreation industries, increased wildland firefighting costs and increased costs for water.

EARTHQUAKES

Hazard Description

The sudden movement on faults is responsible for large earthquakes. By studying the geologic characteristics of faults, geoscientists can often determine when the fault last moved and estimate the magnitude of the earthquake that produced the last movement. Because the occurrence of earthquakes is relatively infrequent in Colorado and the historical earthquake record is short, accurate estimations of magnitude, timing or location of future dangerous earthquakes in Colorado are difficult to estimate. However, geological research indicates that components (faults) of earthquakes are prevalent in Colorado. The following map indicates that potentially active faults exist in the vicinity of San Miguel County that are capable of producing damaging earthquakes of Magnitude 6.25. Damage and life loss from earthquakes can be devastating to communities, particularly where historic buildings exist that were not designed to withstand seismic forces.

Part of what makes earthquakes so destructive is that they generally occur without warning. The main shock of an earthquake can usually be measured in seconds, and rarely lasts for more than a minute. Aftershocks can occur within the days, weeks, and even months following a major earthquake.

Table 6 Mercalli Intensity Scale

Modified Mercalli Intensity	Description	Richter Magnitude
I	Instrumental: detected only by seismographs	3.5
II	Feeble: noticed only by sensitive people	4.2
III	Slight: like the vibrations due to a passing train; felt by people at rest, especially on upper floors	4.3
IV	Moderate: felt by people while walking; rocking of loose objects, including standing houses	4.8
V	Rather strong: felt generally; most sleepers are awakened and bells ring	4.9-5.4
VI	Strong: trees sway and all suspended objects swing; damage by overturning and falling loose objects	5.5-6.0
VII	Very Strong: General alarm, walls crack and plaster falls	6.1
VIII	Destructive: car drivers seriously disturbed; masonry fissured, chimneys fall, poorly constructed buildings are damaged.	6.2
IX	Ruinous: some houses collapse where ground begins to cracks and pipes break open.	6.9
X	Disastrous: ground cracks badly, many buildings destroyed and railway lines bent, landsides on steep slopes.	7.0-7.3
XI	Very Disastrous: Few buildings remain standing, bridges destroyed, all services (railways, pipes, cables) out of action, great landslides and floods	7.4-8.1

XII	Catastrophic: total destruction, objects thrown into air, ground rises and falls in waves.	8.1

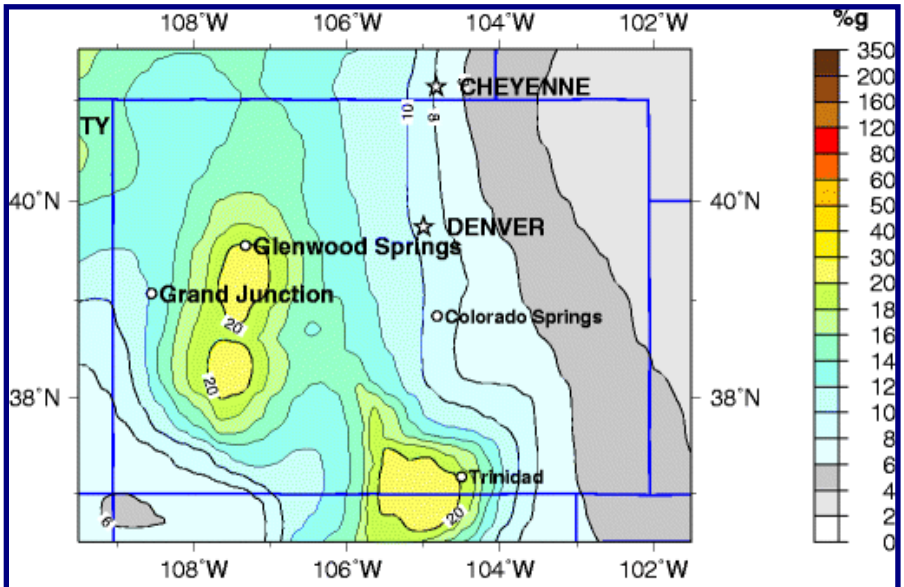
Source: math/sciencenucleus.org

The faults that exist within the County that are suspected to have had movement within the Quaternary age (past 1.6 million years) are the Big Gypsum Valley Graben Faults, the Dolores Fault Zone, and the San Miguel Canyon Faults. The faults that lie in nearby Ouray County are suspected to pose the greatest risk by the Colorado Geological Survey. These faults are the Busted Boiler (Late Quaternary movement within 130,000 years) and the Roubideau faults (movement in the Holocene or past 15,000 years). *Source: Colorado Natural Hazard Mitigation Plan 2004 Earthquake Evaluation Report*

Past Occurrences

Although not as frequent or as large as California, Colorado has experienced earthquakes in its relatively short period of historic record. The following earthquakes have had epicenters in San Miguel County, but it is likely that the County was shaken by earthquakes in neighboring Ouray County as well. A map of Colorado Earthquake Hazards developed by the Colorado Office of Emergency Management in 1999 depicts the location of historic epicenters and potentially active faults. A section of this map is included as well as more information on the quakes shown within the County.

Some recent seismic activity in the western portion of the County has been attributed to human causes from the Colorado River Desalinization project being conducted by the Bureau of Reclamation (BLM). The Bureau is working in the Paradox Valley in neighboring western Montrose County to reduce the

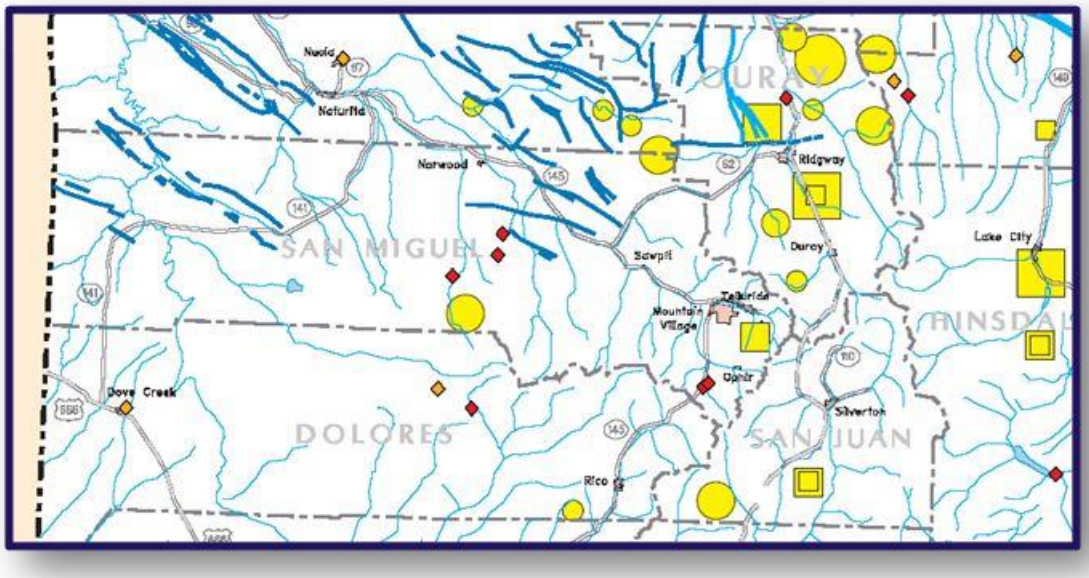


Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
site: NEHRP B-C boundary
National Seismic Hazard Mapping Project (2008)

amount of salt entering the Dolores River. Salty water is being intercepted before it can contaminate the Dolores River and disposed by a combination of evaporation ponds and deep well injection. Since 1995 they generated more than 3,000 minor earthquakes. After a Magnitude 4.3 in May of 2000 was triggered, injections were reduced to every other month. There have been no more earthquakes over M 4.0 since then *(Source: CGS RockTalk Pub Volume 5, No. 2 April 2002).*

Figure 8 Earthquake Acceleration Source: http://earthquake.usgs.gov

EARTHQUAKE HAZARD MAP SHOWING SOUTHWESTERN COLORADO



Map explanation: Circles are epicenters recorded instrumentally 1962-1966. Squares are approximate locations of pre-instrumental earthquakes between 1867-1961 representing strength by Modified Mercalli Intensity. Earthquakes in and nearby San Miguel County are in the Magnitude 3-5.5 range and Intensity V-VI range. Blue lines are faults suspected of movement within the past 1.6 million years (Quaternary). Diamonds represent the location of Class I (red) and Class II (orange) dams

Source: Colorado Earthquake Hazards, a Map of Earthquakes and Related Hazards in Colorado, Colorado Office of Emergency Management, 1999. .

Figure 9: Earthquake Hazard Map

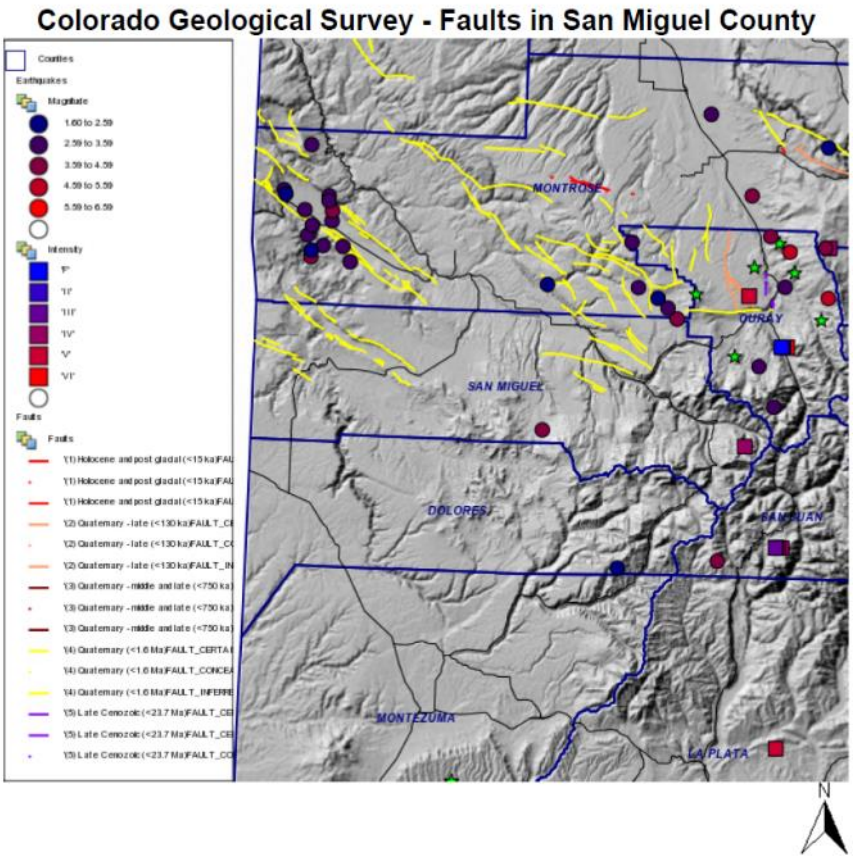


Figure 10 Faults In San Miguel County

Past Quakes within San Miguel County:

- January 1, 1894, Telluride, Intensity IV
- February 3, 1970, South of Norwood
- September 13-15, 1994, Norwood (strongest 4.4 of mul
- November 2006, Sawpit 3.3

Likelihood of Future Occurrence

Minor earthquakes have occurred in the past in San Miguel County. Even though earthquakes do not occur very often in San Miguel County, it is **likely** that an earthquake will occur in the future. It is **unlikely** however, that a large or catastrophic earthquake will occur.

Severity of Impact

Telluride Regional Area: The Town of Telluride, due to the nature of the historic building stock as well as being a population center in the Eastern County, could endure the greatest losses if a significant earthquake were to occur. Mountain Village could also see significant impacts if a larger earthquake were to occur due to the taller buildings (hotels) that make up much of Mountain Village's built

environment. Earthquakes can cause significant damage to structures (primarily taller structures in the Mountain Village, cause landslides and structure fires as well.

EXTREME WINTER WEATHER

Hazard Description

Blizzards, ice storms and extremely cold temperatures can combine to make extreme winter weather events. San Miguel County is high in elevation and is located against the San Juan Mountain range, making it susceptible to such extreme winter hazards. The eastern end of the county, which includes the Telluride Fire Protection District is the most mountainous, is the most at risk for these extremes. Areas such as the Telluride Region, Town of Ophir and Ophir High Country are considered the particular at risk areas. These storms can cause low visibility, treacherous driving conditions, power outages, road closures, collapsed buildings and an increase in avalanche activity.

Improved weather forecasting has enabled many extreme weather events to be predicted hours or days in advance. Large storms have the capability of dumping large amounts of snow in a short period of time depending on the amount of moisture the storm is carrying. Temperatures can fluctuate, rapidly dropping to well below freezing.

Photo 2: Norwood Fire Department responds to a transportation accident

Source: www.norwoodfiredistrict.org

Past Occurrences

The SHELDUS database listed the following extreme winter storms since 1985:

Table 7: Extreme winter weather

Begin Date	Hazard Type	State	Injuries	Fatalities	Property Damage*	Crop Damage*
2/1/1989	Winter Weather	CO	0.32	0.00	$79365.10	$79365.10
2/8/1995	Winter Weather	CO	0.00	0.00	$40697.67	0.00
12/8/1998	Winter Weather	CO	0.00	0.00	$15000.00	0.00
12/1/2008	Winter Weather	CO	0.00	0.00	3000.00	0.00
1/10/1993	Winter Weather	CO	0.00	0.00	2777.78	0.00
11/30/2007	Winter Weather	CO	0.00	0.00	1428.57	0.00
12/1/2007	Winter Weather	CO	0.00	0.00	1428.57	0.00
10/10/1986	Winter Weather	CO	0.00	0.00	847.46	84.75
1/31/1985	Winter Weather	CO	0.00	0.00	793.65	0.00
1/30/1985	Winter Weather	CO	0.00	0.08	793.65	0.00
Total			0.83	1.13	148010.71	166616.51

Table 8: Temp Averages for Telluride, Colorado 1900-2014

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	**37.2**	**39.5**	**43.3**	**52.0**	**61.8**	**72.3**	**76.9**	**74.2**	**68.8**	**59.1**	**46.5**	**38.1**	**55.8**
Average Min. Temperature (F)	**5.2**	**8.4**	**14.2**	**22.7**	**29.9**	**35.5**	**41.5**	**40.9**	**34.3**	**25.5**	**14.9**	**6.8**	**23.3**
Average Total Precipitation (in.)	**1.63**	**1.69**	**2.16**	**2.20**	**1.76**	**1.16**	**2.44**	**2.91**	**2.13**	**1.92**	**1.55**	**1.54**	**23.09**
Average Total Snow Fall (in.)	**27.6**	**25.4**	**30.9**	**21.1**	**6.5**	**0.7**	**0.0**	**0.0**	**1.0**	**9.0**	**20.6**	**24.2**	**167.0**

Table 9: Temp Averages for Norwood, Colorado 1924-2014

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	**37.4**	**41.5**	**48.6**	**58.0**	**68.1**	**78.7**	**83.9**	**80.7**	**73.4**	**62.1**	**48.0**	**38.7**	**59.9**
Average Min. Temperature (F)	**9.6**	**14.6**	**21.8**	**28.3**	**35.9**	**43.7**	**50.0**	**48.9**	**41.8**	**31.9**	**20.5**	**11.9**	**29.9**
Average Total Precipitation (in.)	**0.95**	**0.93**	**1.14**	**1.22**	**1.12**	**0.78**	**1.86**	**1.96**	**1.77**	**1.59**	**1.11**	**0.97**	**15.41**
Average Total Snow Fall (in.)	**12.7**	**10.5**	**9.8**	**5.3**	**0.8**	**0.0**	**0.0**	**0.0**	**0.1**	**2.3**	**7.7**	**10.9**	**60.2**

Table 10: Telluride, Colorado, monthly snowfalls 1985-2017

YEAR	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	ANNUAL
1985-86	0	0	3	4	38	31	5	23	37.5	29	18	0	188.5
1986-87	0	0	8	17	57	9	34	60	45	16	6	0	252
1987-88	0	0	0	2	19.5	36	48	16	23	24	14	0	182.5
1988-89	0	0	0	0	47	47	31	48	23	4	0	0	200
1989-90	0	0	0	10	7	15	12	14	59	46	19	0	182
1990-91	0	0	0	10	43.5	25	37	16	76	26	4	0	237.5
1991-92	0	0	0	20	57	24	20.5	33	58	9	1	0	222.5
1992-93	0	0	0	5	47.5	26	60	74	39	24	21	1	297.5
1993-94	0	0	0	2	14.2	25	22.5	27.4	7.5	28.5	0	0	127.1
1994-95	0	0	0	6.5	37.5	11.5	30.5	12	47	22.4	8.5	0	175.9
1995-96	0	0	2	4	11	10	43.5	15.6	12.5	19.3	0	0	117.9
1996-97	0	0	6.5	13.5	24.8	29.6	35.9	22.8	6.1	25.4	0	0	164.6
1997-98	0	0	0	12	18.5	17.1	18.9	21.6	42.4	20.7	5	0	156.2
1998-99	0	0	0	9.5	28.5	11.6	34	15	17	32.8	17.5	0	165.9
1999-00	0	0	0	0	3.5	12.6	28.1	18	36.1	8.5	0	0	106.8
2000-01	0	0	0.1	2.2	9.3	13.5	26.5	24.5	16	15	10	3	120.1
2001-02	0	0	0	2	29	22	4.1	7.5	16	2.3	2.3	0	85.2
2002-03	0	0	0	10.8	14.8	13.7	12.1	18.9	20.5	9.3	3.4	0	103.5
2003-04	0	0	0	0	12.2	32.8	10.7	24.6	8.5	13.1	0	0	101.9
2004-05	0	0	0	6	29.5	5.7	22.8	19.1	24.4	14.6	2.3	0	124.4
2005-06	0	0	0	2.6	3.5	21	24.8	11.2	23.8	7.7	0	0	94.6
2006-07	0	0	8.8	8	11.7	23.5	11.5	31.6	11.9	12.3	10.8	0	130.1
2007-08	0	0	0	9	6	24.3	49	33.9	12.8	20.5	5.5	0	161
2008-9	0	0	0	.5	17.80								
2009-10		Data Not Available											
2010-11													
2011-12													
2012-13					5.7	13.5	18.5	23	6.4	2	.6	0	69.70
2013-14	0		0	5.20	12.60	10	11.10	19.10	12.50	7.40	5.80	0	83.70
2014-15	0	0	0	0	20.80	24.30	5.50	17	9.90	2	2.20	0	81.70
2015-16	0	0	0	0	31.70	32.10	29.20	14.30	11.40	4.10	3.10	0	125.90
2016-17	0	0			11.30	19.40	24	12	17.70	9.60	5.50		99.50

Likelihood of Future Occurrence

Extreme winter weather is **Highly Likely** to occur in San Miguel County in the future. Extreme winter weather is recognized as a fact of life for San Miguel County. However, secondary impacts that can result from extreme winter weather can have significant impacts on the County overall.

Severity of Impact

The AHPG feels that although winter weather is a fact of life in San Miguel County, it is important to include because sometimes extreme winter weather has significant impacts on critical infrastructure such as power, gas and water. The County can also be impacted economically from extreme winter weather if crops are damaged.

FLOODS

Hazard Description

Floods can amount to be some of the most frequently occurring, costly disasters experienced. Floods can be caused by any number of differing weather events and can cause injuries, property damage including structural and landscape and loss of life. In San Miguel County, the flood season generally extends from late spring to fall. Snowmelt floods typically occur with rapid rises in temperature in May or June. The most flash flood prone months are late July and August, when the summer "monsoon" weather pattern appears. The fall months can also be wet and rainy in southwest Colorado. San Miguel County is susceptible for flooding events. The different types of flooding are described below.

Riverine Flooding

Defined as when a watercourse exceeds its "bank-full" capacity and is usually the most common type of flood event. Riverine or flash flooding generally occurs as a result of prolonged rainfall, or rainfall that is combined with soils already saturated from previous rain events. The amount of precipitation, precipitation intensity and density, soil type and moisture and vegetation all influence the likelihood and severity of a riverine flooding event. San Miguel County experiences flash flooding due to intense cloudburst storms over small and steep watersheds in the summer monsoon season and early fall. The spring snow run-off can also cause riverine flooding with the combination of warmer spring temperatures and spring rain. San Miguel County is extremely susceptible to this type of flooding given the steep mountainous terrain and the multitude of creeks and streams that eventually flow into the San Miguel River. Riverine flooding can be worsened if debris blocks the flow of water, causing it to back up and then eventually surge.

Slow rise floods associated with snowmelt and sustained precipitation usually are preceded with adequate warning, though the event can last several days. Flash floods, by their nature, occur very suddenly but usually dissipate within hours. Even flash floods are usually preceded with warning from the National Weather Service in terms of flash flood advisories, watches, and warnings.

Sources of riverine flood problems in the County include the San Miguel River, The Dolores River, Cornet Creek, Bear Creek, Specie Creek, Big Bear Creek, Leopard Creek, Fall Creek, and numerous intermittent creeks and drainages.

Photo 3: Flooding on Leopard Creek

Source: Linda Luther-Broderick

Street Flooding

The conversion of land from its natural state to parking lots, roads and buildings causes land that could once absorb moisture to be impermeable. When heavy rains occur where there is development, large amounts of water flow on top of the impermeable surface until reaching drainage systems that may back up due to excess water. Although San Miguel County has relatively low amounts of dense urbanization, heavy rains can still cause street drainage systems to become overwhelmed and thus produce street flooding.

Photo 4: Street Flooding in Telluride Corner of N Alder and E Colorado

Source: Town of Telluride

Ice Jam Floods

During the winter months, the San Miguel River can have ice jams at constrictions on the river, usually near bridges. An ice jam flood could potentially cause water to back up over roads or onto the many properties along the San Miguel River, or for large ice flows to take out or damage bridges. Ice flows may be anticipated by the formation of ice dams and very cold temperatures which are manifested in the blue color of the ice. Ice Jam flooding in the past may have been stimulated by releases from the Ames Power Plant. Coordination with the Power Plant, monitoring and control efforts with explosives by the County Road and Bridge Department have largely mitigated this problem.

Ice Flow Process on the San Miguel River

The San Miguel River experiences a range of ice processes each winter that have important consequences for the ecosystem and can threaten human life and structures built in the floodplain. Flow manipulation and water withdrawals can greatly affect these processes.

Ice growth in rivers occurs when heat is lost to the atmosphere after the water temperature has reached 0 degrees Celsius (32 degrees F). There are several heat sources that must be overcome for this to occur. During winter the river is fed by groundwater that enters at a temperature of plus several degrees Celsius. Effluents from sewage treatment plants and hydropower station discharges also typically contribute heat to the river. Solar radiation causes warming of rivers, and as ice grows, latent heat is released to the water.

In turbulent rivers such as the San Miguel, only a fraction of a degree of 'supercooling' below the freezing point is needed to form small floating ice crystals called 'frazil'. For a time, turbulence keeps frazil ice well mixed in the river flow, giving the water a milky appearance. Frazil eventually collects together forming ice 'flocs' and 'pans' on the water surface that continue to be transported by the river flow. The path of this moving ice eventually becomes blocked and it is frozen into a stable ice cover.

When frazil ice contacts either the stream bed or banks, it accumulates to form anchor ice or shore ice. Dynamic ice breakup occurs when the forces applied to stationary ice exceed the support from the streambed or banks. When this happens, destructive surges can be initiated that continue to grow larger as they travel downstream.

Within the San Miguel Basin, river ice breakup typically occurs during two seasonal periods. In the upper basin, ice breakup occurs in the winter, commonly within a few weeks of the winter solstice. In the lower basin ice jamming and flooding usually occur during the spring thaw.

Photo 5: Ice Jam along San Miguel River

Source: Linda Luther-Broderick

Floodplains

The channel and the area adjacent to the channel are known as the floodplain. In its common usage, the floodplain most often refers to that area that is inundated by the 100-year flood or the flood that has a 1% chance of occurrence in any given year. Floodplains are generally illustrated on inundation maps, which show areas of potential flooding and water depths. The 100-year flood is the national standard to which communities regulate their floodplains through the National Flood Insurance Program (NFIP). Communities are also mapped using Flood Insurance Rate Maps or (FIRMS). FIRMS are the national minimum standard to which communities regulate their floodplains. The NFIP rating for a community is based off of this standard. For more information on Flood regulations in San Miguel County see: Flood Vulnerability

The potential for flooding can change and increase through various land use changes and changes to land surface. A change in environment can create localized flooding problems in and outside of natural floodplains by altering or confining watersheds or natural drainage channels. These changes are commonly created by human activities. These changes can also be created by other events such as wildfires. Wildfires create hydrophobic soils – a hardening or "glazing" of the earth's surface that prevents rainfall from being absorbed into the ground, thereby increasing runoff, erosion and downstream sedimentation of channels.

The total annual precipitation in eastern San Miguel County is approximately 24 inches with 2 to 3 inches occurring as thunderstorms during the months of April, May, July, and August. Snow records show an average of 126 inches per year with a monthly average of 20 inches plus for November, December, January, February, March and April.

Past Occurrences

Western Colorado received a Presidential Disaster Declaration in 1984 after one of the most severe and extensive snowmelts in the history of Colorado that spring. Widespread flood and landslide damage on the Western Slope impacted populated areas causing damages to roads and bridges, public facilities, and agricultural lands. Damage totaled over $29 million dollars. San Miguel County was one of 15 counties included in the disaster declaration. The County incurred $93,726 in Public Assistance eligible damages.

Photo 6: Historic Flooding Event Cornet Creek

Source: (Telluride Historical Society)

According to the 1984 Western Slope Disaster 'After Action Report' from the Division of Disaster and Emergency Services (Now Division of Homeland Security and Emergency Management): "High floodwaters in Fall Creek downed trees and inundated roadways making travel along County Road M44 nearly impossible. Floodwaters in Bear Creek destroyed trees, caused logjams, and destroyed bank protection. Along Specie Creek Road 44, Specie Creek caused heavy damage to the road and bridge structures in seven locations totaling over $66,000 in damage."

According the Cornet Creek Study (2009). Historically, numerous debris flows have occurred along Cornet Creek, with the two most destructive events occurring on July 27, 1914, and August 1, 1969. These events caused deposits of mud and rock with widespread depths of about 2 feet ranging to as much as 6 feet in localized areas (Mears et al., 1974). The most recent flooding event occurred on July 23, 2007, blocked culvert and bridge crossings, and damaged property on the north side of town. Most of the significant flood events have been caused by heavy rainfall following a period of prolonged wet weather. The NCDC database lists 12 significant flood events between 1996-2010. Most of these events were accompanied with debris flows and mudslides.

Photo 7: 1984 Flood Photos

Table 11: National Climatic Data Center Storm Event Database Records for Floods

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Telluride	07/17/96	05:30 PM	Flash Flood	N/A	0	0	4K	0
East Portion	07/31/99	02:00 PM	Flood	N/A	0	0	50K	0
Placerville	08/05/99	08:00 AM	Flash Flood	N/A	0	0	5K	0
Sawpit	08/10/99	12:45 PM	Flash Flood	N/A	0	0	0	0
Sawpit	08/25/99	01:15 PM	Flash Flood	N/A	0	0	0	0
Ophir	07/08/00	08:00 PM	Flash Flood	N/A	0	0	0	0
Telluride	08/06/01	03:02 PM	Urban/sml Stream Fld	N/A	0	0	0	0
Telluride	08/08/01	02:00 PM	Flash Flood	N/A	0	0	400K	0
Fall Creek	08/09/01	02:25 PM	Flash Flood	N/A	0	0	0	0
Placerville	08/10/01	01:30 PM	Urban/sml Stream Fld	N/A	0	0	0	0
Fall Creek	08/13/01	06:30 PM	Urban/sml Stream Fld	N/A	0	0	0	0

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Telluride	08/14/01	05:00 PM	Urban/sml Stream Fld	N/A	0	0	0	0
Telluride	07/22/02	12:40 PM	Flash Flood	N/A	0	0	0	0
Placerville	09/10/02	04:40 PM	Urban/sml Stream Fld	N/A	0	0	2K	0
Placerville	08/03/03	02:23 PM	Flash Flood	N/A	0	0	100K	0
Telluride	08/13/03	07:25 PM	Flash Flood	N/A	0	0	20K	0
Placerville	09/09/03	03:30 PM	Flash Flood	N/A	0	0	0	0
Placerville	07/10/06	12:45 PM	Flash Flood	N/A	0	0	0	0
Egnar	08/22/06	04:50 PM	Flash Flood	N/A	0	0	0	0
				TOTALS:	0	0	581K	0

Source: ncdc.com

In addition, the SHELDUS database lists a flood on 3/25/1998 that caused $15,000 of property damage in the County. The San Miguel County Flood Insurance Study indicates that floods have occurred in the San Miguel Basin in 1909, 1911, 1913, 1923, 1927, 1964, and 1966. The most damaging were the 1909 and 1911 floods (discussed in more detail in the Dam Failure Flooding section), but little information exists on the extent and amount of damage.

Floods and mudslides of July 31, 1999 (*NCDC Historic Event Profile)*

Heavy rains resulted in widespread flash flooding, mudslides, and turned Leopard Creek into a raging torrent which overflowed its banks and washed across State Highway 62, undercutting the roadbed. Eyewitnesses reported trashcans, canoes, trees, and other debris floating down the swollen San Miguel River which parallels State Highway 145. The flash floods and mudslides filled up the lower floors of some houses up to 4 feet deep, tore down fences, washed out driveways, washed away elevated gasoline and propane tanks, and floated some vehicles. In addition to the mudslides and rockslides on State Highways 62 and 145, eight County roads were damaged; ten mudslides occurred on Fall Creek Road, three mudslides covered South Fork Road above Ames, and additional mudslides were reported at Silver Pick, Sawpit Hill, Ophir Pass, Tomboy Road, and on Deep Creek Road. Flood damage occurred in the communities of Fall Creek, Placerville, and Sawpit. Pea-sized hail accumulated up to 8 inches deep on State Highway 62 atop Dallas Divide.

Geographic Location

Towns of Telluride and Sawpit and the unincorporated communities along the San Miguel River Canyon and its tributaries would be impacted. Ames to Placerville is the highest risk section, but the community of Ellerdsville is also at risk. Six bridge locations on the San Miguel River are monitored by County Road and Bridge and the County Sheriff's Office.

Photo 8: Mudslide on Hwy 145 near Beaver Canyon 2010

Likelihood of Future Occurrence

Given the historical records for flooding events and the climatic patters that San Miguel County is used to, it is **highly likely** that a Riverine, Street or Ice Jam flooding event will occur in the future.

Severity of Impact

For Telluride the magnitude is potentially catastrophic, with more than 50% of the town in the floodplains of Cornet Creek and the San Miguel River. There has been much development along the San Miguel River Canyon from Ilium to Placerville. Some homes along the river could be significantly impacted if the river were to experience a significant flooding event. Roads closed due to floods can also result in serious transportation disruptions due to the limited number of roads in the County. Mud and debris flows often accompany floods, which increase the impact of the event overall.

SEVERE WEATHER

Colorado's topography and climate often produce damaging, severe weather events that can contribute to other problems such as floods and debris flows. For the purpose of this plan severe weather is defined as any damaging weather event and includes hail, lightning, high wind, heavy rain and tornadoes. The following sections discuss weather typically experienced in San Miguel County.

Hail

Hail is a round ball of ice that falls from a cumulonimbus (thunderstorm) cloud. Hail can range in diameter from pea sized to baseball or even grapefruit sized. The greater the diameter the more destructive and dangerous the hail can be. Hail can result in property damage and injury. Hail often accompanies thunderstorms during June through September and can break windows, dent automobiles, damage rooftops, ruin crops and injure persons. Hail can affect the entire County but the West End is more susceptible to crop damage, while the East End is more susceptible to property damage.

Table 12: NCDC Hail Events 1981-2004

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 San Miguel	**08/09/1981**	**1710**	**Hail**	**0.75 in.**	**0**	**0**	**0**	**0**
2 Norwood	**07/17/2000**	**02:40 PM**	**Hail**	**0.75 in.**	**0**	**0**	**0**	**0**
3 Telluride	**07/17/2000**	**03:00 PM**	**Hail**	**0.75 in.**	**0**	**0**	**0**	**0**
4 Egnar	**09/29/2000**	**01:45 PM**	**Hail**	**0.75 in.**	**0**	**0**	**0**	**0**
5 Norwood	**06/01/2003**	**12:15 PM**	**Hail**	**1.00 in.**	**0**	**0**	**0**	**0**

Lightning

Lightning poses a serious risk to human life such as outdoor recreationists, particularly in the Telluride Fire Protection District, including Ophir/Telluride High Country Region and to agricultural and other field workers in the West End of the County. Lightning can also cause damage to buildings and is a frequent cause of wildfires. Lightning usually occurs during the thunderstorm season during June through September. The High Country Region experiences frequent lightning storms in the summertime.

Table 13: National Climatic Data Center Property Damage Lightning Events

Begin Date	Hazard Type	State	County	Injuries	Fatalities	Property Damage	Crop Damage
6/27/2002	**Lightning**	**CO**	**San Miguel**	**0**	**0**	**3000**	**0**
9/20/1997	**Lightning**	**CO**	**San Miguel**	**0**	**0**	**2000**	**0**
6/17/1995	**Lightning**	**Co**	**San Miguel**	**2**	**0**	**0**	**0**
4/24/1994	**Lightning**	**Co**	**San Miguel**	**0**	**0**	**5000**	**0**
Totals				**2**		**10000**	

Heavy Rains

In Southwestern Colorado, heavy rains are generally associated with summer monsoonal patterns. The term monsoon generally refers to a seasonal wind shift, or monsoon circulation, that produces a radical change in moisture conditions in a given area or region. In the Southwestern United States, this shift in wind direction is primarily the result of two meteorological changes:

The movement northward from winter to summer of the huge upper level subtropical high pressure system, specifically known as the Bermuda High, and the intense heating of the Mojave Desert creates rising air and surface low pressure, called a thermal low.

These two features then combine to create a strong southerly flow that helps bring in moisture (i.e., from the Gulf of Mexico, the Gulf of California, and the Pacific Ocean) that lifts and forms thunderstorms when it encounters the higher terrain of southern Colorado, including San Miguel County. The monsoons are significant to San Miguel County for two reasons. First, on the positive side, the monsoons can help temper the fire season. Second, heavy monsoon rains can lead to flooding, debris flows, trigger rockfall and rockslides and contribute to landslide/slope stability problems in San Miguel County. The monsoons typically begin in mid to late July and continue through mid August. (See flooding)

High Winds

Wind is the movement of air from areas of high pressure to areas of low pressure. The greater the difference in pressure the stronger the wind will be. Associated with wind hazards are utility outages, arcing power lines, downing of trees, debris blocking streets and an occasional structure fire. The SHELDUS database reveals that San Miguel County has experienced damaging wind events in recent years, with at least $155,197 in losses since 1969. The entire County can be subject to high winds. High winds often occur with weather fronts that pass through in the spring and fall, or during summer thunderstorms.

Table 14: National Climatic Data Center Wind Events

EVENT DATE	TYPE	LOCATION	DAMAGE
12/21/1969	WIND	SAN MIGUEL	$2,167
02/14/1995	WIND	SAN MIGUEL	$6,667
02/26/1996	WIND	SAN MIGUEL	$2,500
04/18/1996	WIND	SAN MIGUEL	$1,500
06/17/1998	WIND	SAN MIGUEL	$50,000
08/08/1998	WIND	SAN MIGUEL	$3,333
04/09/1999	WIND	SAN MIGUEL	$333
06/02/1999	WIND	SAN MIGUEL	$1,000
04/18/2000	WIND	SAN MIGUEL	$78,947
11/29/2000	WIND	SAN MIGUEL	$2,500
12/10/2000	WIND	SAN MIGUEL	$6,250

Tornadoes

The County Local Emergency Operations Plan identifies that tornadoes can accompany severe summer thunderstorms. The rotating winds of a tornado can exceed 200 miles per hour. Most tornadoes occur in the month of June. Tornadoes in San Miguel County are rare and have a relatively short duration, usually moving a short distance on the ground. Tornadoes can occur in western San Miguel County and would most likely affect the communities of Norwood, Slick Rock and Egnar.

Geographic Location
The western portion of San Miguel County is most likely to experience this hazard event.

Likelihood of Future Occurrence
It is **Highly Likely** that San Miguel County will experience the elements of severe weather in the future.

Severity of Impact
Improved weather forecasting has enabled many extreme weather events to be predicted hours or days in advance. Some events such as thunderstorms that produce hail and lightning can develop rapidly and without warning. Usually these events are over in a matter of hours. Extreme temperatures, severe winter storms, heavy rains and high winds can last for several days but usually are preceded with warnings from the National Weather Service. Severe weather events often trigger other hazards such as avalanches, wildfires, floods, critical infrastructure failure and can disrupt transportation corridors.

WILDFIRES

Hazard Description
Wildfires are an ongoing concern for San Miguel County. Fire conditions arise from a combination of hot weather, an accumulation of vegetation, and low moisture content in the air. When combined with high winds and years of drought and beetle killed trees, these conditions increase the potential for a wildfire to occur. A fire along the Wildland Urban Interface (WUI) can result in major losses of property and structures. By definition the Wildland Urban Interface can be explained as "the line area or zone where structures meet or intermingle with undeveloped wildland or vegetative fuel." (Fire in the West, The Wildland Urban Interface Problem).

Wildfires can start suddenly due to lightning or human causes. Small fires can grow rapidly when adequate fuels coincide with weather and topography favorable to fire. Wildfires can last from several hours to several months. Seasonal patterns, temperature patterns, precipitation patterns, and growth are all factors that influence wildfire behavior and intensity. Another contributing factor to fuel loads in the forest are standing trees killed by pine bark beetles, which have been affecting the forests of southwest Colorado since 2002. Oil and gas drilling activities have also increased the chance of ignitions in the western part of the County.

Generally, there are three major factors that sustain wildfires and allow for predictions of a given area's potential to burn. These factors include fuel, topography, and weather.

1. **Fuel:** Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume. Fuel sources are diverse and include everything from dead tree needles and leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Also to be considered as a fuel source, are man-made structures and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Light fuels

such as grasses burn quickly and serve as a catalyst for fire spread. The volume of available fuel is described in terms of Fuel Loading.

2. **Topography:** An area's terrain and land slopes affect its susceptibility to wildfire spread. Fire intensities and rates of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The natural arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.
3. **Weather:** Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out the fuels that feed the wildfire creating a situation where fuel will more readily ignite and burn more intensely. Wind is the most treacherous weather factor. The greater a wind, the faster a fire will spread, and the more intense it will be. Winds can be significant at times in San Miguel County, though the highest winds usually occur during the winter and spring, not during the summer fire season. In addition to high winds, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. Related to weather is the issue of recent drought conditions contributing to concerns about wildfire vulnerability. During periods of drought, the threat of wildfire increases.

Large forest areas adjoining highways, oil and gas drilling sites, campsites, and recreational activity/lodging are susceptible to lightning strikes, unsupervised controlled burns, and accidental fire activity resulting in wildfires. Additional factors which may affect wildland fires in San Miguel County are increased drought conditions, additional subdivisions, increase in aircraft accidents and increase in outdoor fire activity.

Past Occurrences

San Miguel County has experienced multiple wildfires. The 2002 wildfire season was the worst on record for San Miguel County. It began in April and continued until early Fall, with the peak activity in June and July when several large and damaging fires burned simultaneously across the state.

Several fires of note are listed in the table below. The Burn Canyon Fire of 2002 was, at the time, the largest naturally caused fire in Colorado's history was started by lightning on July 7th in the Uncompahgre National Forest about six miles southwest of Norwood. The fire consumed 31,300 acres of forest and injured 9 persons. This fire was the largest naturally caused fire in Colorado's history. The cost of fighting the fire was 35.3 million dollars. Several structures were threatened and residences in the community of Redvale were evacuated. Fortunately no structures were lost. Colorado received FEMA Fire Suppression Assistance/Fire Management Assistance for this fire.

Table 15 Fires in San Miguel County

NAME	DATE	LOCATION	IMPACTS	CAUSE
West Beaver Fire	June 22nd 2002	15 miles west of Telluride near Lone Cone Mountain.	Acres burned: 580 Structures lost: 0 Injuries: 1Cost: $1.5 m	Lightning
Burn Canyon Fire	July 9, 2002	About six miles southwest of Norwood in the Uncompahgre	Acres burned: 31,300; Injuries: 2 Cost: $35.3 m	Lightning
Beaver Fire	July 5, 2003	9 miles southwest of Placerville	Acres burned: 165	
Alta Lakes Fire	July 10, 2003	Alta Lakes 4 mi SW of Telluride	Acres burned: 120 Cost: $307,000	Human
Hamilton Mesa Fire	July 19, 2003	Hamilton Mesa	Acres burned: 2,064 Cost: $290,000 Structures Threatened: 3	Lightning
Craig Draw Fire	July 17th 2005	Craig Draw	Acres burned: TBD Cost: 3 Million	Lightning
Beaver Canyon Fire	May 22nd 2010	5 Miles E/SE of Norwood in San Miguel Canyon	Acres Burned: 2,641 Cost: 1.3 million	Power Line

Photo 9: Burn Canyon Fire 2002: Source Sheriff's Office

Photo 10: 2010 Beaver Canyon Fire

Source: Telluride Daily Planet

Photo 11:

Beaver Canyon Fire 2010

Source: San Miguel County Sheriff's Office

Geographic Location

The County's Community Wildfire Protection Plan outlines the specific areas of the county and their corresponding wildfire risk level. The Wildland-Urban Interface (WUI) is described as the area where structures and other features of human development meet and intermingle with undeveloped wildland or vegetative fuels. These human developments include communities and infrastructure such as power, gas and telephone lines. Communities within WUI risk substantial threats to life, property and infrastructure.

Table 16: CWPP Hazard Ratings

Community Name	Fire Protection District	Hazard Rating
Aldasoro	Telluride	Low
County Line Road (Egnar)	Egnar/Slick Rock	Low
Egnar	Egnar/Slick Rock	Low
Norwood Agricultural Area	Norwood	Low
Ophir	Telluride	Low
San Bernardo/Priest Lake	Telluride	Low
Redvale	Norwood	Low
Slick Rock	Egnar/Slick Rock	Low
Egnar Agricultural Area	Egnar/Slick rock	Moderate
Gurley Lake Ranch	Norwood	Moderate
Hastings Mesa	Telluride	Moderate
Ilium Valley/ Ames	Telluride	Moderate
Lower Mountain Village	Telluride	Moderate
Mountain View	Norwood	Moderate
Thunder Road	Norwood	Moderate
Two Rivers Subdivision	Telluride	Moderate
Telluride/ Hillside	Telluride	Moderate

Miramonte Ranch	Norwood	High
Specie Mesa	Telluride	High
Iron/Mackenzie Springs	Telluride	High
Lower Valley	Telluride	High
Trout Lake	Telluride	High
Upper Mountain Village	Telluride	High
Beaver Pines	Norwood	Very High
Brown Ranch	Telluride	Very High
Fitts Subdivision	Norwood	Very High
Lawson Hill	Telluride	Very High
Spud Patch	Egnar/Slick Rock	Extreme
Deer Mesa	Norwood	Extreme
Mailbox	Norwood	Extreme

(Source: San Miguel County CWPP 2010)

Likelihood of Future Occurrence:

It is **highly likely** that a wildfire will occur in San Miguel County in the future. Whether started by natural causes (lightning) or by human negligence, intent or error, wildfires have been a historical hazard and will continue to be in the future.

Severity of Impact:

Wildfire has the potential to cause widespread and severe damage to watersheds and property in the planning area. Although a natural process, wildfires can mar scenic view-sheds, potentially reducing property values and negatively impacting the tourism-based economy that much of the eastern half of the County depends on. Life safety and human health are serious concerns due to the limited evacuation routes and high influx of visitors to the eastern County during summer festivals.

Photo 12: Burn Canyon Fire Devastation 2002

Source: San Miguel County Sheriff's Office

COMMUNICABLE DISEASE

Communicable diseases, sometimes called infectious diseases, are illnesses caused by organisms such as bacteria, viruses, fungi and parasites. Sometimes the illness is not due to the organism itself, but rather a toxin that the organism produces after it has been introduced into a human host. Communicable disease may be transmitted either by: one infected person to another, from an animal to a human, from an animal to an animal or from fomites (inanimate objects such as doorknobs, tabletops, etc.)

Human Diseases and Bioterrorism Agents

One of the most common communicable diseases is influenza. Influenza is a contagious, upper-respiratory disease caused by many different strains of influenza viruses. In 1979 and again in late 2003, a flu epidemic hit the U.S. infecting hundreds of people. The swine flu (H1N1) pandemic of 2009 caused a number of fatalities in the country. The best way to prevent the flu is by getting a flu vaccine each year.

Air travel has significantly increased the speed with which diseases can spread. Most of the world's great cities are now within a few hours of each other. A virus that is in Hong Kong one day can be carried to any point in Southeast Asia within three or four hours, to Europe in 12 hours, and to North America in 18 hours. Nearly 1.5 billion passengers travel by air every year (WHO, 2009). A pandemic is a global disease outbreak.

In addition to common communicable diseases there is also the distinct possibility of bioterrorism, which is the intentional use of any microorganism, virus, infectious substance, or biological product that may be engineered as a result of biotechnology, or any naturally occurring or bioengineered component of any such microorganism, virus, infectious substance, or biological product, to cause death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism in order to influence the conduct of government or to intimidate or coerce a civilian population. Due to decreased vaccination and a lack of immunity, vulnerability is particularly high to diseases that have been considered to be eradicated from the U.S. population, such as smallpox.

The following list gives examples of biological agents or diseases that could occur naturally or be used by terrorists as identified by the Centers for Disease Control and Prevention. These diseases/bioterrorism agents can infect populations rapidly, particularly through groups of people in close proximity such as schools, assisted living facilities, and workplaces.

Category A Communicable Diseases

Definition - The U.S. public health system and primary healthcare providers must be prepared to address various biological agents, including pathogens that are rarely seen in the U.S. High- priority agents include organisms that pose a risk to national security because they:

- Can be easily disseminated or transmitted from person to person;

- Result in high mortality rates and have the potential for major public health impact;
- Might cause public panic and social disruption; and
- Require special action for public health preparedness.
- Agents/Diseases
- Anthrax (Bacillus anthracis)
- Botulism (Clostridium botulinum toxin)
- Plague (Yersinia pestis)
- Smallpox (variola major)
- Tularemia (Francisella tularensis)
- Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupol)

Category B Communicable Diseases

Definition - Second highest priority agents include those that:

- Are moderately easy to disseminate;
- Result in moderate morbidity rates and low mortality rates; and
- Require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance.
- Agents/Diseases
- Brucellosis (Brucella species)
- Epsilon toxin of Clostridium perfringens
- Food safety threats (e.g., Salmonella species, Escherichia coli O157:H7, Shigella)
- Glanders (Burkholderia mallei)
- Melioidosis (Burkholderia pseudomallei)
- Psittacosis (Chlamydia psittaci)
- Q fever (Coxiella burnetii)
- Ricin toxin from Ricinus communis (castor beans)
- Staphylococcal enterotoxin B
- Typhus fever (Rickettsia prowazekii)
- Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
- Water safety threats (e.g., Vibrio cholerae, Cryptosporidium parvum)

Category C

Definition - Third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of:

- Availability
- Ease of production and dissemination; and
- Potential for high morbidity and mortality rates and major health impact.
- Agents
- Emerging infectious diseases such as Nipah virus and hantavirus

History of Communicable Disease in Colorado

Public health emergencies that have affected Colorado include vector-borne disease, such as West Nile Virus, food-borne illness like E.coli, and vaccine-resistant illness such as virulent strains of influenza. The Colorado Department of Health and Environment (CDPHE) manage a database of reportable communicable disease occurrences.

West Nile Virus

As of December 18, 2015, Colorado has identified 101 cases of human West Nile virus (WNV) infections. Of these, 44 are uncomplicated fever, 29 are meningitis, and 28 are Encephalitis (including meningoencephalitis). In addition to the 101 cases, seven people were found to be asymptomatic blood donors for a total of 108 affected people. Two WNV-associated deaths have been reported this season (one each from Crowley County and Pueblo County). All persons are at risk of being infected with WNV, but those over the age of 50 or with weakened immune systems are at greater risk of developing serious illness. Persons over the age of 50 represent 64% of the cases identified during the 2015 WNV season.

For additional information or to view Colorado's full WNV surveillance report, go to:

https://www.colorado.gov/pacific/cdphe/west-nile-virus

Plague

Plague is a zoonotic infection of rodents, rabbits, and their fleas, caused by the bacterium Yersinia pestis, a gram-negative bacillus. Plague is a severe bacterial infection characterized by the abrupt onset of high fever, chills, malaise, myalgia, nausea, and weakness. Plague normally presents in one of three clinical forms. The most common form is bubonic plague characterized by the development of painful, unilateral regional lymphadenopathy within 24 to 48 hours of fever onset. The affected lymph nodes drain the point of entrance of the bacteria, typically involving the inguinal, axillary or cervical nodes.

Septicemic plague may develop secondary to the bubonic form, or may be the primary presentation if the bacteria are directly inoculated into the blood stream. This form presents as a gram-negative bacterial sepsis.

Pneumonic plague can develop as a primary infection from inhalation of respiratory droplets or secondarily from hemategenous dissemination. Pneumonic plague can result in human-to-human

transmission via spread through respiratory droplets. All forms of plague can have a high fatality rate if proper treatment is not initiated quickly.

Plague is maintained in a natural rodent-flea cycle involving multiple wild rodents and their fleas. Other wild and domestic species may be infected, particularly lagomorphs (e.g., rabbits) and felids (e.g., cats), that have been implicated in human transmission. The most common animal species implicated in the transmission of plague to humans in Colorado include rock squirrels, wood rats, prairie dogs and domestic cats.

Approximately 85% of human plague cases are acquired through the bite of an infected flea. Direct contact with infected carcasses (i.e., rabbit hunting) or infectious tissues and exudates (draining abscesses) account for most remaining cases. Infected cats have also transmitted plague via bites or scratches. Pneumonic spread by inhaling the airborne bacteria contained in respiratory droplets expelled by people or animals with pneumonic plague, is a serious, though rare, medical and public health problem. The incubation period averages 2 to 3 days, ranging from 1 to 7.

Patients remain infectious throughout their symptomatic illness. Tissues, drainage from buboes and respiratory secretions in pneumonic cases are considered infectious until 48 hours after initiation of appropriate antimicrobial therapy.

Plague is endemic throughout the western United States; New Mexico, Colorado, Arizona, and California report the majority of human cases. Human plague cases occur sporadically in association with increased epizootic activity among ground squirrels and other wild rodents. Large-scale die-offs of rodents and rabbits, resulting in the release of infected fleas into the environment, often precede human cases. Most exposures occur among persons living, working or recreating in rural and semi-rural areas. Peri-domestic exposure is common. Free-roaming domestic pets have been increasingly implicated in human cases through transport of fleas into the home. Colorado plague statistics are available at the CDPHE website: https://www.colorado.gov/pacific/cdphe/plague and are listed below.

Human Plague in Colorado, 2005-2016

Back to plague

Counties reporting human plague cases*

County	Number of cases
Adams	4
Archuleta	1
Boulder	1
Denver	3
La Plata	8
Larimer	1
Mesa	1
Pueblo	1
Total	20

*County of residence, not necessarily where exposure occurred

Human plague cases reported each year

Year	Number of cases
2005	3
2006	4
2007	0
2008	0
2009	0
2010	0
2011	0
2012	1
2013	0
2014	8
2015	4
2016	0
Total	20

Human plague cases by gender

Gender	Number of cases
Female	12 (60%)
Male	8 (40%)
Total	20

Human plague cases by age

Age in years	Number of cases
0-14	3
15-24	2
25-34	4
35-44	3
45-54	3
55-64	3
65-74	1
≥75	1
Total	20

Influenza

There have been four major global flu pandemics since 1900. The 2009 swine flu pandemic, the Hong Kong flu (1968-1969 that killed approximately one million people), the Asian flu pandemic (1957-1958 which originated in China and is estimated to have killed between one and four million people), and the Spanish flu pandemic (1918-1919 that killed between 50-100 million people worldwide.) The single deadliest flu pandemic in history was the Spanish flu pandemic during 1918-1919. Occurring in the three waves of increasing lethality, the Spanish flu killed more people in 24 weeks than AIDS did in 24 years. It also killed more people in one year than smallpox or the Black Plague did in 50 years.

Historical records from newspapers show that the Spanish influenza outbreak caused 7,783 deaths in 10 months in the State of Colorado. Most of those deaths occurred in October, November and December of 1918.

Declared Disasters

No state or federal disaster declarations have been made as the result of a communicable disease outbreak. Public health emergencies are issued when an infectious disease outbreak has occurred or is anticipated.

Magnitude and Probability

Annual flu viruses (not including flu pandemics) infect up to 20 percent of Americans, put 200,000 in the hospital with flu-related complications, and kill about 36,000 people. As many as 200,000 Americans are hospitalized because of it each year, and as many as 36,000 die of the disease or complications associated with it. Children under age 1, people 65 or older and people suffering from underlying medical conditions are at a higher risk of serious complications. The cost of treating annual flu epidemics, including lost wages and productivity of workers, is billions of dollars each year in just the United States alone.

Influenza cases, including hospitalizations and deaths, are reportable to local public health in Colorado. Surveillance for Colorado, 2014 –2015 influenza season officially began on September 28, 2014 and ran through May 23rd, 2015. Influenza activity in the community during the 2014-2015 influenza season was severe, with 3397 hospitalized cases reported from 56 counties. This number far exceeds the 2157 hospitalizations reporting during the 2009-10 pandemic and is the highest number of hospitalizations reported during a season since hospitalizations became a reportable condition (2004-2005 season). During the 2014-15 season, there were 6 pediatric deaths (in persons less than 18 years of age).

Probability is based on the frequency of the hazard over a 10-year period. Since communicable disease incidents occur more than once per year, the probability rating is “highly likely” for this hazard. Scientists believe that flu pandemics occur two or three times each century.

Vulnerability

Communicable disease or biological agents could be devastating to the population or economy of Colorado. Human diseases when on an epidemic scale, can lead to high infection rates in the population causing isolation, quarantines and potential mass fatalities. Effective communicable disease control efforts rely on an effective surveillance and response system that promotes collaboration, coordination and communication among public health and clinical professionals. Surveillance can be defined as 'ongoing systematic collection, collation, analysis and interpretation of data and the dissemination of information.

Statewide Hazard Vulnerability

The entire state of Colorado is vulnerable to communicable diseases; however, the urban population centers are more vulnerable to rapidly spreading and highly contagious diseases than more rural parts of the state. The number of fatalities would depend on the mortality rate and the percentage of the population affected. The ability to control the spread of disease would be dependent on the contagiousness of the disease, movement of the population, and the warning time involved.

Experts are not able to predict when the next influenza pandemic will occur, or which influenza virus subtype will cause it. Modeling based on the 1968 pandemic estimates 2 million to 7.4 million deaths worldwide. In the United States alone, the next influenza pandemic could cause 89,000 to 207,000

deaths and 314,000 to 734,000 hospitalizations, as well as tens of millions of outpatient visits and additional illnesses, in the absence of effective interventions. The economic costs due to deaths, illness, and hospitalizations in the United States, excluding disruptions to commerce and society, would be $71.3 to $166.5 billion. The potential impact on the Colorado economy has not been quantified.

HUMAN CAUSED HAZARDS

The causes of human caused hazards tend to be more diverse and less predictable than the causes of most natural hazards. Human caused Hazards result in 'man-made accidents' because the trigger event is human action (or inaction) when dealing with technologies. Human caused hazards are really failures in complex systems caused by technical, social, organizational or operational defects.

As such, human caused hazards exist within San Miguel County. Given that including these hazards is not a requirement of DMA 2000 planning regulations they are not profiled in the same detail in this plan as the natural hazards. Some of the potential problems are listed in this plan for consideration of additional study in future updates to this plan.

Although natural hazards are separated into a different category, it is important to realize that some of the hazards profiled in the previous section have secondary impacts that include critical infrastructure failure. Aside from a general system failure or break, natural hazards can have a significant impact on essential utilities and lifelines.

Critical Infrastructure Failure

Critical Infrastructure in this plan is defined as the network of important systems that deliver essential services citizens rely on. It includes water and sewage treatment, electricity and natural gas, telecommunications and transport of propane. San Miguel County as a whole has experienced critical infrastructure failure in the past and will most likely experience failure again in the future.

Terrorism

The term terrorism refers to intentional criminal and malicious acts. For the purposes of this risk assessment terrorism refers to the use of Weapons of Mass Destruction (WMD), including, biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases and cyber-terrorism.

Terrorism has become a much higher priority since the event of September 11, 2001. Although our community does not consider itself as a priority target, the possibility exists and has become an increased concern. Shortly after the 9/11 incident we experienced a period of heightened concern over biological agents.

What the all-hazards approach can contribute to the effort to deal with terrorism in its many forms is a basic framework for structuring the emergency response, preparing for the response, and recovering

from attacks, as well as developing appropriate measures to prevent or mitigate the impact of the attacks – whatever form the attacks may take. Although Terrorism is classified under the 'Human caused Hazard' section of this plan, it is important to note that some of the 'natural hazards' identified in the previous section can be caused by terrorist activities.

San Miguel County is perceived to be at low risk because of the remote location of the County and low population density; though there are high profile individuals who may live or visit the area. Potential impact areas include, but are not limited to the Towns of Telluride and Mountain Village and the Trout Lake Dam.

Technological Hazards

Technological Hazards in this document refer mainly to cyber-attacks. San Miguel County is at relatively low risk for technological hazards such as computer or system hacking. Although some systems have confidential information, the County has taken precautions and set up protective measures from this type of hazard, to include redundant backup systems and disaster recovery systems as they relate to data recovery.

Transportation Accidents

There are several transportation routes through San Miguel County. State Highways 145, 62 and 141 are the most heavily traveled roads in the County. In addition, county roads carry a substantial amount of traffic, especially during times when the highway becomes impassible due to road or weather conditions. All roadways in the county may experience heavy commuter and truck traffic during all months of the year, with county roads getting increased use during the summer months. Severe winter weather increases the number of transportation accidents. County and State highway officials have constructed guardrails along dangerous sections of the road to help curb vehicles from sliding off the road during icy driving conditions.

Transportation accidents are difficult to mitigate given the fact that the causes of accidents vary so widely. San Miguel County and the Colorado Department of Transportation (CDOT) work closely together to keep roads open and safe to travelers by offering assistance when needed and enforcing Colorado laws. Additional signage has been requested of the Sheriff's Office along parts of Hwy 145 where fatal accidents occur frequently (e.g. Norwood Hill, 2014).

HAZARDOUS MATERIAL INCIDENTS

The population of San Miguel County is susceptible, at any time, to accidents involving hazardous materials on roads, highways, and at fixed facilities that manufacture, use or store dangerous chemical substances. The release of hazardous materials can threaten people and natural resources in the immediate vicinity of the accident. Air releases can prompt large-scale population evacuations and spills into water or onto the ground can adversely affect public water and sewer systems.

The Planning Team separates these Hazardous Materials incidents into two categories, Fixed Facilities and Transportation. A fixed-facility incident is an uncontrolled release of chemicals or other potentially hazardous materials from a facility. A transportation incident refers to accidental and uncontrolled releases of chemicals or other hazardous materials during transport (i.e., highways, pipelines and airways). A hazardous materials incident may occur at any time during routine business operations or as a result of a natural disaster.

Fixed facilities include companies that store hazardous waste at their facility and also all hazardous waste sites. According to the Material Safety Data Sheets (MSDS), there are facilities in San Miguel County that hold hazardous materials although none of them exceed the Tier II threshold regulatory amount. Transportation of hazardous materials is common in San Miguel County, especially on State Highway 141 which is the only designated HAZMAT transport route through the county. Since San Miguel County is surrounded by mountains and diverse terrain, transportation of HAZMAT materials is limited on the high mountain passes. In addition, severe weather conditions, ice, wildlife and the potential for debris make transporting dangerous materials a significant risk.

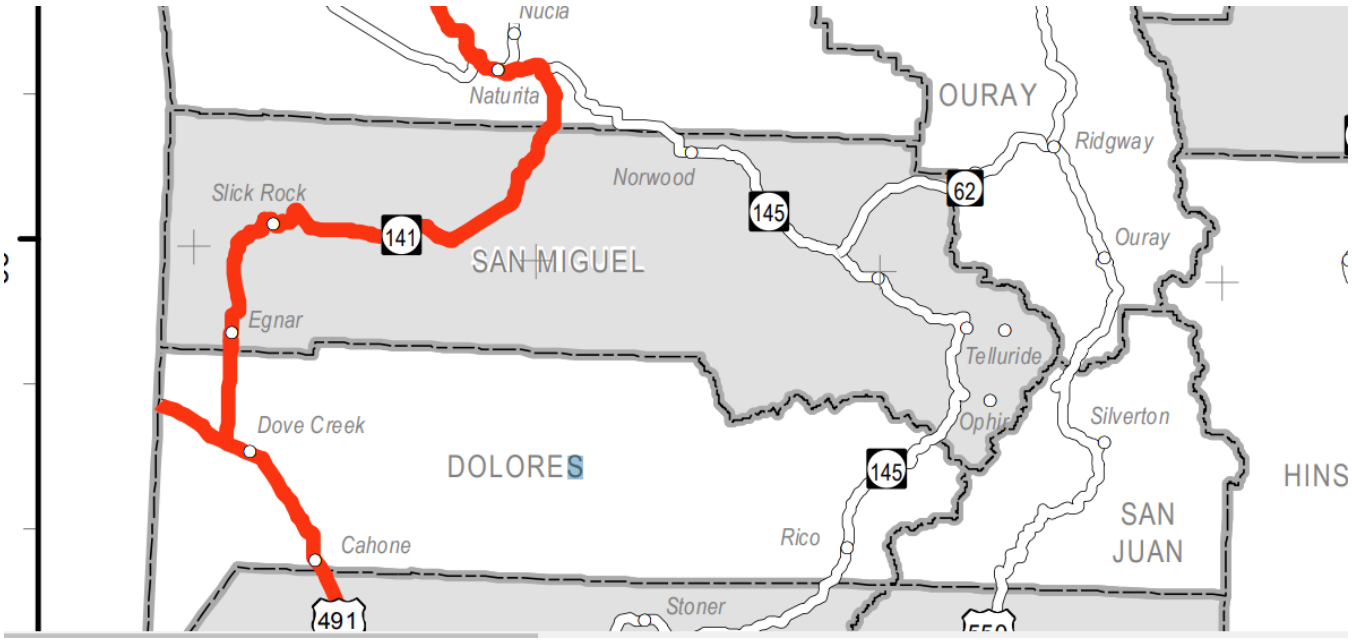


Figure 11: Hazardous Transportation Routes Colorado and San Miguel County

Facilities that manufacture, store or transport hazardous materials in San Miguel County are subject to the requirements of SARA Title III. Facilities subject to SARA Title III are required to report chemical inventories to State and Local officials and to cooperate with local agencies in preparing for hazardous materials accidents.

The Telluride Fire Protection District Hazardous Materials Emergency Response Team identified the following significant hazardous materials releases in San Miguel County:

INCIDENT DATE	DESCRIPTION
2007	Highway 141 MP 26, 60 gallon diesel spill from a truck crash
2008	Mountain Village, 136 Country Club Drive, assisted Mountain Village with a leaking 2000 gallon underground tank
2009	Highway 145 MP 77.2, 100 gallon diesel fuel spill from truck crash
2012	7J Road, Volatile Organic Compound (VOC) release, drill and offload
2012	Hwy 145 MM1, crane motor vehicle accident (MVA), VOC release
2013	Hwy 145 MM70, dump truck into creek, VOC release
2013	Alta Lakes Road, truck into pond/lake, VOC release into pond (contained)
	Hwy 141 MM 21, tanker rollover, VOC release of 100 gallons
2014	Highway 141 MP 21, Tanker Rollover, VOC release of 100 gallons
2014	58P and 56V LPG rollover, no release
2015	Hwy 145 and Alta Lakes Road, semi-truck MVA, VOC release and organic material release

COUNTY MITIGATION CAPABILITIES

The AHPG updated existing capabilities before assessing the vulnerability that the County and each jurisdiction have to each hazard. Natural hazard mitigation in San Miguel County began long before this planning process as evidenced in several plans, procedures and activities already underway. In addition, there are multiple resources available to stakeholders. The purpose of this section is to highlight these activities and resources to incorporate them into the County's overall mitigation strategy. The mitigation capability categories considered are Planning/Regulatory, Financial, Administrative/Technical and Education/Outreach. The following information identifies existing mitigation strategies for the hazards likely to affect San Miguel County.

LOCAL COMPREHENSIVE PLANS

All the plans below can be found on the Web here

San Miguel County

- San Miguel County Master Plan
    - Wright's Mesa Master Plan
    - San Miguel County Open Lands Plan
    - Trails Master Plan
- San Miguel County Land Use Code
- San Miguel County Emergency Operations Plan and Annexes
- San Miguel County All Hazard Mitigation Plan
- San Miguel County Community Wildfire Protection Plan
- San Miguel County Facilities Emergency Operations Plan

Town of Mountain Village

- Town of Mountain Village Comprehensive Plan
- Town of Mountain Village Emergency Operations Plan and Annexes
- Mountain Village Wildfire Mitigation/Forest Health Plan

Town of Norwood

- Norwood Master Plan
- Town of Norwood Emergency Operations Plan and Annexes
- Norwood Land Use Code
- Norwood Hydrology Study and Future Needs Study

Town of Ophir

- Ophir Master Plan

- Town of Ophir Emergency Operations Plan and Annexes
- Ophir Land Use Code
- Town of Ophir Sourcewater Protection Plan

Town of Sawpit

- Town of Sawpit Land Use Code
- Town of Sawpit Source Water Protection Plan

Town of Telluride

- Telluride Regional Area Master Plan
- Town of Telluride Emergency Operations Plan and Annexes
- Surface Water Hydrology Study, 1996
- Telluride Source Water Protection Plan
- FEMA Flood Insurance Study, 1992
- Cornet Creek Hazard Maps, Mudflow and Flood Studies (Various Years), Drainage Study
- Cornet Creek Drainage Study, 1985
- Cornet Creek Debris and Flood Control, 1983
- Cornet Creek Flood Study, 1974-5
- Debris Flow Hazard On Cornet Creek at Telluride, 1974
- Preliminary Report-Mudflow Hazard on Cornet Creek
- Preliminary Hazard Map of Telluride, Colorado
- Drainage Master Plan, 1983
- Flood Insurance Study, 1978
- Investigation of Cornet Creek, August 2003 Flooding

Other Plans, Studies etc.

- Gunnison Montrose Uncompaghre (GMUG) Land and Resource Management Plan
- Uncompahgre Travel Plan
- MIFMU Wildfire Prevention Guide
- Ready, Set, Go! Your Personal Wildfire Action Plan
- Wilkinson Public Library Disaster Plan
- SMPA Emergency Response Plan
- Trout Lake Dam Emergency Response Plan
- Miramonte Reservoir Emergency Response Plan
- Lone Cone Reservoir Emergency Response Plan
- Telluride Regional Airport Emergency Response Plan
- West Region Threat and Hazard Identification Risk Assessment, 2017

- CDOT Telluride Debris Flow Plan, 2013
- CDOT SH145 Debris Flow Investigation, 2015

Flood

Flood Insurance and Floodplain Management

San Miguel County and the Towns of Norwood and Telluride participate in the National Flood Insurance Program (NFIP). The Town of Telluride participates in the NFIP Community Rating System (CRS), a program established to provide discounts on flood insurance policies to residents of communities that take on additional floodplain management responsibilities above and beyond the standards required with NFIP participation. The CRS communities list shows that Telluride entered the CRS in 10/1/1994 and currently has a 7 rating (out of 10, the lower the rating the better). Telluride residents in the floodplain receive a 15% discount on their policy, and those with policies outside of the floodplain receive a 5% discount, since non flood-prone property already receives a "built-in" discount for being less at risk to begin with. This plan will earn the town additional CRS credits, contributing to Telluride's overall floodplain management program.

Table 17: San Miguel County National Flood Insurance Program Participation Details

JURISDICTION	DATE OF ENTRY	CURRENT MAP EFFECTIVE
San Miguel County	9/29/1978	9/30/1992
Telluride, Town of	9/15/1978	9/30/1992
Norwood, Town of	1/27/1985	No Special Flood Hazard Area

The Town of Sawpit has a Special Flood Hazard Area identified on a Flood Insurance Rate Map dated 9/30/1988, but does not participate in the program. NFIP sanctions have been in effect since 9/30/1989, which means that Sawpit residents in identified flood hazard areas cannot get flood insurance or Federal disaster assistance for repairs if flooded, and no Federally-backed mortgages.

Floodplain Management Ordinance

San Miguel County has a floodplain management ordinance in the town of Telluride that outlines regulatory requirements for development within the floodplain intended to reduce flood losses and promote wise use of the floodplain. This ordinance contains the standard language required as a participant in the NFIP, as well as a one-foot freeboard requirement. The Planning Department enforces the ordinance and their web page contains information on how residents can obtain floodplain information.

- Cornet Creek Hazard Maps, Mudflow and Flood Studies (Various Years), Drainage Study

- Surface Water Hydrology Study, 1996
- FEMA Flood Insurance Study, 1992
- Coronet Creek Drainage Study, 1985
- Coronet Creek Debris and Flood Control, 1983
- Coronet Creek Flood Study, 1974-5
- Debris Flow Hazard On Cornet Creek at Telluride, 1974
- Preliminary Report-Mudflow Hazard on Cornet Creek
- Preliminary Hazard Map of Telluride, Colorado
- Drainage Master Plan, 1983
- Flood Insurance Study, 1978
- Investigation of Cornet Creek, August 2003 Flooding
- Cornet Creek Study, 2007 & 2009

Completed Road and Bridge Projects

San Miguel County's Road and Bridge Departments maintain all County roads year round (unless otherwise stated). The department is responsible for maintaining 648 miles of primary and secondary roads within the County. San Miguel County R&B has developed a 10 year construction plan in order to improve roads and transportation in the County. SMC is broken into four districts for County maintenance:

- District 1, Deep Creek Shop - Roads east of Goodenough Gulch and Specie Creek
- District 2, Norwood Shop - Roads on Wrights Mesa and the Lone Cone
- District 3, Basin Shop - Roads west of Miramonte, Dry Creek Basin to Slickrock
- District 4, Egnar Shop - Roads west of Slickrock to the Utah and Dolores County boundaries

Spring is challenging as the department tries to deal with spring runoff from the snow melt. While roads are drying out, they need to be graded while they have optimum moisture. The Department also spends time treating busy dirt roads with dust retardant. Summer month tasks include paving and chip-seal projects as well as any culvert and cattle guard repairs. Gravel hauling occurs most of the summer in all districts. Roads are graded as they become rough but in the summer roads often require a water truck and compactor to properly grade them.

Fall usually involves gravel hauling and attempting to keep snow routes as smooth as possible through grading. The Department spends a significant amount of time doing repairs and extensive maintenance on snow removal equipment. In the winter months, the main challenge for the Department is to keep the roads plowed and sanded during times of peak use.

Since the 1984 spring runoff where Specie Creek, Fall Creek and Bear Creek Roads were completely washed out, Road & Bridge has worked on channel improvements by replacing undersized culverts and

armoring the stream banks along the County Roads with heavy rip rap to prevent erosion. Only minor shoulder damage has occurred since 1984 due to spring runoff. In addition, since 1984, San Miguel County has replaced seven substandard bridges along the San Miguel River with structures that are designed to carry the 100 year flood plus 1 foot. The box culvert on the Howards Fork near Ames was also replaced with flow capacity expanded. Additional bridges replaced to increase flood capacity are located in Disappointment Valley and Dry Creek Basin. A new maintenance building at the Norwood Shop was completed in 2017.

HAZARD SPECIFIC CAPABILITIES

WILDFIRE

Over the last five years San Miguel County has increased capability in relation to wildfire in several areas. In addition to established capabilities the following section captures strides made since the last plan update.

San Miguel County Community Wildfire Protection Plan

Community Wildfire Protection Plan was completed in 2009 and is updated as needed. It was developed with the collaboration of private, local, state and federal partners. The plan accomplishes the following:

1. Provide a comprehensive, scientifically-based analysis of wildfire related hazards and risks in the Wildland-Urban Interface (WUI) areas of San Miguel County and a portion of Montrose County within the Norwood Fire Protection District.
2. Using the results of the analysis, generate recommendations designed to prevent and/or reduce the damage associated with wildfire to values in the study area.
3. Create a Community Wildfire Protection Plan (CWPP) document that conforms to the standards for CWPPs established by the Healthy Forest Restoration Act (HFRA) and the Colorado State Forest Service.
4. This plan will complement local agreements and existing plans for wildfire protection and aid in implementing a seamless, coordinated effort in determining appropriate fire management actions in the study area.

Goals for the plan:

1. Enhance life safety for residents and responders.
2. Mitigate undesirable fire outcomes to property and infrastructure.
3. Mitigate undesirable fire outcomes to the environment, watersheds, and quality of life.

To accomplish these goals, the following objectives were identified:

1. Establish an approximate level of risk (the likelihood of a significant wildfire event in the study area).
2. Provide a scientific analysis of the fire behavior potential of the study area.
3. Group neighborhoods into "communities" that represent relatively similar hazard management needs.
4. Identify and quantify factors that limit (mitigate) undesirable fire effects on the values at risk (hazard levels).
5. Recommend and prioritize specifications that will reduce hazards associated with the values at risk.

West Region Wildfire Council

San Miguel County works closely with the West Region Wildfire Council (WRWC). WRWC promotes wildfire preparedness, prevention and mitigation education throughout Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel counties. Their mission is to mitigate loss due to wildfire in wildland urban interface communities while fostering interagency regional partnerships to help prepare counties, fire protection districts, communities and agencies to plan for and mitigate potential threats from wildfire.

The WRWC was established in 2007 as a collaborative effort to support interagency efforts to develop and implement plans to better mitigate the threat of catastrophic wildland fire to the communities and natural resources.

The WRWC is a key resource for county officials in that they provide education to homeowners about wildfire risk and promotes activities that help communities and homeowners increase fire adaptedness, they promote wildfire risk reduction through community preparedness and planning and provide funding to assist landowners with hazardous fuels reduction project and defensible space. In addition, the council supports cooperator efforts to collaboratively achieve common wildfire related objectives.

County Wildfire Working Group

This county level wildfire coordination group was formed in 2012 in order to better coordinate and share information with regard to wildfire. The mission of the group is to promote wildfire preparedness, response, recovery and mitigation in San Miguel County and it is made up of various emergency response and mitigation agencies, homeowners' association leaders and other regional, state and federal partners. The group has several objectives:

1. Facilitate collaboration between local, state and federal partners with an interest in wildfire preparedness, response, mitigation and recovery.

2. Coordinate actions amongst the parties that could help minimize loss of life and property from future wildfires; and to act cooperatively in addressing the issues by working together in effective partnerships.
3. Develop land use and building codes directed toward the promotion of an urban/wildland Interface to encourage FireWise development.
4. Increase public awareness about wildfire risk through education.

Wildfire Community Risk Assessments

In 2015 the West Region Wildfire Council, working with San Miguel County, completed parcel level wildfire risk assessments for approximately 2,350 primary structures within the Telluride Fire Protection District and the Norwood Fire protection District in identified priority areas.

The purpose of the parcel specific wildfire risk assessment is to give each individual homeowner an educational tool to help them be better prepared in the event of a wildfire. The results of the parcel specific assessment provide a visual depiction of the risk ratings and give each homeowner a list of specific recommendations to implement in order to reduce their wildfire risk.

In addition, parcel level risk assessment information can be used to help aid emergency response agencies in the event of a wildfire and can be used to inform further emergency planning efforts.

The parcel specific wildfire risk analysis builds off of research based on the Home Ignition Zone concept developed by Jack Cohen at the Fire Science Lab in Missoula, Montana and the latest research and findings from the Institute for Business and Home Safety (IBHS) on factors that play into a home's survivability during a wildfire event.

The wildfire risk assessment used in San Miguel County takes advantage of the science used to understand the factors contributing to home ignition during wildfires and adds additional, locally-specific components that influence home survivability. In addition, The West Region Wildfire Council has a strong partnership with researchers and is a part of a Wildfire Research group called WiRe. This group is an interdisciplinary research collaboration group and brings diverse expertise in economics, sociology, and wildfire risk mitigation to a multiyear research project on homeowner wildfire risk mitigation and community wildfire 'adaptedness.'

All homes in identified priority areas within the Telluride and Norwood FPDs were reviewed using the following criteria:

- Addressing: Having correct, visible and reflective addressing is a crucial component to any type of emergency response effort. Smokey environments during a wildfire event reduce visibility. Reflective, contrasting addressing is much easier to see in such conditions.

- Ingress/ Egress: Knowing primary and secondary ingress/ egress routes is crucial for successful evacuation. Having more than one way in and out of your neighborhood reduces the risk of becoming trapped by a fast moving wildfire. Furthermore, fire department knowledge of residential areas where there is only one point of access is a helpful tool in pre-planning for evacuation, suppression operations and firefighter safety.
- Driveway Width: It is important for firefighters to know that they can safely get apparatus in and out of a home's driveway. Driveway width analysis is a combination of approximate shoulder to shoulder measurement as well as the distance between overhanging obstructions and the driveway.
- Dangerous Topography: These are areas where wildfires can move quickly and increase in intensity. Steep chimneys and cliff edges are two examples of dangerous topography. A home's location relative to dangerous topography can largely affect its survivability during a wildfire event. Dangerous topography can have severe impacts on fire behavior over a given landscape.
- Slope: The slope category characterizes the average overall slope across the parcel where a home is situated. Homes situated on the steepest slopes (Greater than 45%) are exposed to higher wildfire risk.
- Background Fuel: The fuel type and density directly surrounding a home can affect the fire behavior in the particular area. This category focuses on the fuel on the land surrounding the property, whereas Defensible Space focus on the fuel on the property. Given varying weather conditions, grassy open meadows tend to be conducive to fast moving, yet low intensity fire behavior, whereas fire in a heavily forested environments can be much more intense. The community specific fire behavior maps provide further detail on how fuel loading and weather conditions impact fire behavior.
- Defensible Space: Defensible space is "an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure." Having defensible space is one of the "primary determinants of the home's ability to survive a wildfire" (CSFS Creating Wildfire-Defensible Zones: Fire-12). Whether or not a home has adequate defensible space is a factor that wildland firefighters take into consideration when deciding where to stage resources. It is also important to remember that during a large wildfire event, resources are often limited. Having defensible space can increase the survivability of a home without firefighter intervention.
- Roofing Material: A home's roofing material has been proven to be a primary factor in a home's survivability during wildfire event. Class A, non-combustible roof construction increases a home's survivability, whereas wood shake shingle roofing material increases a home's wildfire risk drastically.

- Siding Material: Whether a home's siding is made out of combustible material or a non-combustible material also effects survivability. Vinyl/ wood siding is more likely to fail or ignite than a heavy log, stucco or composite siding material.
- Other Combustibles: Firewood piles, patio or deck furniture, propane tanks and other combustibles near a structure can be factors that compromise a home's resistance to wildfire. These materials are often found stacked under elevated decks which can cause the deck to ignite and compromise the structure.
- Decks and Fences: Decking and fencing material have proven to add potential vulnerability to a home's resistance to wildfire. Combustible fencing attached to a structure can become the conduit for a home to ignite. Well maintained wood deck can be less combustible than an unmaintained dry deck.

It is important to consider vulnerability points of the structure. When the wildfire risk assessment was completed, homes were assessed for their 'weakest' point. If a home's siding had both non-combustible material as well as wood siding, the home was considered to have 'wood siding' since the wood siding is a component that increases the home's risk to damage or loss from a wildfire.

Scoring

Each criterion in the wildfire risk assessment has an attached 'score' that corresponds directly with the elements' potential to compromise a structure during a wildfire event. In other words, elements that make a structure significantly more vulnerable to wildfire are given more weight when considering the wildfire risk. Roofing material and defensible space are the two most significant survey criteria and therefore carry the heaviest weight. The following pages show the wildfire risk analysis scoring sheet that was completed for each structure within the community.

CATGEORY	OBSERVED CONDITION	POINTS
Address Visible	Posted and Reflective	0
	Posted, NOT Reflective	5
	Not visible from the road	15
Ingress / Egress	Two or more roads In/Out	0
	One road In/Out	10
Driveway Clearance	Greater than 24'	0
	Between 20'-24'	5
	Less than 20'	10
Distance to Dangerous Topography	Greater than 150'	0
	Between 50'-150'	30
	Less than 50'	75
Slope	Less than 20%	0
	Between 20%-45%	20
	Greater than 45%	40
Background Fuels	Light	25
	Moderate	50
	Heavy	75

CATGEORY	OBSERVED CONDITION	POINTS
Defensible Space	Greater than 100'	0
	Between 30'-100'	50
	Between 10'-30'	75
	Less than 10'	100
Roofing Material	Class A: Non-Combustible (Tile, Metal, Asphalt)	0
	Class B or C: Combustible (Wood)	200
Building Exterior	Non-combustible	0
	Log, heavy timbers	20
	Wood, vinyl	60
Other Combustibles	None, Greater than 30' from structure	0
	Between 10'-30' from structure	10
	Less than 10' from structure	30
Decks & Fencing	None	0
	Non-combustible Deck/Fence attached to structur	20
	Combustible Deck/Fence attached to structure	50

Overall Total Rating	Min	Max
Low	25	150
Moderate	151	175
High	176	270
Very High	271	365
Extreme	366	665

Figure 12 Wildfire Risk Analysis Scoring

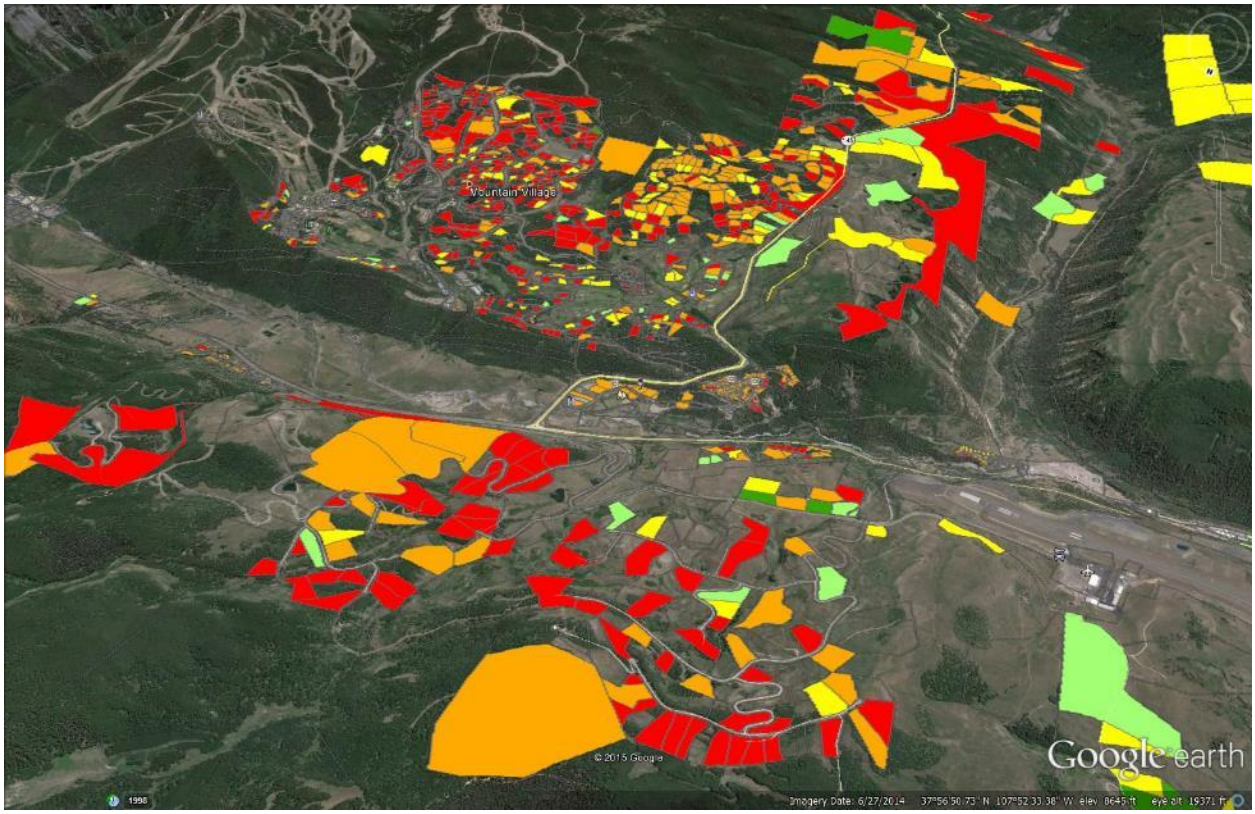


Figure 13 Parcel Level Risk Assessment results in the Telluride Fire Protection District

Division of Fire Prevention and Control (State)

On July 1, 2012, the State responsibilities for wildland fire management and prescribed fire transferred from Colorado State University to the Colorado Department of Public Safety (CDPS) under its Division of Fire Prevention and Control (DFPC). This was a result of legislative action in the form of House Bill 12-1283. The purpose of HB12-1283 is to enhance Colorado's ability to prepare for and respond to fire and other emergencies by creating a single point of authority for fire and consolidating the State's homeland security and emergency management functions in the CDPS.

Colorado law; specifically Section 24-33.5-1226 (3) (a), C.R.S. requires the Director of the Division of Fire Prevention and Control to develop an annual Wildfire Preparedness Plan, in collaboration with a representative of the County Sheriffs of Colorado, a representative of the Colorado State Fire Chiefs' Association, the Director of the Office of Emergency Management and the Adjutant General.

The Wildfire Preparedness Plan shall be designed to address the following:

- The amount of aerial firefighting resources necessary for the state of Colorado at times of high and low wildfire risk;

- The availability of appropriate aerial firefighting equipment and personnel at times of high fire risk to respond to a wildfire;
- The availability of state wildfire engines and staffing of the engines at different levels of wildfire risk;
- The availability of state inmate wildfire hand crews at different levels of wildfire risk; and
- A process for ordering and dispatching aerial firefighting equipment and personnel that is consistent with, and supportive of, the statewide mobilization plan prepared pursuant to Section 24-33.5-705.4, C.R.S.

The Wildfire Preparedness Plan shall also provide recommendations on the use of the Wildfire Preparedness Fund created in §24-33.5-1226 (4) (a), C.R.S.

Wildfire Annual Operating Plan

The purpose of the Wildfire Annual Operating Plan (AOP) is to set forth standard operating procedures, agreed procedures and responsibilities to implement cooperative wildfire protection on all lands within San Miguel County. Fire cooperators meet annually to adopt the AOP and discuss new laws as they relate to fire response and agency responsibilities, establish communication plans and confirm resource rates.

All parties who participate agree to reciprocal mutual aid assistance throughout the initial attack period that can be up to 24 hours, which may end earlier by mutual agreement, and preferably by 11:59 p.m. for ease in financial accounting of costs incurred. “Initial attack period” is defined as fire suppression from the time of initial report of the fire to the agreed upon termination of mutual aid.

CRRF

The Colorado Resource Rate Form (CRRF) is the State of Colorado’s only document for a Cooperator to list their equipment and reimbursement rates for resource mobilization. It also provides information for incident management teams, and facilitates the entry and maintenance of this information in WebEOC and ROSS. This document is standardized and stand-alone, and is the only document to be used for incident reimbursement through the State of Colorado.

Wildfire Preparedness Fund

The Wildfire Emergency Preparedness Fund (WERF) in Colorado was authorized by the 2006 Legislature through Senate Bill 06-096, which also appropriated funding for state fiscal years 2006 through 2010 to support implementation of the actions directed by the legislation.

Colorado Emergency Fire Fund

San Miguel County also participates in the Colorado Emergency Fire Fund (EFF). This fund, established in 1967, assists the payment of expenses when catastrophic wildfires exceed a participating County's resources. 35 Colorado counties contribute to EFF. A County's annual assessment for EFF is calculated using a formula based on the acreage of private watershed and the annual property tax valuation.

Counties with large amounts of private watershed land and a high assessed valuation pay more into the fund than rural counties with large acreage of federal lands and low assessed valuation. Emergency funding requests must originate from the County Sheriff and State Forester approval is required. The fund has paid for nearly 3 million dollars of suppression costs since its inception *(Source: Colorado State Forest Service).*

San Miguel County Mutual Aid Agreement

In the case of a wildland fire that exceeds the capabilities of the Fire Protection District to control or extinguish and that requires mutual aid and outside resources, a mutual aid agreement is in place which outlines that the Sheriff shall assume financial responsibility for the firefighting efforts on behalf of the county and the authority for ordering and monitoring of resources but that a Unified Command structure will be maintained.

County Road and Bridge Department

Road & Bridge employees are trained to run dozers to help control forest fires plus and they can provide additional support with water trucks as necessary. During fire season tenders with water are staged near high risk areas wherever possible.

Other Wildfire Capabilities

The CWPP contains extended capability lists by Fire Protection District.

- Coonskin Ridge Prescriptions 2009
- Wildland Interface and High Risk Potential Study on Fire District 2008
- TOMV Wildfire Mitigation/ Forest Health Plan 2010
- Telluride Fire Protection District Master Plan

WINTER STORM

Power Redundancy

The region's primary source of power is a 92-mile, 115 kilovolt (kV) transmission line operated by Tri-State that originates at the Hesperus Substation near Durango and traverses over Coal Bank, Molas and Ophir Passes. It is vulnerable to severe winter storms, wildfire and avalanche and if the line experiences an outage, reduced power and rolling blackouts will occur. A secondary power source was a 69 kV line from Nucla-owned by San Miguel Power Association (the primary power provider for San Miguel County and a Tri-State member) that feeds the area and was originally constructed in 1948. The 50-year-old line was at the end of its useful life, vulnerable to lightning strikes and costly to maintain. Additionally, this line was unable to support the electric load during peak energy usage times in the Telluride area if the line's primary source from Durango goes out.

Beginning in June of 2010 Tri-State's Nucla – Sunshine 115 kV transmission project replaced the existing 69 kV line in 2013 and the old line was removed. Constructing a new 19.9-mile-long, 115 kV line from the Nucla Substation to the Norwood Substation, across portions of Montrose and San Miguel counties.

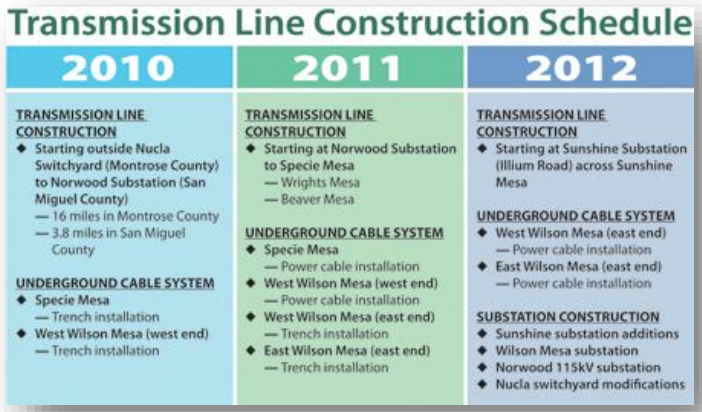


Figure 14 Timeline for Transmission Line

The newly constructed transmission line begins at the Nucla Substation, west of Naturita in Montrose County, and will terminate at the Sunshine Substation near Telluride in San Miguel County. The Nucla-Sunshine Project encompasses approximately 50 miles of new line and transmission facilities, including:

- Constructing a new 30.4-mile-long, 115 kV transmission line from the Norwood Substation to the Sunshine Substation near Mountain Village on Ilium Road (aka South Fork Road), consisting of 20.4 miles of overhead line and 10 miles of underground line (across portions of Specie and Wilson mesas in San Miguel County).
- Expanding the Norwood Substation, near the town of Norwood on two acres of private land.
- Replace the existing Wilson Mesa Substation in San Miguel County.
- Modifying the existing Nucla and Sunshine substations.

- SMPA will remove the Oak Hill Substation on Wrights Mesa and Specie Mesa Substation, reclaiming the property to its original state. The Project Map for download can be found here.

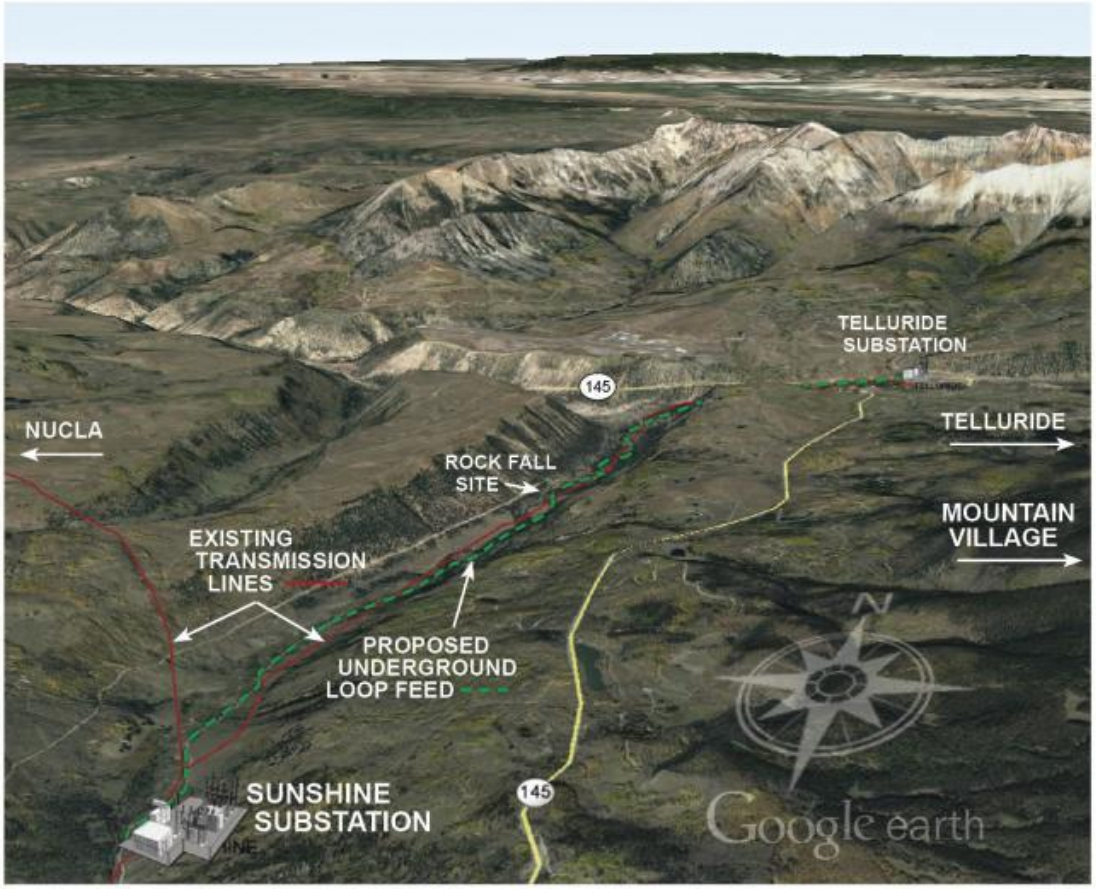
Telluride Reliability Project

In February, 2016 the Telluride area went without power for over 37 hours during the busiest ski week of the season. Power, cell phone and landline phones were all affected. An electric transmission power pole in Ilium Valley was destroyed by a falling rock, and the transmission and distribution lines were broken.

Because the damaged lines comprised what engineers call a "radial feed," there was no backup. Therefore, residents and businesses had to wait while crews from Tri-State and SMPA worked through the night to re-install the power pole, lines and components.

The event brought renewed attention to an SMPA proposal called the "Telluride / Mountain Village Reliability Project." This project proposed to bury heavy distribution lines capable of backing up the transmission line between the Sunshine and the Telluride substations. This redundant feed would allow one substation to cover the load of the other in case of failure. Moreover, because the new line would be buried underground it would be invisible and invulnerable to such events as the infamous rockslide.

Figure 15 Nucla Sunshine Transmission Line Project Map



Snow Removal

Road & Bridge has increased its fleet of snow removal equipment over the years to provide higher levels of service in the populated areas of the County. The department is capable of handling a very severe winter storm with the exception of the outlying areas as these areas may be snowed in for up to three or four days. County Road and Bridge have identified critical areas where snow fencing is beneficial therefore, each year the department plows high ridges in fields adjacent to the roads to act as snow fencing. This is a very effective method of snow fencing which has been in use for many years.

AVALANCHE CONTROL

The Road and Bridge Department periodically performs control work for avalanche mitigation in the Ophir area and other areas as needed. The County Road and Bridge department has a contract with a local avalanche hazard consulting firm and, using the firm's equipment and expertise, avalanches are remotely triggered following heavy snow cycles after any persons that may be at risk have been safely evacuated. Telluride Ski Area also employs its own Ski Patrol staff to control and safely trigger avalanches within the ski area boundaries outside and adjacent to the towns of Telluride and Mountain Village.

DROUGHT

The Colorado Water Conservation Board has a Drought Planning Toolbox that is designed to assist water users throughout the state with their efforts in planning and response to a drought. Explore the toolbox to find drought information and data, as well as a comprehensive suite of planning resources, financial assistance and tools.

COUNTY PLANS

San Miguel County Comprehensive Development Plan

The County's Planning Department has the Comprehensive Development Plan and Land Use Code available to the public on the County's web site. The plan originated in 1978, was amended in 2001 and was most recently updated in 2008. The Comprehensive Plan serves to guide future decisions by public and private entities about the physical development of the County. All plans listed in this section can be found at this web site: http://www.sanmiguelcountyco.gov/252/Master-Plan

Telluride Regional Area Master Plan 1989, amended 1991

This plan is part of the County's Comprehensive Development Plan. The Telluride Regional Area Master Plan represents a policy statement about community goals and desires. It is also a statement of community values and ideals. It is to be used as a guide for decision-making by residents and officials in San Miguel County, private investors and developers, Federal agencies such as the U.S. Forest Service and Bureau of Land Management, the State of Colorado, and other bodies who must understand the County's direction. It is the responsibility of developers to show that a proposed development conforms to the goals and objectives and the Future Land Use Map of the plan.

Wright's Mesa Master Plan

This plan is part of the County's Comprehensive Development Plan. The Wright's Mesa Master Plan is a policy document intended to provide guidance for future land use activities. In accordance with Colorado law, as a part of the county's Comprehensive Plan, it is not a regulatory document. It contains a Vision, goals and policies, a Future Land Use Plan and specific strategies. This Plan is an update to the 1998 Master Plan and reflects the work of a Citizen Advisory Committee (CAC) appointed by the Board of County Commissioners, as well as a great deal of input from the public.

San Miguel County Open Lands Plan

The purpose of this Open Lands Plan is to develop a strategic framework for open space conservation, as well as to serve as a guide to the Open Space Commission, Recreation District Board and Board of County Commissioners regarding protection and/or acquisition of county open space resources.

San Miguel County Land Use Code

The recommendations spelled out in the Comprehensive Plan are implemented through the County's Land Use Code and Zoning regulations. The San Miguel County All-Hazard Mitigation Plan does not constitute any section of the Comprehensive Plan but serves to emphasize the importance of those elements of the plan related to hazard mitigation. The entire Land Use Code can be viewed online at: https://www.sanmiguelcountyco.gov/243/Land-Use-Code.

County Emergency Operations Plan

Rewritten and updated in March 2014, the revised San Miguel County Emergency Operations Plan was signed and put into effect. San Miguel County Sheriff's Office developed this Emergency Operations Plan (EOP) for incidents that surpass the response capabilities of any one jurisdiction. The EOP provides a flexible blueprint for addressing major emergencies. It unifies County agencies and community partners in a common goal to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose a risk to San Miguel County. In addition, the plan is intended to provide San Miguel County officials and department heads with a basis for the coordinated management of disaster incidents so that impacts to people, property, the environment, public services and economy are minimized and so that normal community conditions can be restored as quickly as possible.

Public Health Emergency Operations Plan

The San Miguel County Department of Health and Environment maintains the Public Health emergency Operations Plan, originally completed in 2009, to prepare for leading the response to Public Health specific emergencies and disasters.

Environmental Health

The Environmental Health Department administers County regulations with respect to environmental quality and public health, safety, and welfare. The Environmental Health Specialist conducts routine inspections of food services (restaurants), retail food stores, daycare centers and performs school safety inspections. The Department administers the permitting of individual sewage disposal systems (septic systems), and operates the Norwood Solid Waste Transfer Station.

The County's Environmental Health Office issues septic tank permits that comply with state guidelines. Ground water contamination from individual sewage disposal systems, typically consisting of septic tanks and leach fields, is controlled through a permit system that incorporates soil test pits, percolation (perk) tests and compliance with state mandated setback requirements.

The Environmental Health Department also monitors air quality in the Town of Telluride on a continuous basis. The department monitors water quality and quantity in the San Miguel River. In addition, they help to identify wetlands or geohazards on county resident's property. They help to administer environmental standards contained in the County Land Use Code and promote education on these standards in reclamation, habitat improvement, xeriscaping or selection.

OTHER COUNTY CAPABILITIES

County Emergency Management Program

Emergency Management is the organization and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly mitigation, preparedness, response and recovery. Emergency management involves plans, structures and arrangements established to engage the normal endeavors of government, voluntary and private agencies in a comprehensive and coordinated way to respond to the whole spectrum of emergency needs. This is also known as disaster management. Emergency Management staff at the county include a full time Emergency Manager (2017) and a part-time Emergency Management Coordinator located within the County Sheriff's Office.

General Preparedness Campaign

To provide the public with general preparedness information for a variety of hazards, the County's Preparedness website links citizens to information. Information encourages citizens to take steps toward preparing themselves, their families and their businesses for emergencies. The site directs to the federal site 'Ready.gov' for emergency and disaster information and resources such as personal preparedness kits, pet preparedness and business preparedness.

County Wildfire Mitigation Education

Updated in 2013, the Wildfire Mitigation Brochures were originally created by the Sheriff's Office Emergency Management Coordinator as a way for the public to become informed of mitigation efforts they could make to benefit themselves, their community and the county as a whole by doing mitigation

work on their property after the completion of the CWPP. The brochures are currently updated by the West Region Wildfire Council.

SAN MIGUEL COUNTY LAND USE CODES

The unincorporated areas of San Miguel County are zoned through the County's Land Use Code. The current Code was adopted in 1990 to better manage the impact of growth. There are approximately 146 subdivisions in San Miguel County. The incorporated towns within the County have enacted zoning and other land use regulations for development within their respective jurisdictions. The following table outlines all county land use codes in use and the percentage of the county affected by the respective land use code.

Table 18 County Land Use Codes in Use

Land Use Code	Description	Acres	% of County
AHPUD - Affordable Housing PUD	Section 5-305	197.0921	0.024
AR-1 - Accommodations & Recreation	Not in current code	0.1989	0
AR-2 - Accommodations & Recreation	Not in current code	5.3304	0.001
F - Forestry, Agriculture & Open	Section 5-307	333837.4874	40.413
HC - Heavy Commercial	Section 5-308	13.8958	0.002
HCA - High Country Area	Section 5-321	26869.4063	3.253
I - Low Intensity Industrial	Section 5-309	50.2747	0.006
LD - Low Density	Section 5-304	2916.7838	0.353
MD - Medium Density	Section 5-303	543.1907	0.066
MH - Mobile Home	Section 5-312	199.5383	0.024
OS - Open Space	Section 5-314	792.5227	0.096
P - Park	Section 5-313	12.5402	0.002
PC - Placerville Commercial	Section 5-311	7.0195	0.001
PR - Placerville Residential	Section 5-310	24.9918	0.003
PUB - Public	Section 5-315	319.45	0.039

Land Use Code	Description	Acres	% of County
PUD - Planned Unit Development	Not in current code	1088.694	0.132
PUDR - Planned Unit Development Reserve	Section 5-317	232.7999	0.028
R- Single-family Residential	Section 5-306	186.6595	0.023
RG - Rangeland Grazing	Section 5-318	6986.7453	0.846
Split - has two zone districts		310.8795	0.038
TC - Town Commercial	Not in current code	4.34	0.001
WE - West End	Section 5-320	411000.5015	49.754
WM - Wright's Mesa	Section 5-319	36923.3672	4.47

The majority of the development and growth has been in the East County region, primarily in the box canyon formed by the San Miguel River where the town of Telluride lies. The nature of this dramatic and scenic steep sided valley has resulted in focused development pressures since the late 1980's. While there is significant growth within San Miguel County, the County is managing growth so as not to increase vulnerability to hazards. These measures are discussed further in the Capability Assessment section of this plan. Additional details on projected growth and development, and growth management can be found in the *Telluride Regional Area Master Plan and the San Miguel County Comprehensive Development Plan*. Because of the large amount of publicly owned land within the County, some growth and expansion constraints are already in place. The limited availability of private land, overall remoteness of the County, presence of the Telluride Ski Resort and scenic splendor has led to a higher than normal cost of living in the County, which is especially noticeable near the Telluride Regional Area. This has contributed to an increase in the number of commuters that live outside the region. Many commute to work in Telluride over mountain passes from neighboring Ouray, Montrose, and Dolores Counties.

San Miguel County Vegetation Management

The State of Colorado gave the County authority to enforce the Colorado Weed Control Act to control foreign and noxious weeds within the County, in conjunction with the U.S. Forest Service.

Building Department and Codes

The Building Department issues permits for structural and non-structural building and development within San Miguel County. The Department is also responsible for assigning and reassigning physical addresses outside the municipalities.

The Uniform Building Code had been adopted in all the incorporated areas and the eastern unincorporated areas of San Miguel County in 1972. The code did not apply to the West End of the County to conform to the County Comprehensive Plan's goal to preserve the rural and rugged character of the region. Over the years several updates and modifications to the building code occurred, including adoption of the 2012 International Fire Code, the Prescriptive Energy Code and Green Building Standard requirements.

In January 2011, the International Building Codes were adopted by the Board of County Commissioners. This comprehensive code features time-tested safety concepts, structural, and fire and life safety provisions covering means of egress, interior finish requirements, comprehensive roof provisions, seismic engineering provisions, innovative construction technology, occupancy classifications and the latest industry standards in material design. It is founded on broad-based principles that make possible the use of new materials and new building designs.

All adopted building codes may be accessed on the county's website at: https://www.sanmiguelcountyco.gov/157/Building.

The County has Geographic Information System (GIS) and Information Technology (IT) Departments that provide mapping and database support to multiple County departments and services. The following efforts will support natural hazard mitigation, in addition to the mapping and analysis that was done to support this planning process:

- **Geohazard Mapping.** The County is participating in a partnership with various State of Colorado agencies to obtain LIDAR data in support of analyzing areas prone to debris flow and flooding, specifically the San Miguel River between the Town of Telluride and Placerville, adjacent to Highway 145.
- **Internet Mapping.** County GIS supports a robust internet mapping system that is available to the public as well as emergency response agencies. Emergency response agencies and emergency management have access to additional spatial data through a site specifically designed for their needs.
- **Mobile Offline Mapping.** County GIS offers support for mobile, offline mapping on responder devices, such as cell phones and tablets. This application will be deployed in early 2018. The offline capability is crucial given the many locations in the county where cell service is not available. This application provides searchable locally-sourced data for addresses, roads and common places.
- **Addressing.** County GIS completed a multi-year project to improve addressing in support of 9-1-1 and other emergency response applications throughout the county, including posting reflective signs. Ongoing cooperation with addressing authorities, such as municipalities, ensures continual

review to maintain consistent and accurate addresses. These address and structure locations are available as digital, searchable layers in the online mapping application.

- **Interagency Data Integration.** A group of local government GIS practitioners worked together toward the ability to integrate key spatial datasets, such as addresses, roads and Emergency Service Zones, across 6+ counties on the Western Slope. San Miguel County GIS provided the technical means for the data to be integrated through automated processes. This effort facilitates monthly updated datasets which can be downloaded by any of the agencies and used in the various communication centers. The project allows seamless cross-boundary response and anticipates the data needs of NextGen 9-1-1.
- **Pictometry**. San Miguel County has contracted three aerial photography flights with EagleView: in 2008, 2013 and 2017. This product provides oblique imagery, along with traditional aerial photography, to be viewed in the county mapping system. Oblique imagery is aerial imagery captured at an angle of 40 to 45 degrees, designed to provide a more natural perspective and make objects easier to recognize and interpret. The communications centers and emergency responders use the data, along with the Assessor's Office, Planning Department and various other town governments.

COUNTY ALERT AND WARNING SYSTEMS

CodeRED Emergency Notification System

The County utilizes CodeRED emergency notification system to provide targeted, geographically specific emergency notification to residents. Pre-planned target areas have been set up in the system to notify residents in the event of an emergency or disaster. An example of a preplan area is the Trout Lake inundation areas and the larger communities in the county such as Telluride, Mountain Village, Norwood and Ophir.

Local Broadcast Media

The County also utilizes the EAS to broadcast warnings over local radio stations. The authority to initialize this utility lies with the incident commander and/or Sheriff. The request is made through the San Miguel Dispatch Center.

HAZMAT RESPONSE

The capability in the hazardous materials response area within the Telluride Fire Protection District and San Miguel County has boomed since the last update of this plan. Thanks to efforts made by the Telluride Fire Protection District San Miguel County now has a fully trained emergency response team.

In 2012 the Telluride Fire Protection District (TFPD) began formation of a formally training Hazardous Materials (HazMat) team in response to known and anticipated risks within the district and county, the

lack of existing capabilities and response times and risk to firefighters and others first responders from the nature and complexity of HazMat calls and the changing nature of structure fires.

Telluride HazMat Response Team (THRMT) was announced as fully operational in May of 2013 (but had been responding to HazMat calls starting since in March of 2012 during its formation and training). The Team has been responded to just under 50 calls since 2013.

Currently THMRT is a fully mobile, operational Type II HazMat/Weapons of Mass Destruction (WMD) and Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) team based at TFPD Station 1, located in the Town of Telluride.

The team is staffed by five certified firefighters that are additionally Colorado (DFPC) Certified HazMat/WMD Technicians (HMT). Four of the HMTs hold Specialist credentials in one or more areas to include HERS (Highway Emergency Response Specialists), RAD/NUC, IRB. Additionally four HMTs are credentialed has HazMat Safety Officers, three are Colorado certified for Clandestine Lab, two are Colorado Certified Death Investigators and two are HazMat incident leadership (LMSTI) trained.

Additionally as result of THMRT and TFPD efforts, over 40 firefighters and law enforcement officers in the TFPD area are certified at the HazMat Operations levels and can be integrated into the THMRT response package as a force multiplier.

THMRT has equipment and supplies which exceed Type II requirements and is positioned to provide initial response to virtually all HazMat/CBRNE events and is self-sustaining for at least one operational period. THMRT has a comprehensive and active training program to maintain response effectiveness which includes cross training with other organizations. THMRT responds as availability and resources allow to requests within the county and with Western Slope with partner organizations, such as Colorado State Patrol (CSP) HazMat and to other regional agencies, including the Montrose Fire Department.

TOWN OF TELLURIDE CAPABILITIES

Water Treatment and Storage

The Town of Telluride operates three water treatment plants utilizing three different water sources, and this provides both flexibility and redundancy to the water system. The Telluride Water System provides water to the Town of Telluride the downriver communities including Lawson Hill Subdivision, Hillside Subdivision and Falls Subdivision.

There is approximately 1.5 million gallons of water storage that is available for domestic and fire protection uses. Telluride has a Water Master Plan that addresses future needs with a focus on resiliency.

These communities have additional water storage:

- Elk Run

- San Bernardo
- Aldasoro

Land Use Code

The purposes of the Telluride Land Use Code are to assure the proper and sensitive development of land within Telluride; to protect and enhance the quality of life in Town and its environs; and to establish a clear, consistent, predictable and efficient land development review process.

Prevent Hazardous Development

Prevent development that creates or adds to existing geologic hazards, erosion, flooding, or other potential dangers to life and safety, or which detracts from the quality of life in the Town. 1-103.G.

Violation of Geologic Hazard or Floodplain Regulations

Any person who knowingly engages in a development in a designated area of geologic hazard or floodplain hazard or who conducts a designated activity of local or state interest, and who does not first obtain a permit pursuant to this Title, or who does not comply with permit requirements, or who acts outside the authority or contrary to the conditions of the permit, is guilty of a misdemeanor for each such violation or occurrence. Each day of a continuing violation shall be deemed to be a separate offense. 1-303.D.

Floodplain Management

As a CRS community Telluride has an active floodplain management program as previously discussed. The Town building official is also the floodplain manager who is responsible for implementing the Town's floodplain ordinance.

Drainage Planning and Improvements

The town has a drainage master plan and conducts ongoing channel and culvert cleaning and maintenance, particularly those areas affected by the Cornet Creek drainage. The Townsend Street Bridge over Cornet Creek was replaced in the summer of 2005 and larger culverts will be installed. The Town staff periodically monitors the Cornet Creek above the falls (in the Uncompahgre National Forest) just outside of town for snags or other debris that can block the channel. Debris flow warning systems have been considered in the past, but no cost effective or reasonable solutions have been determined to date.

Hazard Mapping

The Town has the Floodplain and Geological Hazards Map available as a PDF document on the Town website.

Telluride also utilizes a Capital Asset Maintenance Plan that details scheduled capital improvements and capital replacements.

TOWN OF MOUNTAIN VILLAGE CAPABILITIES

Evacuation and Shelter Plan

Mountain Village has developed a plan for evacuation routes and a shelter in the event of a natural disaster such as a wildfire occurs. A link to the plan and other information may be accessed on the web at: https://townofmountainvillage.com/residents/public-safety/

Water Storage

In the summer of 2015 the Town of Mountain Village completed a new water line which allows the large water tanks with 2.2 million gallons of storage to supply water to a tank that holds 500,000 gallons. This project does not add capacity but rather moves the water more efficiently to cover the entire town for high fire flows.

High production wells feed the 2.2 million gallon tanks so that supply water can be better sustained throughout the entire town. Also replaced during this time was the water line from the Mountain Village to the Ski Ranches. This line also increases the efficiency to move water to the Ski Ranches from the large storage tanks located in the Mountain Village thus increasing the fire protection in the Ski Ranches.

Town of Mountain Village Comprehensive Plan

The Town of Mountain Village began its Comprehensive planning process in 2008. As of December 2010 the plan has not been formally adopted, but is scheduled to be adopted in 2011. The Mountain Village Comprehensive Plan serves to embody the community's vision and values, enable a community to maintain and enhance its attributes, guide growth, development and economic heath, and be a long-range, forward-looking advisory document and set aspirations and intentions.

Land Use Ordinance

The Town of Mountain Village Land Use Ordinance is established was established to achieve several goals: to promote public health, safety and welfare; to promote the economic vitality of the Town, to guide development within the town limits, etc.

TOWN OF NORWOOD CAPABILITIES

Master Plan and Land Use Code

The Norwood Master Plan / Land Use Code was updated in 2008. The regulations in this document were established for the purpose of promoting the health, safety and general welfare of the Town of Norwood. They have been designed to lessen the congestion in the streets, to secure safety from fire, panic and other dangers, to provide adequate light and air, to prevent the overcrowding of land, to avoid undue concentration of population, to promote energy conservation and to facilitate the adequate provision of transportation, water, sewerage, schools, parks and other public requirements to guide development within the town limits.

Both plans may be accessed here: http://www.norwoodtown.com/townplanning-2/

Water Storage

Town of Norwood Water Commission has a contract with Farmers Water Development Company to purchase 300 Acre feet of water per year for a set price. The Town has two reservoirs for storage. Reservoir #1 holds 18.4 Acre Feet and Reservoir #2 holds 91 Acre Feet. If the dam on the Gurley reservoir should happen to be breached, the Norwood Water Commission would access water at the reservoirs via the Gurley Ditch system. This system was recently tested in the fall of 2010 when the Gurley Reservoir was drained for repairs.

OPHIR CAPABILITIES

Avalanche Control

Ophir and San Miguel County are working on an intergovernmental agreement on avalanche control. Gates prevent access to and from town during high hazard periods. Many of the residents of this small community are highly aware of the risks associated with living in the Ophir valley, and are willing to adjust their schedules around Mother Nature as necessary.

Water Storage

Ophir has three water storage tanks totaling 90,000 gallons. One 20,000 gallon tank is located in west Ophir and two 35,000 gallon tanks are located in east Ophir.

Water Treatment

The Town of Ophir began the process of upgrading the water treatment and storage in 2010. The project was financed through a grant from the Colorado Department of Local Affairs and an interest-free loan of $500,000 as part of the American Recovery and Reinvestment Act.

Previously, the town had relied on an archaic system that took water from Warner Springs with a simple redwood box. Now, Ophir's primary water source is Waterfall Canyon. This is a surface water intake in

Waterfall Canyon, runs though aging pipes that are either above ground or buried relatively shallow. On the north side of the Town of Ophir, they have a secondary groundwater source from Warner Spring (this feature is reaching its expected lifespan).

Master Plan

The Ophir Master Plan is a policy document that establishes a community vision for future development and growth management in the Ophir region. The Plan is comprised of this text and graphics in this text, Future Land Use maps and the Major Streets Plan map. Numerous public meetings, opinion surveys, and studies were conducted as part of creating this Plan. The Plan is intended to promote better decision making by providing a comprehensive view of planning issues related to future development and growth management. The plan may be accessed at: https://www.sanmiguelcountyco.gov/253/Community-Plans.

Town of Ophir Land Use Codes

The Town of Ophir Land Use Code guides development within town of Ophir in the interest of protecting their local resource, the natural environment, while at the same time allowing for the use of the land. The plan may be accessed at: https://www.sanmiguelcountyco.gov/253/Community-Plans.

SAWPIT CAPABILITIES

Town of Sawpit Land Use Code

Guides development within town of Sawpit. The plan may be accessed at: https://www.sanmiguelcountyco.gov/253/Community-Plans.

Town of Sawpit Source Water Assessment Report

The Town of Sawpit Source Water Assessment Report provides the Sawpit public water system an opportunity to use preventative approaches for protection. The plan may be accessed at: https://www.sanmiguelcountyco.gov/253/Community-Plans.

STATE AND FEDERAL CAPABILITIES

Colorado Division of Homeland Security & Emergency Management

The Division of Homeland Security and Emergency Management (DHSEM) is responsible for the state's comprehensive emergency management program which supports local and state agencies. Activities and services cover the four phases of emergency management: Preparedness, Prevention, Response, and Recovery for disasters like flooding, tornadoes, wildfire, hazardous materials incidents, and acts of terrorism.

Planning and training services to local governments include financial and technical assistance as well as training and exercise support. Services are made available through local emergency managers supported by DEM staff assigned to specific areas of the state. During an actual emergency or disaster, DHSEM coordinates the state response and recovery program in support of local governments. DHSEM maintains the state's Emergency Operations Center (SEOC) where representatives from other state departments and agencies come together to coordinate the state response to an emergency situation.

Colorado Office of Homeland Security

The Governor's Office of Homeland Security operates under the DHSEM and coordinates state, regional and local efforts to prepare Colorado's communities to be capable of preventing attacks and protecting against, responding to, and recovering from all hazards by developing, implementing, resourcing, exercising, and evaluating our State Homeland Security Strategy.

Colorado Information Analysis Center

In response to the 2001 September 11th attacks, the United States has created specialized agencies to coordinate efforts to prevent, protect against, respond to, recover from, and prosecute acts of terrorism. The CIAC operates under the DHSEM and is a multi-agency fusion center created to help prevent terrorism incidents in Colorado. The CIAC is designed to link all stakeholders in Colorado, from local and federal law enforcement officers, to bankers and school teachers. It emphasizes detection, prevention, and information-driven response to protect the citizens and critical infrastructure of Colorado. This counterterrorism effort is centralized in order to enhance interagency cooperation and expedite information flow.

The Colorado Department of Public Health and Environment (CDPHE)

The department serves the people of Colorado by providing high-quality, cost-effective public health and environmental protection services. The department focuses on evidence-based best practices in the public health and environmental fields and plays a critical role in educating our citizens so they can make informed choices. In addition to maintaining and enhancing our core programs, we continue to identify and respond to emerging issues that could affect Colorado's public and environmental health.

The department pursues its mission through broad-based public health and environmental protection programs, including disease prevention; control of disease outbreaks; health statistics and vital records; health facilities licensure and certification; health promotion; maternal, child, adolescent, and women's health; tuberculosis prevention and treatment; refugee health assessment; prevention and treatment of sexually transmitted infections including HIV; nutrition services; suicide and injury prevention; emergency medical services; disease prevention and intervention services for children and youth; minority health improvement and health disparities reduction; laboratory and radiation services; and emergency preparedness. The department's environmental responsibilities span a full array of activities, including air and water quality protection and improvement; hazardous waste and solid waste management; pollution prevention; environmental leadership; and consumer protection.

Colorado Outdoor Recreation Search and Rescue (CORSAR) Card

Colorado residents and visitors are well served by dedicated volunteer search and rescue teams, but mission costs are often in the thousands of dollars. By purchasing a CORSAR card you are contributing to the Search and Rescue Fund, which will reimburse these teams for costs incurred in your search and rescue. Funds remaining at the end of the year are used to help pay for training and equipment for these teams. Anyone with a current hunting/fishing license, or boat, snowmobile, ATV registration is already covered by the fund.

The card is not insurance and does not reimburse individuals nor does it pay for medical transport. Medical transport includes helicopter flights or ground ambulance. If aircraft are used as a search vehicle, those costs are reimbursed by the fund. If the aircraft becomes a medical transport due to a medical emergency, the medical portion of the transport is not covered.

Cards may be purchased at most sporting goods stores in the county, at the Sheriff's Office or online. The CORSAR cards are available for $3 for one year and $12 for five years.

The Colorado Avalanche Information Center

The Colorado Avalanche Information Center maintains a mountain weather and avalanche information hotline and website. The number for the Durango and Southern Mountain region is 970-247-8187, 303-275-5360 for Denver, and the website address is http://geosurvey.state.co.us/avalanche. The website and phone line provide warnings to backcountry travelers, as well as tips on how to avoid being caught in an avalanche.

The Colorado Department of Transportation

The Colorado Department of Transportation (CDOT) is responsible for avalanche and rockfall control programs on Highways 62 and 145. Current rockfall mitigation techniques employed include jersey barriers on Highway 145 near the Ophir Road and some recently constructed barriers on Norwood Hill.

CDOT has gates to close Highway 145 near Ophir during high avalanche hazard or control work. CDOT completed a Telluride Debris Flow Report and a Debris Flow Investigation.

Debris flow on Highway 145 has been a concern and a problem for many years. The problems arise due to unique geological, geographical, and soil conditions of the area. Results of debris flow events can include road closures, clogged drainage features, and structural impacts to the corridor.

Maintenance has noticed storms that produce approximately 1" of rainfall cause the events and these events typically occur at the beginning of the monsoon season, approximately the first storm in July.

Statistical analysis of maintenance activities correlated with precipitation events suggests 0.40"-0.50" of rainfall will cause a debris flow event. This value calculates to 20%-30% of annual storms, with each storm having varied road closure durations. Clusters of events are evident beginning in July and can be seen as late as November.

State of Colorado Water Conservation

The State of Colorado Water Conservation Board has prioritized all 64 counties in Colorado with regards to the Floodplain Map Modernization Program. The modernization program will convert paper Flood Insurance Rate Maps to a digital, GIS-based format aimed to improve floodplain management. San Miguel County is priority 17 out of 64.

State Geologic Hazard Review Process

The Colorado Geological Survey performs subdivision development reviews to ensure that potential geologic problems have been identified, and if so, adequately addressed. These reviews are required to be submitted by County planning departments for new subdivisions (voluntary for cities or towns) as required by Senate Bill 35 (1972). School sites must be submitted by school districts as directed by House Bill 1045 (1984). Other proposed uses including airports, landfills, water treatment plants, utility rights of way, highway rights of way, as well as the effects of large developments such as mines and ski areas are required to be reviewed under House Bill 1041 (1974).

Natural Resources Conservation Service

This Federal Agency in the U.S. Department of Agriculture (USDA) helps with the protection and development of soil resources within the County.

USDA Brand Inspector

The USDA Brand Inspector is responsible for inspections and control of livestock ownership.

BLM and USFS Resource Management Plans

The Federal Land Policy and Management Act directs BLM to manage its lands for multiple use and sustained yield of resources. The Bureau of Land Management (BLM) and the U.S. Forest Service (USFS)

conduct land use planning to develop long-term management policies for BLM public lands and national forests. Their plan may be accessed on their respective web sites.

Historic Mitigation Actions

In previous version of this plan there were several mitigation actions captured. In order to track historic mitigation actions these tables will remain in the plan for reference. The following table notes the mitigation project descriptions and the completion date or status.

Table 19: 2005 Plan Completed Mitigation Actions

Plan Year	Project Description	Status
2005	Develop south end fire protection infrastructure (San Bernardo)	Complete 2009
2005	Improve County addressing for emergency response	Complete readdressing and signage countywide
2005	Additional water storage for fire and drought mitigation	Complete 2014
2005	Hire Wildfire Mitigation Specialist	Complete, WRWC serves role working with EMC
2005	Insect Mitigation Plan for wetlands to prevent vector disease	Complete - Public Health
2005	Emergency Evacuation Plan	Complete - EOP Annex
2005	Redundant Radio Towers	Complete - three 800 DTRS; more needed
2005	New Garage for Emergency Response Vehicles	Complete - Norwood Fire Cache complete in 2009
2005	Rockfall mitigation on Norwood Hill	Complete - Project began July 2012 and completed in November 2016
2005	Improve debris drainage systems Keystone Hill	Complete - CDOT project
2005	Surge Population Mitigation plan	Complete - Public Health
2005	Trout Lake Dam Penstock Reinforcement	Complete - Critical sections replaced after 2005 and again in 2012

Plan Year	Project Description	Status
2005	Develop public officials buy-in and awareness	Complete - SMC adopted in 2010
2005	Education of rural living	Ongoing/Complete - Continuous education campaign/ program
2005	Critical facility alternatives analysis	Complete
2005	Develop NIMS training public officials buy-in and awareness	Ongoing Special Districts and Towns
2005	Public Education on hazards and mitigation	Ongoing - Various PSAs, social media, web
2005	Ophir Road Avalanche Studies/Control	Complete/Ongoing - Annual control work
2005	County wildfire education program-Fire Wise construction	Complete - Various PSAs, social media, web; Mtn. Village adopted FireWise Construction materials May of 2010
2005	Bury power lines/Reinforce power lines in Avalanche prone areas	Complete 2013 Sunshine Project
2005	Encourage back country and fishing licenses	Ongoing - Sheriff's Office and vendors sell permits locally
2005	Avalanche mitigation in Lizard Head Pass area	Ongoing - Performed annually, CDOT
2005	Bury power lines in wildfire prone areas	Complete 2013 Sunshine Project

VULNERABILITY ASSESSMENT

Planning Step 6 was to perform a Vulnerability Assessment. After reviewing all of the identified hazards and the existing mitigation capabilities, the AHPG assessed the vulnerability/ impact that each hazard has the potential to have on the County and the jurisdictions within the County. The County's vulnerability to each hazard can only be determined when historical frequency, current AHPG risk perception, existing mitigation capabilities, past mitigation actions, potential for life loss and the potential for property damage is analyzed.

Requirement §201.6(c)(2)(ii):

[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

[The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

Requirement §201.6(c)(2)(ii)(A):

The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B):

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

Requirement §201.6(c)(2)(ii)(C):

[The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Exposure Assessment

As a starting point, the AHPG utilized the County Assessor's data to define a baseline against which all other disaster impacts could be compared. The baseline is the catastrophic, worst-case scenario: the assessed value of the entire County as a whole. The value is deceptively low in that it only reflects commercial and residential property, but no infrastructure or other economic impact.

Table 20: Total Assessed Value, San Miguel County 2017

CLASS	VALUE
Residential	$ 65,870,075,300.00
Commercial	$ 3,508,998,149.00
Industrial	$ 11,569,029.00
Agricultural	$ 28,250,731.00
Natural Resources	$ 11,408,268.00
State Assessed	$ 78,893,445.00
Oil and Gas	$ 43,759,485.00
Vacant	$ 586,897,371.00
Other (Exempt)	$ 828,035,478.00
TOTAL excluding exempt	**$ 70,967,887,256.00**

Table 21: Structures and Population by Jurisdiction 2017

JURISDICTION	TOTAL STRUCTURES (2004)	TOTAL STRUCTURES (2010)	TOTAL POPULATION (2009) estimate
Unincorporated County	**2,400**	**2,838**	**3,158**
Telluride	**1,972**	**2,294**	**2,400**
Mountain Village	**1,036**	**1,732**	**1,389**
Norwood	**256**	**299**	**460**
Ophir	**67**	**76**	**128**
Sawpit	**24**	**24**	**23**
Total	**5,755**	**7,263**	**7,558**

Source: San Miguel County GIS and US Census Bureau

From the information above, it was determined that since 2004, 1,803 structures have been built in San Miguel County. It is important to determine which structures are the most vulnerable and to estimate their potential loss. The section below seeks to portray the vulnerability of the County as a whole to each hazard while utilizing information such as:

- Hazard related impacts such as life loss, safety and health
- Insurance coverage, claims paid and repetitive losses
- Values at risk
- Critical Facilities at risk
- Identification of cultural and natural resources at risk
- Overall community impact
- Development trends

Events that have a low historical frequency and thus have been given a lower risk rating may also have a huge impact if they occur. For example, Telluride has never had a wildfire put the town in danger. But, if a wildfire were to threaten the town, it would most likely have a significant impact on the community in terms of property loss and damage, economic loss etc.

WILDFIRE

San Miguel County recently completed a Community Wildfire Protection Plan (CWPP) which provides a comprehensive, scientifically-based analysis of wildfire related hazards and risks in the Wildland Urban Interface (WUI) areas of San Miguel County and a portion of Montrose County within the Norwood Fire Protection District. Using the results of the analysis, recommendations were designed to prevent and or reduce the damage associated with wildfire.

The following tables were taken out of San Miguel County's Community Wildfire Protection Plan. Subdivisions or populated areas are broken down by Fire Protection District and given a low, moderate, high, very high or extreme wildfire hazard rating.

Table 22: Norwood/Redvale Fire Protection District WUI Communities

WUI NAME	PARCELS	Hazard Rating
Norwood Agricultural Area	275	Low
Redvale	unknown	Low
Gurley Lake Ranch	38	Moderate
Mountain View	23	Moderate
Thunder Road	16	Moderate
Miramonte Ranch	20	High
Beaver Pines	16	Very High
Fitts Subdivision	56	Very High
Deer Mesa	unknown	Extreme
Mailbox	unknown	Extreme

Table 23: Telluride Fire Protection District WUI Communities

WUI NAME	PARCELS	Hazard Rating
Aldasoro	180	Low
Ophir	185	Low
San Bernardo/Priest Lake	33	Low
Hastings Mesa	427	Moderate
Ilium Valley/Ames	87	Moderate
Lower Mountain Village	1322	Moderate
Two Rivers Subdivision	80	Moderate
Telluride/Hillside	2567	Moderate
Iron/ Mackenzie Springs	104	High
Specie Mesa	55	High
Down Valley	292	High
Trout Lake	110	High
Upper Mountain Village	620	High
Brown Ranch	33	Very High
Lawson Hill	198	Very High

Table 24: Egnar/Slickrock Fire Protection District WUI Communities

WUI NAME	PARCELS	Hazard Rating
Egnar	12	Low
County Line Road	19	Low
Slick Rock	6	Moderate
Egnar Agricultural Areas	135	Moderate
Spud Patch	37	Very High

Source: San Miguel County CWPP, 2010

Analyzing Development Trends

Growth pressures, Telluride Regional area cost of living and the desire to live in forested areas are continuing growth in WUI in eastern San Miguel County and in other Colorado Counties. Structures in the woods put more people and property at risk to wildfires. San Miguel County is extremely concerned about wildfires and has initiated aggressive efforts to inform property owners of the risks, and what they can do to mitigate impacts.

The CWPP is described in further detail in the *Existing Hazard Mitigation Programs and Capabilities* section. In the West End, limited application of building codes and resulting lack of insurance puts new housing at higher risk. In the East End, some homeowner's association covenants do not allow for the creation of defensible space.

Vulnerability

Any major wildfire anywhere near populated areas in San Miguel County will have significant impacts on the community as a whole. After considering historical events, existing mitigation capabilities, hazard ratings from the County's CWPP and considering life, safety and potential economic impacts, the AHPG determined that San Miguel County is **Highly Vulnerable** to the impacts of a significant wildfire. Certain areas in San Miguel County are more likely to experience wildfires than others, which increases the vulnerability for those areas specified in Profiling Hazards.

DROUGHTS

Drought is different than many of the other natural hazards in that it is not a distinct event, and has an unusually slow onset. Drought can severely impact a region both physically and economically. Adequate water is the most critical issue: agricultural, manufacturing, tourism and commercial and domestic use

all require a constant, reliable supply of water. Water supply is affected both by decreased storage in reservoirs and dry wells resulting from a lowering of the water table. Reservoir storage and ground-water supply are related, in that when reservoirs run dry users rely more on wells to pump groundwater, which in turn lowers the water table and also increases pumping charges due to increased use of electricity.

With the recent multi-year drought that affected San Miguel County from 1998 to 2005 and Colorado's drought history it is evident that the entirety of San Miguel County is vulnerable to drought. The impacts of future droughts will vary depending on the region. The agricultural economy of the West End will experience hardships associated with a reduction in water supply, including agricultural losses. The Eastern County will see an increase in dry fuels and beetle kill and associated wildfires, and loss of tourism revenue during the ski season. The hydroelectric power plants within the County may have reduced power generation during times of drought. Water supply issues for domestic needs will be a concern for the entire County during droughts.

Analyzing Development Trends

As the population grows so do the water needs for household, commercial, industrial, recreational, and agricultural uses. Vulnerability to drought is likely to increase with these increased water needs.

Vulnerability

After considering historical events, existing mitigation capabilities, potential impacts in terms of life loss, safety and considering future water demands and economic impacts, the AHPG determined that San Miguel County as a whole is moderately vulnerable to drought events. The western portion of the County has a slightly increased vulnerability compared to the County as a whole when climate and agriculture as an economic base are taken into consideration.

LANDSLIDES/DEBRIS FLOWS AND ROCKFALL

Rockfalls and landslides are most likely to impact transportation corridors. There is a serious risk to life safety to travelers due to the relatively frequent occurrence of rockfalls. There are also economic impacts from traffic delays or disruptions, which could be potentially major with the lack of viable alternative transportation corridors in the County. Mudflows originating from Cornet Creek, based on historic incidents, will continue to pose a serious threat to the Town of Telluride's residents and residential and commercial property.

Analyzing Development Trends

Hazard maps and land use codes have been designed to discourage development in hazard prone areas. Redevelopment of existing properties within some of these areas continues, however, putting new and more expensive homes at risk within the Town of Telluride.

Vulnerability

The eastern portion of San Miguel County including the San Miguel River Canyon East of Placerville and the Town of Telluride are **Highly Vulnerable** to the impact of Debris Flows. Steep canyon walls coupled with summer monsoon rains have caused debris flows and rockfall in the past. The impacts of debris flows cannot be lessened by obtaining flood insurance because 'dirty water' does not qualify for flood claim reimbursement. Historical events and calculated impacts, the potential for life loss and property damage make the **County as a whole moderately vulnerable** to landslide, Debris flow and Rockfall events, with specified areas having increased vulnerability.

EXTREME WINTER WEATHER

Winter storms are primarily a life safety risk, but can also impact the local economy when transportation and commercial activities are disrupted. Winter storms are occasionally severe enough to overwhelm snow removal efforts, transportation, livestock management, and business and commercial activities. Travelers on highways in San Miguel County, particularly along remote stretches of road can become stranded, requiring search and rescue assistance and shelter provisions. The County can experience high winds and drifting snow during winter storms that can occasionally isolate individuals and entire communities and lead to serious damages to livestock and crops.

Analyzing Development Trends

Urban population growth and suburban sprawl have complicated the task of promptly and adequately responding to winter storm emergencies. The principal public health and safety problems are power outages, stranded motorists, road closures, and limited capabilities to respond to citizen's calls for emergency services. Water system problems and broken water pipes create additional problems for fire services agencies. The trend of an increasing amount of commuters coming from outside the County indicates that more travelers will be at risk to winter storms in the future. Winter storms can also strand visiting skiers, although an extended stay may be a relatively easy, but expensive hardship to endure assuming lodging is available.

Vulnerability

San Miguel County, along with many other Colorado and mountain Counties, look at winter weather and its associated hazards and potential inconveniences as an accepted way of life. Overall, San Miguel County residents are used to dealing with extreme winter weather. The high frequency of occurrence according to historical events makes this hazard a high risk hazard. When factors such as community preparedness, potential for life loss, overall community impact and property damage and infrastructure damage is taken into account, the County as a whole has a **moderate vulnerability** to extreme winter weather.

SEVERE WEATHER

Severe weather, for the purpose of this plan includes hail, lightning, high winds, heavy rains and tornadoes. All severe weather has the potential to cause life loss, property damage or destruction and cause economic disturbance. Residents in San Miguel County know that the weather can change extremely quickly and are used to dealing with the elements. However severe weather can interrupt daily functioning, potentially destroy buildings and cause disruption to critical infrastructure.

Analyzing Development Trends

Highly vulnerable structures in San Miguel County such as communication towers and lift towers have been equipped with lightning rods to help mitigate against damage from lightning strikes. Severe weather in San Miguel County is sometimes very location specific, at times occurring in remote unpopulated areas and other times affecting towns or subdivisions. The Western portion of the County is more susceptible for tornado activity solely because of the flatter landscape. However, tornado occurrences in the County are extremely rare. Heavy cloud burst rain, which is usually associated with summer monsoon thunder and lightning storms can cause isolated or extensive riverine and street flooding events as well as debris flows and landslides. High winds have the potential for knocking out power and communication lines as well.

Vulnerability

Overall, the County as a whole **is moderately vulnerable** to severe weather events. Critical infrastructure failure due to severe weather can have significant impacts if extensive repair is needed as a result. Facilities that depend on constant communication and electricity have been equipped with generator back up power in case of a disturbance in service.

CRITICAL INFRASTRUCTURE FAILURE

For the purpose of this plan, critical infrastructure is defined as including electricity, gas, water, sewer and communication lines (including cellular communication). Critical infrastructure services can be interrupted in San Miguel County for many reasons. Severe weather, extreme winter weather, wildfires, avalanches and floods can knock out any of the services listed above. Outages can range from minutes to days depending on damage and the extent of needed repairs.

Analyzing Development Trends

In San Miguel County, power outages and communication disruptions occur occasionally. More intense disruptions of gas and water lines have occurred in the past but happen less frequently. As more and more people move to the area, the demand for such services increases, therefore increasing the impact if an outage occurs. Some County residents have alternate energy sources such as generators or wood stoves.

Vulnerability

The time of year greatly influences the severity of the impact that a critical infrastructure failure would have on the County. Overall, the County is **moderately vulnerable** to a critical infrastructure failure. Vulnerability during the **winter months increases** as the potential for pipes to freeze and warmth is a concern.

AVALANCHE

In addition to the risk to backcountry travelers in the wintertime in the Telluride/Ophir High Country region, avalanches in San Miguel County pose the most risk to transportation and power infrastructure, and the Town of Ophir. Avalanches can have wide ranging impacts inside and outside of the County by disrupting power and transportation over Lizard Head Pass, as was mentioned in the hazard Description. The specific risks to the town of Ophir are discussed in this section.

The Institute of Arctic and Alpine Research (INSTAAR) at the University of Colorado in Boulder has studied the Avalanche hazard in the vicinity of the Town of Ophir, at the request of the Town and San Miguel County. The slide zones and impact areas are represented on the following maps. The Spring Gulch slide path represents the greatest threat to the town. The third map represents a proposed mitigation option for the Town

According to County GIS the town of Ophir has 67 structures with a Census 2000 population of 115 persons. According to the map, developed in 1976, approximately seven structures are at risk. There could be more development in the remaining town site. There is also a power line that runs through the valley that is at risk.

In addition to Ophir, nearby Highway 145 has slides that have closed Lizard Head Pass and impacted power lines. County Emergency Management has a map of these slide zones, which are controlled by CDOT.

Analyzing Development Trends

The remoteness, climate, and hazards of the Ophir area has kept growth at a slow pace compared to other parts of the County. There is concern among residents that the area may become attractive to those who wish to build second homes. Currently about 80% of the population lives there year round.

Vulnerability

The eastern portion of the County has a significantly higher vulnerability to avalanches due to the geographic layout of the County. Specifically, **Ophir has a high vulnerability** to avalanches because quite often avalanches cut off the only access to and from the town and come exceptionally close to homes and other infrastructure. Mitigation efforts have been made in this area to reduce impacts of avalanche events, but the vulnerability in that specific area remains high when the potential for life loss, property

damage and historical frequency are considered. The remainder of the **County has a low vulnerability** to avalanche events due to the lack of historical events and geographic landscape.

FLOOD

The risk of flooding is greatest in the eastern portion of the County where population growth and suburban development have altered natural drainage systems and can contribute to unpredictable flash floods during storm water runoff. Although structural improvements exist on some streams in San Miguel County, intense thunderstorms can occasionally generate stream flows capable of overwhelming structural design capacities. Urbanization and development along streams also increases the amount of floating debris that can obstruct bridges and culverts, leading to more extensive flood damages.

Flood Insurance Policy and Claim Analysis. Also according to the National Flood Insurance Program claims data, San Miguel County has had 2 claims reported in the unincorporated areas between 1978 and 2015; the claims total $23,037 (note this does not include uninsured losses). Telluride losses total just under $88,700 during the same time period. San Miguel County has no repetitive loss properties to date. The table below lists the number of policies held per jurisdiction.

Table 25 Flood Insurance Policy Numbers 2017

JURISDICTION	POLICIES
Telluride	463
Unincorporated San Miguel County	49

Analyzing Development Trends

Floodplain management ordinances enforced within San Miguel County and Telluride are helping to limit problems with flooding in new development, thus it is the existing structures in the floodplain that remain most at risk. Floodplain management is discussed further in the Existing Hazard Mitigation Programs and Capabilities section.

Vulnerability

Ice Jam floods occur regularly on the San Miguel River during the winter months. The homes along the banks of the river usually see a rise in the water level and large blocks of floating ice pass by during an ice jam flood. Ice jam floods have the potential to back up water behind bridges if enough ice becomes lodged in front or under a bridge. Overall, San Miguel County has a low vulnerability to Ice Jam flooding, while residents along the San Miguel River have a slightly increased vulnerability.

Riverine Flooding poses the greatest impact to the Town of Telluride. Although, it sometimes difficult to separate debris flow and flooding events. Cornet Creek in Telluride has 'flooded' many adjacent homes

over differing historical events. Other areas in San Miguel County that could experience flooding are homes located right along the San Miguel River. Quick spring runoff from warming temperatures and a heavy spring rain could lead the river to raise enough to flood some homes. The County as a whole is moderately vulnerable to riverine flooding but the Town of Telluride is highly vulnerable to flooding events.

San Miguel County has a low vulnerability to street flooding events. Due to the small nature of the towns, the amount of impermeable ground that supports street flooding events is mitigated by storm drainage systems. However, localized street flooding events have occurred in the past in the Town of Telluride. Area specific protective measures have been implemented in these localized events to protect against future events.

Flood Methodology Previous Plan

After reviewing the 2005 All Hazards Mitigation Plan and consulting with the County Planning Department and State Mitigation Officers, San Miguel County opted to change the methodology for finding the vulnerability to flood events. In the previous plan, a 300 ft buffer was created around the San Miguel River and parcels that were located within the buffer zone were considered vulnerable structures. See excerpt below from the previous document:

The County used their GIS capability to model flood risk for this plan. Unfortunately there continues to be no digital floodplain maps available for the County, so an overlay of the FEMA floodplain boundaries was not possible during the time this plan was initially prepared or now with this revision.

Alternatively, in the 2010 revision and continuing until now, the County used GIS to create a 300-yard 'buffer' on the San Miguel River from just above the Town of Telluride to the County Line. The 300 yard buffer layer was overlaid on the County's parcel layer to determine the number of developed parcels within 300 yards of the river. Based on this analysis, there are approximately 2,500 parcels and 2,100 structures within 300 yards of the river. This total includes the Towns of Telluride and Sawpit and structures in the unincorporated area as well. According to the FEMA Community Information System, 1997, San Miguel County had 750 persons, 245 residential, and 59 other structures located in flood hazard areas. The 300 yard buffer area is likely to be larger than the actual 100-year floodplain.

Flood Methodology

The County Planning Department regulates development within or near a floodplain, though floodplain maps may or may not exist for the County. The San Miguel County Land Use Code includes a section on Areas and Activities of Local and State Interest/"1041" Environmental Hazard Review. Section 5-403 relates to Floodplain Hazard Areas (see below). This section also addresses Avalanche Areas, Landslide Areas, Potentially Unstable Slopes, Rockfall Areas, Slopes Greater Than 30 Percent, Alluvial Fans, Talus Slopes, Mancos Shale, Faults, Expansive Soil and Rock and Ground Subsidence.

The County Land Use Code states that if no adequate hazard-free area exists on the parcel the applicant will need to obtain a Floodplain Development Permit. The applicant is required to provide information from a registered Colorado Engineer that the proposed development site is outside the 100-year floodplain. If the building site is within the 100-year floodplain and there exists no site outside the 100-year floodplain the engineer will determine what the base flood elevation is for the building site and must comply with the County Floodplain Standards. All activities proposed within a floodway must demonstrate through a floodway analysis and report by a Colorado Registered Professional Engineer that there are no adverse floodway impacts resulting from the project. The County Floodplain Regulations are amended from time to time to follow Colorado's floodplain rule changes.

An applicant who applies for a Floodplain Permit must submit an application for County Planning Commission and/or Board of County Commissioner review and approval. If it is determined that the proposed development will not increase the water surface elevation or cause potential harm during a flood event and receives approval from the BOCC, Planning Department staff send a copy of the approved Floodplain Permit (County Commissioner Resolution) and FEMA Elevation Certificate (for structures) to the FEMA office in Denver.

It should be noted that while the state does not require permits on streams that have not had base flood elevations established, the County requires the above information for all development along all waterways (even if the base flood elevation has not been established). Below are excerpts from the current Land Use Code:

5-403 Floodplain Hazard Areas

In addition to the development standards in 5-402 and the San Miguel County Floodplain Regulations (refer to Appendix A), the standards in this section apply to mapped floodplain hazard areas as depicted in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, National Flood Insurance Program, and to areas later found to be in flood hazard areas.

5-403 A. ***<u>If no adequate hazard-free area exists on a site,</u>*** *development proposed within final base flood elevations Zones A1-30 and/or regulatory floodway shall:*

I. Have the lowest floor (including basement) elevated to one foot above the base flood level or be designed so that below the base flood level the structure is water tight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

II. Be designed by a qualified professional engineer who shall certify that the flood proofing methods identified in Section 5-403 A.I. are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the base flood.

In the past, when asked what improvements the county would like to see in relation to Floodplain mapping, County staff have continually requested that the following areas have the base flood elevations mapped; at a minimum of where the waterway passes through or is adjacent to private property:

- Howard Fork
- Leopard Creek
- Fall Creek
- Big Bear Creek
- South Fork
- Dolores River
- San Miguel River

The County and each of the jurisdictions have identified that obtaining digital floodplain maps and base flood elevation maps be a high priority mitigation action

DAM FAILURE

San Miguel County has five class I dams. Dam failure can occur as a result of a natural phenomenon occurrence such as overtopping due to spring run-off or heavy rains, an infrastructure failure due to lack of repair or maintenance and as an act of deliberate criminal activity or terrorism. Dam failure can create catastrophic flooding events for populated areas located below dams.

In September of 1909, the only San Miguel County historical record of dam failure occurred at Trout Lake. An entry in a Publication by Christian J. Buys, "Historic Telluride" reads:

'On September 5, 1909, a powerful cloudburst drenched a precipitous basis above the small settlement of Ames, where years before Lucian Nunn had damned (sic) both Hope Lake and Trout lake to protect his power plant against dry summers. Both dams burst, sending a wall of water and debris rushing down the canyon. Although the torrent of water did not wipe out the power plant, it decimated over a dozen miles of railroad grade along the San Miguel River between Telluride and Placerville.'

However, like earthquakes, this hazard has a low probability high consequence vulnerability rating.

Analyzing Development Trends

There are many homes located below Trout Lake Dam in San Miguel County. Most of the development exists along the San Miguel River in the canyon miles downstream from the dam itself. Dam failure, although not likely in the County could result in property loss or damage, life loss or injury and negative economic impacts.

Vulnerability

San Miguel County as a whole is **moderately vulnerable** to dam failure. Though the likelihood of an event such as this occurring is low, the severe impacts of such an event must be taken into consideration.

HAZARDOUS MATERIALS RELEASE

San Miguel County has roads that are identified as hazardous materials transportation routes. Hwy 141 which runs through the Western part of the County is one such road. Other highways in San Miguel County also see heavy truck traffic. Inclement winter weather and the nature of mountain roads make hazardous materials spills along transportation corridors a viable concern. Hazardous material spills and the potential secondary impacts related to spills have the chance of occurring on any of the major highways in San Miguel County. The type and impact of the specific chemical spill can have varying consequences.

Analyzing Development Trends

Although nuclear transportation is limited to Hwy 141 other chemicals that are potentially hazardous are allowed to be transported on Hwy 145 and Hwy 62. The western part of the County, where the transportation of nuclear is allowed, is substantially less populated, especially directly along roadways. However, the other main transportation routes do have significant development close to the roadways**.**

Vulnerability

The overall vulnerability for the County is moderate, with areas such as Egnar/ Slick rock having a slightly increased vulnerability due to the type of chemicals that are allowed to be transported through the area.

TRANSPORTATION ACCIDENTS

Transportation accidents, whether severe or minor, are inevitable. Mountainous roads coupled with inclement weather increase the chances for transportation accidents to occur on any State highway or County road. Even with perfect driving conditions, accidents happen for a multitude of reasons.

Analyzing Development Trends

As more and more people move to the County and towns expand, roadways become used more and more increasing traffic and the potential for transportation accidents. Because development in San Miguel County also occurs along the transportation routes the potential for secondary impact exists.

The Telluride, Norwood and Egnar Fire Protection Districts all have trained firefighters and emergency medical response (EMT) personnel that are trained to deal with accidents. Telluride Fire Protection District supports a Type II Hazardous Materials Technician/ Specialist Team. They respond to area incidents with Mutual Aid agreements in place. County Road and Bridge and Colorado Department of Transportation work around the clock to keep transportation routes safe and free of obstacles that may cause accidents.

Vulnerability

San Miguel County as a whole has **a low vulnerability**/high likelihood for transportation accidents. Although inconvenient and sometimes tragic accidents are a fact of life and a risk people take daily when they get into their vehicles to drive. Accidents can cause traffic delays but are usually minor. Transportation accidents and their impact are best judged on a case by case individual basis.

TECHNOLOGICAL HAZARDS

Technological hazards are a low frequency **low vulnerability** for San Miguel County. Computer hacking does not pose an extreme threat for the communities in the County. The amount of confidential or sensitive information stored in 'hackable' computer systems is very little. If a computer system were to be hacked a information was obtained, the AHPG seemed to agree that the impact would not be severe.

TERRORISM

Since the Terrorist Attacks of September 11th, 'terrorism' as a concept has taken on a new meaning for most of the world. It is important to note that criminal activity such as setting buildings on fire can be concluded as an act of arson or can be viewed as an act of terrorism. Terrorism is a subjective and case based definition depending on motive etc. San Miguel County has a low vulnerability for terrorist events of epic proportions solely based upon the lack of motive for such an attack in the area. However, that is not to say that San Miguel County is not vulnerable to acts of domestic terrorism or criminal activity deemed to be terrorism.

COMMUNICABLE DISEASE OUTBREAK

A Communicable Disease Outbreak is a major concern for Public Health Officials. Diseases are constantly mutating and can be difficult to prevent completely. San Miguel County works with local, state and federal health officials to monitor the spread of communicable disease and provide the public information for disease prevention, identification and treatment.

Today, an especially severe influenza pandemic could lead to high levels of illness, death, social disruption and economic loss. Impacts could range from school and business closings to the interruption of basic services such as public transportation, health care and the delivery of food and essential medicines.

Analyzing Development Trends

Influenza has a history in San Miguel County. In fact, the location of the Historic Hospital in Telluride, now the Telluride Historical Museum, was placed far out of town during the 1800's to separate sick patients from the rest of the population.

San Miguel County has had 80% growth since the 1990's. Therefore, people are living in closer quarters and come into more contact with each other. Telluride has a well-established 24 hour emergency clinic, Norwood has the Uncompahgre Medical Center and the County has a nursing practice in both Telluride. There are also other practicing doctors around the area who can see patients for diagnosis. The advent of virtual doctor visits enable patients to consult with a qualified medical provider remotely.

Vulnerability

Assessing the County's vulnerability to pandemic flu is problematic because the severities of the specific strain and the age group and symptoms are hard to predict. However, any pandemic outbreak of any proportion can cause severe illness, death and/or public disruption. San Miguel County and its incorporated jurisdictions are **highly vulnerable** to the effects of a pandemic flu outbreak, simply due to the nature of the disease and the availability or unavailability of a vaccine.

PLAGUE

The epidemic form of the disease has been known since antiquity for the devastation caused by world-sweeping outbreaks such as the "Black Death" in the Middle Ages. Today, improved sanitation practices and rat control have reduced the threat of epidemics in developed countries. Nevertheless, plague is firmly entrenched among wild rodents in North America and individual cases continue to occur among humans exposed to these animals and their fleas. (Source: http://www.cdphe.state.co.us/dc/zoonosis/plague/plaguefacts.html).

Plague is now firmly established and is now frequently detected in rock squirrels, prairie dogs, wood rats and other species of ground squirrels and chipmunks. Wild rabbits also became involved in the plague cycle. For San Miguel County, the concern lies in the newly established prairie dog colony just outside of the Town of Telluride. The location where the colony exists is in close proximity to the frequently used bike path and is on public open space, popular with dog owners and outdoor enthusiasts. There are also several colonies located in the western side of the County, but they are usually located on large ranches or out in fields.

Analyzing Development Trends

Pastures once used for agricultural purposes, cattle grazing or areas of land that have been disturbed create ideal colony locations for Prairie Dogs. Therefore, development in general can encourage the rodents to establish themselves in close proximity to human activities and their domesticated animals.

Vulnerability

The town of Telluride has a low vulnerability to a plague outbreak simply because of the difficulty of human transmission. The County as a whole has a low vulnerability to Plague. When life loss, potential for property loss and damage, economic impacts and historical occurrences are taken into account, plague would most likely have individual case impacts versus affecting the County as a whole.

WEST NILE VIRUS

The impact to human health that wildlife, and more notably, insects, can have on an area can be substantial. Mosquitoes transmit the potentially deadly West Nile virus to alike. Most humans infected by the virus have no symptoms. A small portion develops mild symptoms that include fever, headache, body aches, skin rash, and swollen lymph glands. Less than one percent of those infected develop more severe illness such as meningitis or encephalitis, symptoms of which include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Of the few people who develop encephalitis, fewer than 1 out of 1,000 infections die as a result.

Mosquitoes carry the highest amounts of virus in the early fall, thus there is a peak of disease in later August and early September. The risk of infection decreases as the weather becomes colder and mosquitoes die off.

Analyzing Development Trends

Areas of standing water are of particular concern for preventing the spread of West Nile Virus. Public Health Officials in San Miguel County have been working to educate the public about the disease and working with local agencies to help reduce mosquito population and breeding grounds.

Vulnerability

As a whole, San Miguel County has a **low vulnerability** to West Nile Virus. The County has had very few infections compared to other locations in Colorado and none have been deadly. The potential impacts that West Nile could have on the County are minimized by the County's high elevation and shorter growing months. Infections are on a case by case basis and mitigation efforts have significantly reduced mosquito population and desirable breeding grounds for the insects.

EARTHQUAKES

Colorado has a relatively short historic record of earthquakes, which makes for a limited data set when making assumptions based on past events. A lot of unknowns remain about the earthquake potential in San Miguel County and Colorado in general.

Based on the fact that there have been earthquake epicenters inside the County boundaries, as well as in neighboring counties, earthquakes will likely occur in the future. Based on historic events, these will

likely in the range of Magnitude 5.5 or lower, which is strong enough to be felt and potentially cause damage. According to the USGS damage usually occurs with earthquakes in the Magnitude 4-5 range, but many variables affect damage such as building age, soil type, distance from the epicenter, etc. With the historic building stock in Telluride there is potential for a moderate sized event to do some structural damage, but most impacts would likely be to non-structural items within the buildings such as light fixtures, toppling of shelves, cracked walls and chimneys. Falling items within buildings will likely pose the greatest risk to life safety.

According to the Colorado Geological Survey, as identified earlier in this document, the maximum credible earthquake for nearby for a fault in nearby Ouray County (see map in Earthquake hazard Description section) is Magnitude 6.25. Scientists are unable to predict when the next major earthquake will occur in Colorado; only that one will occur. Research based on Colorado's earthquake history suggests that an earthquake of 6.3 or larger has a one percent (1%) probability of occurring each year somewhere in Colorado *(Charlie, Doehring, Oaks Colorado Earthquake Hazard Reduction Program Open File Report 93-01, 1993).*

So the question is what would happen if San Miguel County were to experience a 6.25 earthquake? FEMA's GIS based earthquake loss estimation tool, HAZUS-MH, was utilized to model a hypothetical 'what if?' scenario, based on the Colorado Geological Survey's maximum credible earthquake of M 6.25 for a fault in nearby Ouray County (see map in Earthquake hazard Description section). In 2005, a HAZUS level 1 scenario was run with an M 6.25 event located at the northeast corner of the County, near the junction of San Miguel, Ouray, and Montrose County lines by the Dallas Divide. According to this scenario an estimated 488 buildings will be at least moderately damaged, which is over 16% of the total building inventory in the County (according to HAZUS inventory data). The model estimates 64 households would be displaced due to the earthquake. Casualty estimates, assuming the earthquake occurred at 2 pm, would be 25 persons. Of this total 23 would be minor injuries, 1 serious, and 1 estimated death. Total economic loss estimated for the earthquake is $55.54 million dollars, which includes building and lifeline related losses based on the HAZUS inventory in the region.

Analyzing Development Trends

Any new construction built to code in the Eastern County should generally be able to withstand earthquakes. Oil and gas development in the West End may be at risk from faults and man-caused earthquakes in the region.

Vulnerability

Earthquakes represent a low probability, high consequence hazard for San Miguel County. Even though the AHPG did not rank earthquake as a high or medium risk hazard, an earthquake event could have potentially high consequences for the County as a whole. Because Earthquakes do not occur often in San Miguel County and when they do occur their effects are not catastrophic, one would judge the vulnerability to San Miguel County to be low. However, if a large magnitude earthquake were to occur

in San Miguel County, the destruction would most likely be severe. County and Town building codes help to mitigate the potential effects of an earthquake, but none the less a significant earthquake, if it were to occur would be devastating. Therefore, San Miguel County's **vulnerability to earthquakes is high.** Mountain Village may have a slightly increased vulnerability based on the built environment of large hotels and condo complexes.

VULNERABILTY REVIEW AND CONCLUSIONS

After completing the risk assessment, defining the current mitigation capabilities and reviewing the vulnerability of each jurisdiction to each hazard, the current planning team confirms reaffirms the following general conclusions:

12. Wildfire continues to be a significant threat to the county and its residents. This threat is growing with more development in forested areas and with increased winter drought conditions in 2017/2018. The County's Wildfire Coordination Group, the County Community Wildfire Prevention Plan, community assessments and incentive programs and the continuing partnership with the West Region Wildfire Council will continue to be valuable tools to mitigate future losses.
13. Flooding will continue to be a threat to existing development within the San Miguel River floodplain. Floodplain management ordinances for the Town of Telluride and the county have been effective in reducing risk to future growth in floodplains, but much of the existing Town of Telluride is at risk. Flood insurance is currently the most appropriate mitigation option in Telluride for existing structures, given that the high property values and historic structures in town make acquisition/ elevation projects technically and financially difficult.
14. Avalanches have been responsible for more lives lost than any other recent hazard, but this is primarily due to unwise backcountry travel. Portions of the Town of Ophir and certain county roads and state highways are at risk to large avalanches. Avalanches can restrict access into and out of the County on Highway 145 over Lizard Head Pass for days, as well as access in and out of Ophir.
15. Landslides, mud and debris flows, and rockfall come with the territory of steep, eroding slopes in the eastern county. Debris and mudflows have inundated Telluride and the Down Valley area several times in the past 100 years. Many of the culverts are undersized to handle a flood and debris flow on Cornet Creek. The county and the Town of Telluride have geohazard regulations in their respective land use codes. Transportation corridors remain at risk and pose safety concerns to travelers and emergency responders. More rockfall control efforts are needed along the State Highways in the County.
16. Ongoing drought has impacted the tourism and agriculture economies within the county, and contributed to increasing the wildfire hazard in the past, and it will continue to do so in the future. The 2017/2018 winter season is proving to be the driest on record in 30 years.

17. Problems associated with severe weather and extreme winter weather occur almost every year and exacerbate problems with geologic hazards, avalanches, flooding and wildfire. The technological impacts of severe winter weather, power loss, internet loss, etc., will be prevalent issues for citizens moving forward.
18. Power plant and power outages from severe weather and avalanches are an ongoing concern.
19. Earthquakes pose a low probability but high consequence event, particularly with the presence of historic building stock located in Telluride.
20. Transportation routes over mountain passes are susceptible to severe weather avalanches and rockslides, potentially limiting emergency ingress and egress and causing dangerous driving conditions for commuters and tourists. HazMat spills will continue to be a concern along transportation corridors. With the increased capabilities of the Telluride Hazardous Emergency Response Team the capability of addressing this hazard has improved.
21. Facilities that store gas, propane, chemicals and other hazardous materials could cause additional health and safety concerns if impacted by a natural or man-caused event, these event can also cause a disruption in the services they provide creating more potential issues.
22. Many plans, procedures, and policies exist that either promote public safety or wise development procedures within the county and the incorporated towns. Often the implementation of these capabilities is hindered by lack of funding, staffing, political or public pressures, and respect for private property rights.

CRITICAL INFRASTRUCTURE INVENTORY

The nation's critical infrastructure provides the essential services that underpin our society and serve as the backbone of our nation's economy, security, and health. We know it as the power we use in our homes, the water we drink, the transportation that moves us, the stores we shop in, and the communication systems we rely on to stay in touch with friends and family. Critical Infrastructure (CI) include public safety, emergency response, and emergency medical, designated emergency shelters, communications, public utility plant facilities and transportation lifelines.

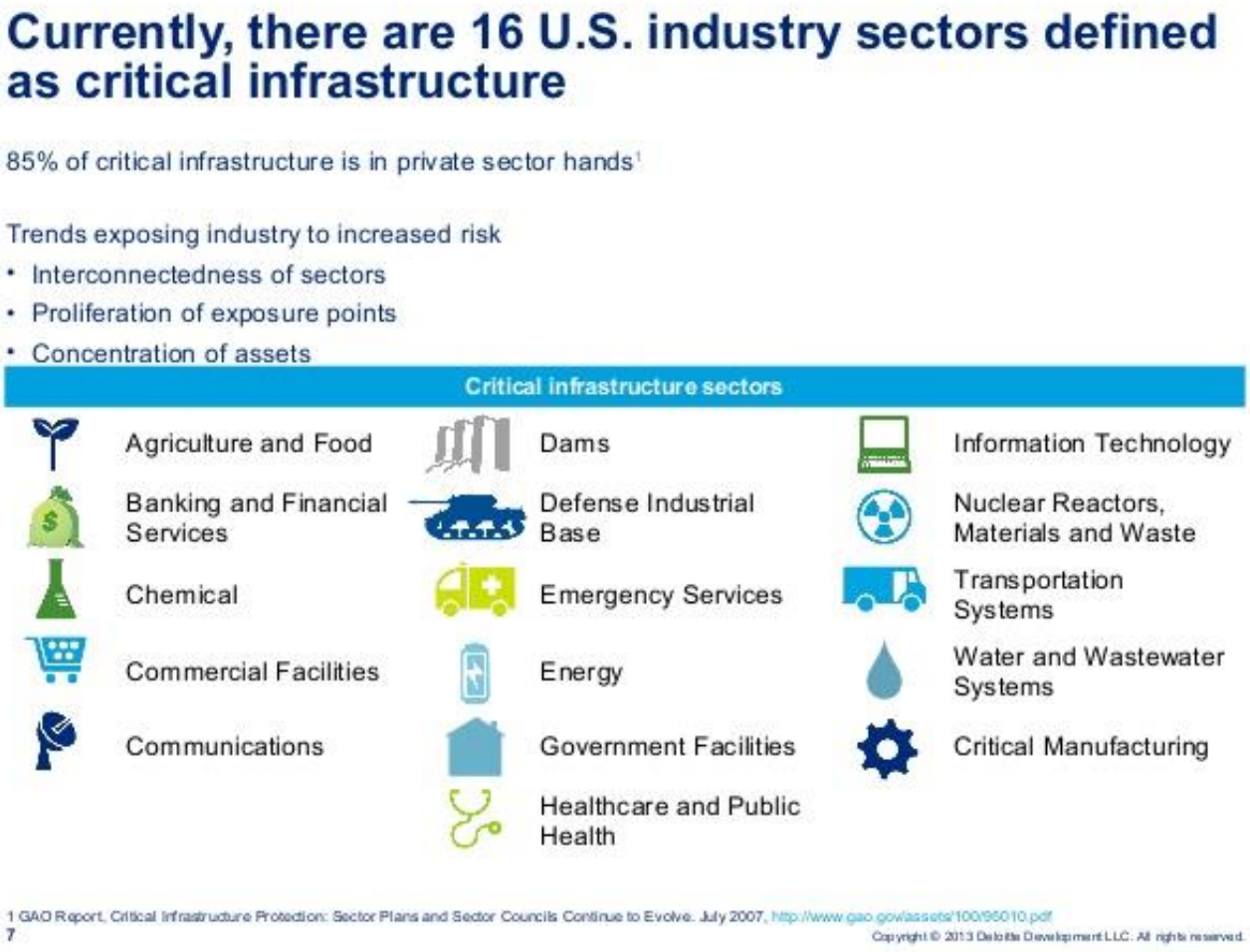


Figure 16 Database Development Critical Infrastructure Graphic

San Miguel County maintains a CI list that is accessible through a cloud based mapping system and is used during emergencies and disasters.

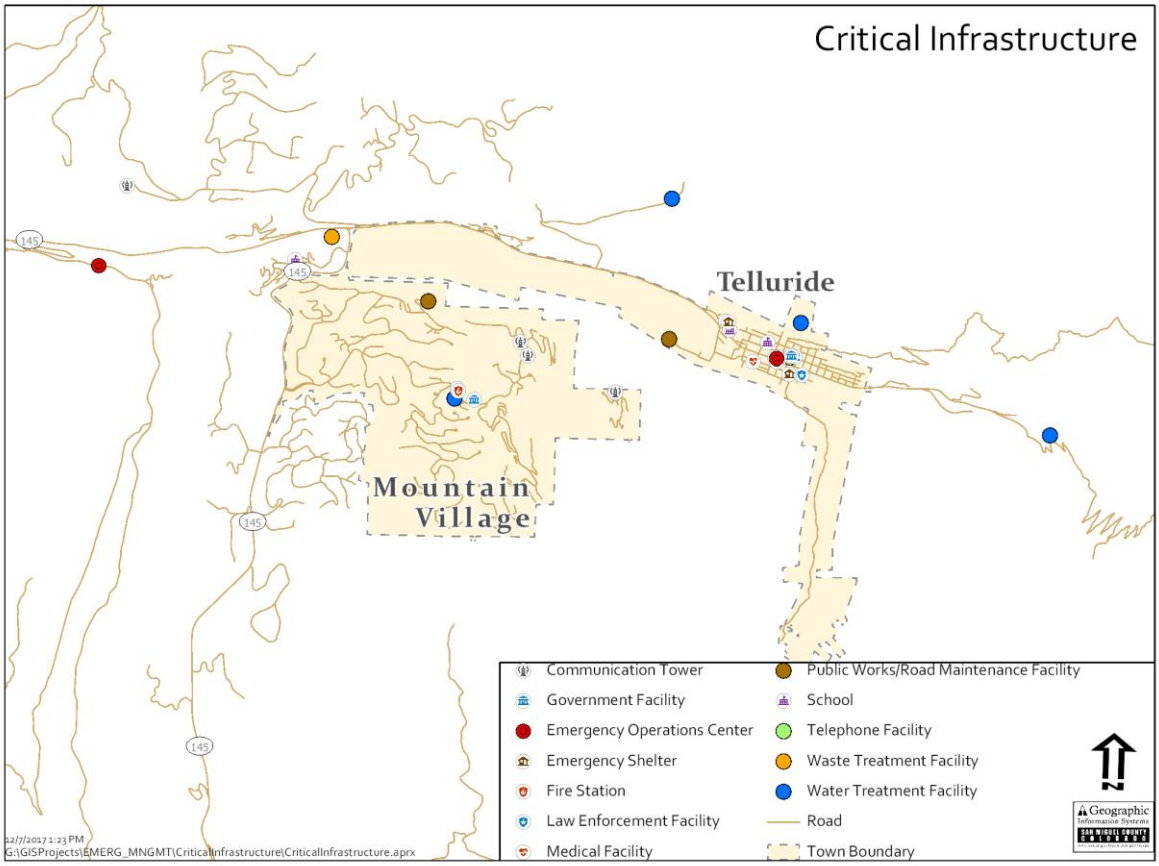


Figure 17: Telluride and Mountain Village Critical Facilities Map

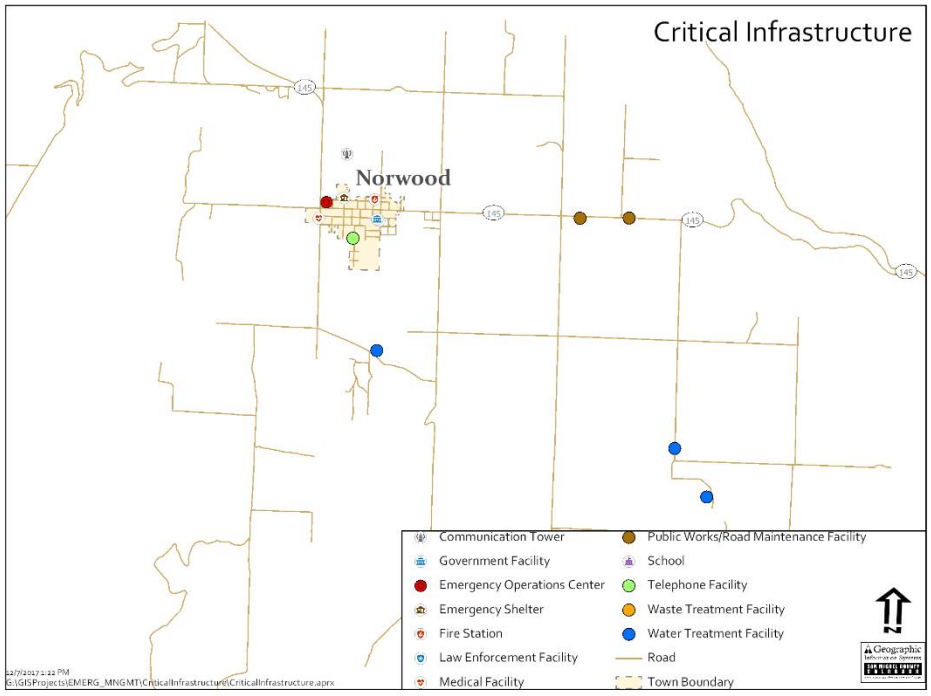


Figure 18: Norwood Critical Facilities Map

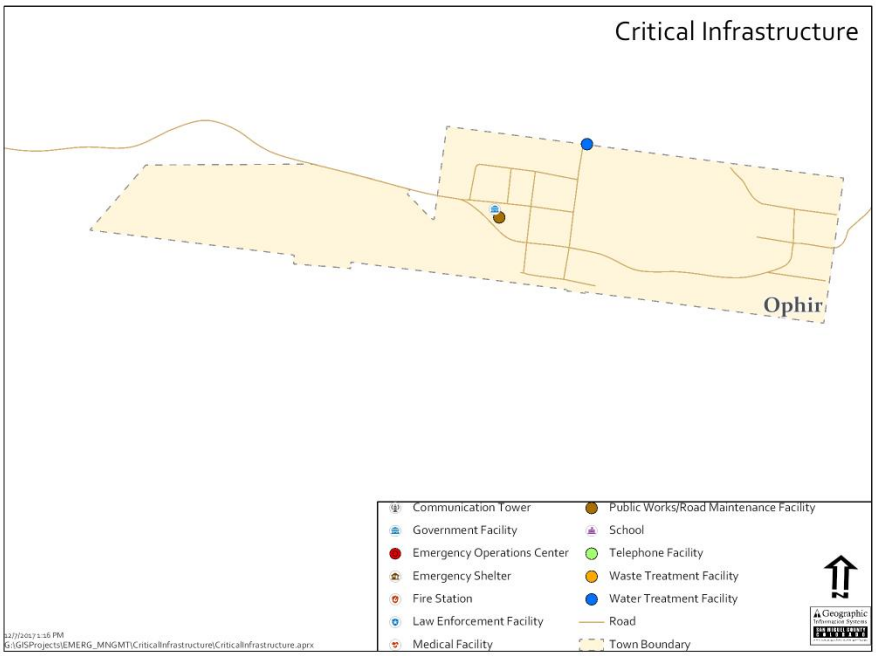


Figure 19: Critical Infrastructure Ophir

The detailed CI list is reviewed and updated annually by the All Hazard Planning Group. The list informs the group and would assist in rapid needs assessments in order to determine objectives and priorities during an event. For the purposes of the plan the lists are below and broken into 1) essential services 2) utility, communication and dam infrastructure and 3) transportation.

Figure 20 Essential Services Infrastructure (Source GIS Dept)

CRITICAL INFRASTRUCTURE NAME	CLASS
Mountain Munchkins	EDU
Prime Time Early Learning Center	EDU
Rainbow Preschool and Rockies After School	EDU
Telluride Ski Resort Nursery and Kids Camp	EDU
Toddler Town	EDU
Telluride Middle High School	EDU
Telluride Mountain School	EDU
Telluride Elementary School	EDU
Norwood High School	EDU
Telluride Intermediate School	EDU
Egnar Fire Station	FIRE
Norwood Fire Station	FIRE
Telluride Fire Station 1 Telluride	FIRE
Telluride Fire Station 2 Mountain Village	FIRE
Telluride Fire Station 3 Placerville	FIRE
Telluride Fire Station 4 San Bernardo	FIRE
USFS Matterhorn Ranger Station	GOVT
USFS Office Norwood	GOVT
Norwood Public Library	GOVT
Wilkinson Public Library	GOVT
Norwood Post Office	GOVT
Ophir Post Office	GOVT
Placerville Post Office	GOVT
Telluride Post Office	GOVT
Mountain Village Town Hall	GOVT
Norwood Town Offices	GOVT
Ophir Town Hall	GOVT
San Miguel County Annex	GOVT
San Miguel County Courthouse	GOVT
San Miguel County Glockson Building	GOVT
San Miguel County Miramonte Building	GOVT
Telluride Rebekah Hall	GOVT

CRITICAL INFRASTRUCTURE NAME	CLASS
Telluride Town Hall	GOVT
San Miguel County Sheriff's Office and Jail	LEA
Mountain Village Police Department	LEA
Norwood Marshals Department	LEA
Telluride Marshals Department	LEA
San Miguel County Sheriff's Office Norwood	LEA
San Miguel County Sheriff's Office Telluride	LEA
Sheriff's Office Fire Cache and Search and Rescue (SAR)	LEA/GOVT
Public Health Department	MED
Telluride Medical Center	MED
Uncompahgre Medical Center	MED

Figure 21 Utility, Communication and Dam Infrastructure (Source GIS Dept)

NAME	CLASS	SUBCLASS
Ames Hydroelectric Plant	UTIL	ELECUTIL
Bridal Veil Hydro Generator	UTIL	ELECUTIL
Ilium Switch	UTIL	ELECUTIL
Society Turn Substation	UTIL	ELECUTIL
Sunshine Substation	UTIL	ELECUTIL
Telluride Wastewater Treatment Plant	UTIL	SEWERUTIL
CenturyLink Norwood Central Office	UTIL	TELUTIL
CenturyLink Telluride Central Office	UTIL	TELUTIL
AT&T Cell Tower	UTIL	TOWER
Coonskin Communications Tower	UTIL	TOWER
Egnar Communications Tower	UTIL	TOWER
Gray Head Communications Tower	UTIL	TOWER
Last Dollar Communications Tower	UTIL	TOWER
North Mountain Communications Tower	UTIL	TOWER
Specie Communications Tower	UTIL	TOWER
Raspberry CenturyLink Tower	UTIL	TOWER
Raspberry Tower #1	UTIL	TOWER
Raspberry Tower #8	UTIL	TOWER
Telluride Airport Communications Tower	UTIL	TOWER
Telluride Conference Center Communications Tower	UTIL	TOWER
Telluride Elks Building Communications Tower	UTIL	TOWER
The Peaks Hotel Communications Tower	UTIL	TOWER
Cornet Creek Water Treatment Plant	UTIL	WATERUTIL
Mill Creek Water Treatment Plant	UTIL	WATERUTIL

NAME	CLASS	SUBCLASS
Mountain Village Water	UTIL	WATERUTIL
Norwood Water Treatment Blue Tank	UTIL	WATERUTIL
Norwood Water Treatment Coventry Tank	UTIL	WATERUTIL
Norwood Water Treatment Reservoir 1	UTIL	WATERUTIL
Norwood Water Treatment Reservoir 1	UTIL	WATERUTIL
Ophir Water Treatment	UTIL	WATERUTIL
Pandora Water Treatment Plant	UTIL	WATERUTIL
Cone Dam	POI	DAM
Gurley Dam	POI	DAM
Hope Lake Dam	POI	DAM
Miramonte Dam	POI	DAM
Trout Lake Dam	POI	DAM

Figure 22 Transportation Critical Infrastructure (Source GIS Dept)

NAME	CLASS
Alder Creek Bridge	TRANS
Bilk Creek Bridge	TRANS
Cornet Creek Bridge - West Columbia Avenue	TRANS
Cornet Creek Foot Bridge	TRANS
Downvalley Park Bridge	TRANS
Fall Creek Bridge	TRANS
Guest Ranch Bridge	TRANS
Ilium Bridge	TRANS
Jud Wiebe Foot Bridge	TRANS
Leopard Creek Bridge	TRANS
Norwood Bridge	TRANS
Ophir Bridge	TRANS
Placer Valley Village Bridge	TRANS
Placerville Bridge	TRANS
Private Bridge	TRANS
San Bernardo Bridge	TRANS
San Miguel River Bridge - Highway 145	TRANS
San Miguel River Bridge - South Pine Street	TRANS
Silver Pick Bridge	TRANS
Specie Creek Bridge	TRANS
Two Rivers Bridge	TRANS
Telluride Regional Airport	TRANS
Mountain Village Public Works	TRANS/GOVT

NAME	CLASS
Ophir Public Works	TRANS/GOVT
Telluride Public Works	TRANS/GOVT
CDOT Shop Deep Creek	TRANS/GOVT
CDOT Shop Norwood	TRANS/GOVT
Road and Bridge Office	GOVT
Road and Bridge Shop Basin	TRANS/GOVT
Road and Bridge Shop Deep Creek	TRANS/GOVT
Road and Bridge Shop Egnar	TRANS/GOVT
Road and Bridge Shop Norwood	TRANS/GOVT

CRITICAL FACILITIES POTENTIALLY AT RISK

The table below displays the facilities that were determined to be at risk to a natural or human caused hazard, where existing data allowed.

Table 26: Critical Facilities Information

FACILITY	TYPE	BACKUP POWER	HAZARD VULNERABLE TO
All Communication Tower	Communications Tower	Y	Wildfire, severe weather, extreme winter weather
All Communication Towers	Communications Towers	Y	Wildfire, severe weather, extreme winter weather
TFPD Fire Station 4 Pathfinder	Fire		Rockfall, landslides, wildfire, extreme winter weather
TFPD Station 2 Town of Mountain Village	Fire	Y	Near Landslide deposits, wildfire
TFPD Station 3 Placerville	Fire		Flood, riverine flooding, Debris flow, rockfall, landslide
TFPD Station 1 Telluride/Headquarters	Fire		Debris flow, riverine flooding
County Administration	Government	Y	Debris flow, Flood
Courthouse	Government		Debris flow, riverine flooding,
MV Town Hall	Government		Wildfire
Telluride Town Hall	Government		Debris Flow, riverine flooding

MV Police Department	Law	Y	Near Landslide deposits, wildfire
Sheriff's Office	Law	Y	Rockfall, Wildfire, access limited by flooding events,
Telluride Marshal's Office	Law	Y	Debris flow, riverine flooding
Public Health Clinic-County Nurse	Medical		Debris flow, riverine flooding, earthquake
Telluride Medical Center	Medical	Y	Debris flow, riverine flooding
Uncompahgre Medical Center	Medical		Extreme winter weather, wildfire, severe weather
Telluride Festival Grounds	Recreational		Severe weather, Flood, Wildfire
Norwood School/Shelter	School/Shelter		Extreme winter weather, wildfire, severe weather
Telluride Middle/High School	School/Shelter		Debris flow, wildfire, rockfall
Gondola	Transportation	Y	Most identified hazards
Norwood Hill Bridge	Transportation	N/A	Rockfall
Placerville Bridge	Transportation	N/A	Flood, Ice Jams
Road &Bridge-Deep Creek Shop	Transportation		Flood, Debris flow, rockfall, landslide,
Telluride Regional Airport	Transportation		Debris flow, Landslide, Severe Weather, earthquake, extreme winter weather, human caused
Ames Hydro-Generator	Utilities	Y	Wildfire
Bridal Vail Generator	Utilities		Wildfire
Hope Lake Dam	Utilities	N/A	Earthquake, Flood, human caused
Miramonte Reservoir	Utilities	N/A	Earthquake, Flood, human caused
San Miguel Power & Lines	Utilities	Y	Human caused, severe weather, wildfire, avalanche, extreme winter weather
Telluride Public Works	Utilities		Flood, Wildfire
Telluride Regional Wastewater Plant	Utilities	Y	Flood, sever weather, earthquake, extreme winter weather

Mill Creek Water Treatment Facility	Utilities	Y	Flood, sever weather, earthquake, extreme winter weather
Pandora Water Treatment Facility	Utilities		Flood, sever weather, earthquake, extreme winter weather
Trout Lake Dam	Utilities	N/A	Earthquake, Flood, severe weather, human caused

MITIGATION STRATEGY

44 CFR Requirement §201.6(c)(3); The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

The mitigation strategy used by the HMPT was developed was developed through a collaborative group process and consists of goals, objectives, and mitigation actions. The following definitions are based upon those found in FEMA publication 386-3 "Developing a Mitigation Plan."

- **Goals: General guidelines that explain what you want to achieve. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement: They are usually long-term, broad, policy-type statements.**
- **Objectives: Define strategies or implementation steps to attain the identified goals and are specific and measurable.**
- **Mitigation Actions: Specific actions that help achieve goals and objectives.**

The HMPT developed goals and objectives to provide direction for reducing hazard related losses which were based on the results of the risk assessment. The goals and objectives were agreed on during the second planning meeting.

Goal 1: Reduce risk to the people, property, and environment of San Miguel County from the impacts of natural and technological hazards.

Objectives:

E. Minimize the vulnerability of existing and new development to hazards.
F. Increase education and awareness of hazards and risk reduction measures.
G. Improve comprehensive wildfire planning, funding and mitigation.
H. Enhance assessment of multi-hazard risk to critical facilities and infrastructure.

Goal 2: Minimize economic losses

Objectives:

D. Strengthen disaster resiliency of government, business and community members.
E. Promote and conduct continuity of operations and continuity of governance planning.
F. Reduce financial exposure of county and municipal governments.

Goal 3: Implement the mitigation actions identified in this plan

Objectives:

D. Engage collaborative partners, community organizations, businesses and others
E. Integrate mitigation activities into existing and new community plans and policies.
F. Monitor, evaluate, and update the mitigation plan.

IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

The HMPC representatives present at the third meeting identified, discussed, and prioritized potential mitigation actions. Representatives chose to focus on the top three hazards with an overall ranking of "High" to develop hazard specific mitigation actions. The three high hazards are: Flooding, Wildfire, and Landslides-Rockfall. At the time the mitigation actions are complete, additional mitigation goals and actions will be developed for the remaining hazards. The additional hazards include: Avalanche, Dam Failure, Drought, Hazardous Materials, Lightning, and Severe Winter Weather. It is important to note that many of the final mitigation actions are multi-hazard actions designed to reduce potential losses from all types of hazard events.

The HMPC discussed the key issues for each priority hazard and discussed potential mitigation alternatives. The mitigation strategy worksheet (worksheet #4) was used to identify all possible mitigation actions for each of the three high hazards. Possible actions were discussed and eventually prioritized for the appropriate jurisdictions.

IMPLEMENTATION OF MITIGATION ACTIONS

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.

Representatives reviewing the proposed mitigation actions prioritized the various mitigation actions based on the hazard that would be mitigated, cost estimate, and benefits to completing the mitigation actions preventing further loss, and possible funding opportunities for the actions. The process of identification and analysis of mitigation alternatives allowed the HMPC to come to consensus and to prioritize the recommended actions. All mitigation actions provided by jurisdictions are included in the final summary table.

The Disaster Mitigation Act regulations state that cost-benefit review is the primary method for mitigation projects to be prioritized. Recognizing the federal regulatory requirement to prioritize by cost-benefit, and the need for any publicly funded project to be cost-effective, the HMPC decided to pursue implementation according to when and where damage occurs, available funding, political will, and jurisdictional priority.

MITIGATION ACTION WORK PLAN

A summary of the mitigation actions developed by the HMPT are listed below:

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
1	Egnar Slickrock FPD	GPS units for response vehicles	New	1A,C	All Hazards
2	Egnar Slickrock FPD	Satellite Phones	New	1A	All Hazards
3	Egnar Slickrock FPD	Improved radio coverage in area	Ongoing	1A	All Hazards
4	Egnar Slickrock FPD	Update mapping for the district	Ongoing	1A,E	All Hazards
5	Egnar Slickrock FPD	Improved emergency communication to local residents through encouraging the public get NOAA weather radios and sign up for CodeRED	Ongoing	1B;3A	All Hazards
6	Egnar Slickrock FPD	Smoke Detectors	New	1B	All Hazards
7	Egnar Slickrock FPD	Pursue PPE for HAZMAT and continuing training or Department Personnel	Ongoing	1A;3A	All Hazards
8	Egnar Slickrock FPD	Fire mitigation and fuels reduction on Public Lands	Ongoing	1C	Wildfire
9	Mountain Village	All Hazard Education	New	1A,B;2A,C;3A	All Hazards
10	Mountain Village	Mountain Village Town Hall Backup Generator	New	1A,E;2B;3B	All Hazards
11	Mountain Village	Maintenance Facility Upgrade	New	1A,E	All Hazards
12	Mountain Village	Public Education Campaign on Drought	Ongoing	1A,B	Drought

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
13	Mountain Village	Continued Compliance with the NFIP program and implementation of measures to help improve CRS ratings where appropriate	New	1A,B;2A;3A	Erosion, Flood, Landslide
14	Mountain Village	Pandemic Flu education	New	1A,B;2A,;3A	Pandemic
15	Mountain Village	Address Community Wildfire Protection Plan Actions and prioritize fuels reduction projects	Ongoing	1A,C;2A,C;3A ,B	Wildfire
16	Mountain Village	Water Infrastructure improvements	New	1A,B,E;2A,C;3 B	Wildfire
17	Mountain Village	Secondary ingress/Egress road	New	1A,B;2A,C;3A ,B	Wildfire
18	Norwood FPD	Obtain land for Gurley Fire Station #4	New	1A	All Hazards
19	Norwood FPD	Frontline fire apparatus replacement for fire protection/EMS/rescue with Wildland Urban Interface fire engine	New	1A,C;2C	All Hazards
20	Norwood FPD	Installation of Power-PRO XT powered ambulance cot system into ambulance 2	New	1A	All Hazards
21	Norwood FPD	2000 gallon water tender apparatus replacement for fire protection throughout non-hydrant areas within NFPD	New	1A,C;2C	All Hazards
22	Norwood FPD	MDT's for Fire-EMS-Command Vehicles	New	1A	All Hazards
23	Norwood FPD	Develop a system for testing warning siren systems	New	1A,B;2A	All Hazards
24	Norwood FPD	Natural Gas generator for NFPD station 1	New	1A;2A	All Hazards
25	Norwood FPD	Burn building and Training Center	New	1A;2A	All Hazards
26	San Miguel County	Update GIS imagery (aerial photos) for response and analysis	New	1A,B,C,D,E;2 A,C	All Hazards

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
27	San Miguel County	Obtain good digital data for mapping critical infrastructure in the County	New	1A,B,C,D,E;2A,C;3B	All Hazards
28	San Miguel County	EOC Backup Generator Project	Ongoing	1A; 2B	All Hazards
29	San Miguel County	Identify and prioritize action if needed for abandoned mines in the County	New	1A,B;2C;	All Hazards
30	San Miguel County	Communicable Disease PIO	New	1A,B;2A;3B	All Hazards
31	San Miguel County	Replace bridge that provides access to Applebaugh Subdivision	Ongoing	1A,E;2C	All Hazards
32	San Miguel County	Obtain technology infrastructure support to maintaining web based communication during emergencies	Ongoing	1A,E;2B,C;3B	All Hazards
33	San Miguel County	Work with CDPHE and other health resources to develop or improve continuity of operations plans for clinics	Ongoing	1A,B;2A,B	All Hazards
34	San Miguel County	Hazmat Transportation Regulation	Ongoing	1A,B,E;2A,C;3A,B	All Hazards
35	San Miguel County	Continue to refine SMC's Avalanche Control Program through training opportunities	Ongoing	1A,B;2C;3B	Avalanche
36	San Miguel County	Continued Ophir Avalanche studies and Improved Control work	New	1A,B,E;2C;3B	Avalanche
37	San Miguel County	Inventory Snow Removal Capabilities Geographically	Ongoing	1A;2C	Avalanche
38	San Miguel County	Improve and continue Avalanche control work	Ongoing	1A;2C	Avalanche
39	San Miguel County	Landslide Mapping	Ongoing	1A,B,E;2C;3A,B	Erosion, Exp Soils, Landslide
40	San Miguel County	Continue to participate with CDOT in the bridge inspecting program	Ongoing	1A,D,E	Erosion, Flood, Landslide

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
41	San Miguel County	Continue Stream Bank Erosion Mitigation Projects	Ongoing	1A,E	Erosion, Flood, Landslide
42	San Miguel County	Continue Culvert Improvements and Bridge Maintenance	Ongoing	1A,E	Erosion, Flood, Landslide
43	San Miguel County	Floodplain Regulations	New	1A,D	Flood
44	San Miguel County	Identify areas where snow drifting is problematic and install snow fences to reduce problem	Ongoing	1A,E	Flood
45	San Miguel County	Map the FEMA floodplain in populated areas of the County in digital format	New	1A,B,D;2A,C	Flood, Landslide
46	San Miguel County	Conduct annual workshop for protective and preventative response measures for pandemic flu	New	1A,B;2B	Pandemic
47	San Miguel County	Upgrade County Snow equipment	Ongoing	1A,C,E;2C	Severe Weather
48	San Miguel County	Obtain GIS satellite imagery for wildfire risk analysis	New	1A,B,C	Tornado
49	San Miguel County EM	Promote Disaster Preparedness	Ongoing	1A	All Hazards
50	San Miguel County EM	Test Warning System Capability	Ongoing	1A,B;2C	All Hazards
51	San Miguel County EM	NOAA Radio Transmitter for Telluride Region	Ongoing	1A,B	All Hazards
52	San Miguel County EM	SAR Card Public Education	Ongoing	1A,B	All Hazards
53	San Miguel County EM	Target Notification Campaign	Ongoing	1A,B,D	All Hazards
54	San Miguel County EM	Public Education for Ingress/Egress Issues	Ongoing	1A,B,C;2A	All Hazards
55	San Miguel County EM	Severe Weather Alert List for NWS	Ongoing	1A,B;3A	All Hazards
56	San Miguel County EM	All Hazard Publication Education	Ongoing	1A,B;2A,B	All Hazards
57	San Miguel County EM	Remote controlled Quadcopter/Drone	New	1A,C,D,E	All Hazards

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
58	San Miguel County EM	Recruit Weather Spotters	Ongoing	1A,B	All Hazards
59	San Miguel County EM	Expand Event Pre-Warn Capability with the NWS	Ongoing	1A,B	All Hazards
60	San Miguel County EM	Identify Special Needs Population	Ongoing	1A,B	All Hazards
61	San Miguel County EM	Develop Skyward/HAM Alternate Communication Capability	Ongoing	1A	All Hazards
62	San Miguel County EM	Drought Public Education	Ongoing	1A,B	Drought
63	San Miguel County EM	Water Conservation	Ongoing	1A,B	Drought
64	San Miguel County EM	Landslide Public Education	Ongoing	1A,B,D;2A,C	Landslide
65	San Miguel County EM	Wildfire Mitigation Fuels Reduction	Ongoing	1A,B,C	Wildfire
66	San Miguel County EM	Conduct Wildfire Education Workshops	Ongoing	1A,B,C	Wildfire
67	Telluride FPD	Secure AreaRAE	New	1A,E;2A,C	All Hazards
68	Telluride FPD	New Station (Fire/EMS) at Lawson Hill	New	1A	All Hazards
69	Telluride FPD	Provide GIS map books in all TFPD vehicles/ apparatus	Ongoing	1A,C;3B	All Hazards
70	Telluride FPD	Increase rural fire delivery	Ongoing	1A,C	All Hazards
71	Telluride FPD	Training Officer	Ongoing	1A,B	All Hazards
72	Telluride FPD	Assign additional personnel to Station 4	Ongoing	1A,C	All Hazards
73	Telluride FPD	Continue existing apparatus replacement program	Ongoing	1A;2C	All Hazards
74	Telluride FPD	Acquire hose couplings that match regional jurisdictions for interoperability	New	1A,C	All Hazards
75	Telluride FPD	Communications tower HWY 62 at mile marker 10	New; in progress	1A	All Hazards
76	Telluride FPD	HazMat Team Leader/Employee	New	1A,B,E	HazMat

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
77	Telluride FPD	Hazardous Materials Response Engine	New	1A	HazMat
78	Telluride FPD	Install dry hydrants	Ongoing	1A,C	Wildfire
79	Telluride FPD	Operations Plan	New	1A,B,C	Wildfire
80	Telluride FPD	New Type III Fire Engine	New	1A,C	Wildfire
81	Town of Norwood	Weather Shelter Map	Ongoing	1A,B;2A	All Hazards
82	Town of Norwood	Map Critical Infrastructure	Ongoing	1A,E;2A;3B	All Hazards
83	Town of Norwood	Infrastructure Upgrade	Ongoing	1A,E	All Hazards
84	Town of Norwood	Drought awareness Education Campaign	Ongoing	1A,B,C	Drought
85	Town of Norwood	Establish water usage schedule	Ongoing	1A,B,C	Drought
86	Town of Norwood	Installation of Irrigation System	Ongoing	1A;2C	Drought
87	Town of Norwood	Acquire additional potable water tanks	Ongoing	1A,C,E;2C	Drought
88	Town of Norwood	Pandemic Flu Prevention	Ongoing	1A,B	Pandemic
89	Town of Norwood	Increase snow removal equipment	Ongoing	1A	Severe Weather
90	Town of Ophir	Emergency Response	New	1A,B,E;2B,C	Severe Weather
91	Town of Ophir	Update and expand medical equipment	New	1A,E	All Hazards
92	Town of Ophir	Install street signs and update maps	New	1A,B,C,E;2C	All Hazards
93	Town of Ophir	Bury the Power Line through the Ophir Valley	New	1A,E;2C	All Hazards
94	Town of Ophir	Obtain a fire engine for new fire station near Ophir	New	1A,C,E;2C	All Hazards
95	Town of Ophir	Bury Waterfall Canyon water supply line	New	1A,E	All Hazards
96	Town of Ophir	Road Infrastructure and Drainage	New	1A,E	All Hazards
97	Town of Ophir	Create alternative power source	New	1A,E;2C	Avalanche
98	Town of Ophir	Update town's snowplow equipment	New	1A,E;2C	Avalanche
99	Town of Ophir	Acquire a snow cat/snowmobile for emergency use during road closures	New	1A,E;2C	Avalanche, Severe Weather

#	Jurisdiction	Mitigation Action	Status	Goal / Objective	Hazard
100	Town of Ophir	Conduct Rockfall Mitigation on Ophir Loop on HWY 145	New	1A,E;2C	Landslide
101	Town of Sawpit	Address ingress/ egress issues in the Town of Sawpit	Ongoing	1A,B,C,E	All Hazards
102	Town of Sawpit	Continue to insist that Hwy 145, which runs through Sawpit, remain an non-designated Hazardous Materials transportation route	Ongoing	1A,B,E;2C	All Hazards
103	Town of Sawpit	Storm water Drainage Maintenance	Ongoing	1A,D,E;2C	Erosion, Flood, Landslide
104	Town of Sawpit	Map 100 and 500 Year floodplains in the Town of Sawpit	Ongoing	1A,B,D,E;2A, B,C	Erosion, Flood, Landslide
105	Town of Telluride	Telluride Regional Wastewater Treatment Plant Upgrade (TRWWTP)	New	1A,B,E;2C	All Hazards
106	Town of Telluride	Resurfacing highway 145 Spur	New	1A,C,D,E;2A, C	All Hazards
107	Town of Telluride	San Miguel River Restoration on the valley floor	New (phase 1 complete)	1A,D;2C	Erosion, Flood
108	Town of Telluride	Increase public awareness about riverine flooding and debris flow in Telluride	Ongoing	1A,B,D,E;2A,; 3A	Erosion, Flood, Landslide
109	Town of Telluride	Storm Drainage Improvements	Ongoing	1A,D,E;2C	Erosion, Flood, Landslide
110	Town of Telluride	Replace Pacific Ave. culverts with a span bridge	Ongoing	1A,D,E	Erosion, Flood, Landslide
111	Town of Telluride	Cornet Creek Channel Maintenance	Ongoing	1A,D,E;2C	Erosion, Flood, Landslide
112	Town of Telluride	Continue to remove sediments from in-stream sedimentation basin at Bear Creek/ San Miguel confluence	Ongoing	1A,D,E	Erosion, Flood, Landslide
113	Town of Telluride	Storm water Runoff Mitigation	New	1A,D,E	Flood

A detailed work plan is listed in Attachment 1 and is organized by jurisdiction. The appropriate agency representative is ultimately responsible for identifying which departments and representatives are responsible for completing an implementation worksheet for each identified mitigation action. The worksheet will document background information, cost estimates, benefits and timeline for each action.

The Mitigation Action Work Plan summarize the project itself, the agency responsible for implementing each of the prioritized strategies determined in the previous step, as well as when and how the actions will be implemented. The Project description worksheet for each prioritized project also details information regarding how the project will be supported and what the time frame is for implementation of the project.

ADOPTION, IMPLEMENTATION AND MAINTENANCE

Requirement §201.6(c)(4)(i):

[the plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Adoption

Once the State of Colorado and the Federal Emergency Management Agency approve the plan it will then be formally adopted by each local jurisdiction and special district. To adopt and fully implement the plan, the governing bodies of each participating jurisdiction adopt the plan with a formal resolution. When complete, scanned copies of these Resolutions of adoption are to be included in the supporting documents section in Appendix 2.

Implementation

Where possible, this plan recommends utilizing existing plans and/or programs to implement hazard mitigation in the County. Based on this plan's capability assessment, the County has and continues to implement policies and programs to reduce losses to life and property from natural hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs, and recommends implementing projects, where possible, through the following mechanisms:

Table 27: Implementation Strategy

1.	San Miguel County Comprehensive Development Plan 1978, amended 2001	2.	County Land Use Code
3.	Existing County subdivision regulations	4.	Existing Floodplain Regulations in San Miguel County and the Town of Telluride
5.	Telluride Regional Area Master Plan 1989, amended 1991	6.	Telluride Capital Improvement Plan
7.	Telluride Drainage Master Plan	8.	San Miguel County Open Lands Plan
9.	County Emergency Operations Plan	10.	San Miguel County Wildfire Safety Program data
11.	Building Code Utilization	12.	Norwood Master Plan
13.	Norwood Land Use Code	14.	Telluride School Emergency Plan
15.	Norwood School Emergency Plan	16.	Telluride Ski Area Emergency Plan
17.	San Miguel County Community Wildfire Protection Plan	18.	Airport Master Plan

19.	Airport Emergency Plan	20.	Public Health Emergency Plan
21.	Risk Communication Plan	22.	Mass Immunization Plan
23.	Medical Center Disaster Plan	24.	Mountain Village Land Use Ordinance
25.	Mountain Village and Town of Telluride Mosquito Abatement Plan	26.	Sawpit Source Water Protection Plan
27.	Ophir Sourcewater Protection Plan	28.	Telluride Sourcewater Protection Plan
29.	Debris and Flood Control Plan for Cornet Creek, Telluride, Colorado	30.	Wilson Mesa Watershed Protection Plan
31.	Last Dollar Watershed Protection Plan	32.	Local Homeowners Associations Wildfire Plans, where applicable
33.	Ten Year County Road and Bridge Plan		

Maintenance

Recognizing that many mitigation projects are ongoing and that while in the implementation stage communities may suffer budget cuts, experience staff turnover, or projects may fail altogether, a good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for updates of the plan where necessary.

In order to track progress and update the Mitigation Action identified, the County will revisit the San Miguel County Hazard Mitigation plan annually, or after a hazard event. The current Emergency Manager is responsible for initiating this review and facilitating input from All Hazard Planning Group members.

Updates to this plan will:

- Consider changes in vulnerability due to project implementation
- Document success stories where mitigation efforts have proven effective
- Document areas where mitigation actions were not effective
- Document any new hazards that may arise or were previously overlooked
- Incorporate new data or studies on hazards and risks
- Incorporate new capabilities or changes in capabilities (planning and zoning, floodplain regulation changes, etc.)
- Incorporate growth and development-related changes to the County's inventory
- Incorporate new project recommendations or changes in project prioritization

Changes should be made to the plan to accommodate for projects that have failed or are not considered feasible after a review for their consistency with the time frame, the community's priorities, and funding

resources. Priorities that were not ranked high, but identified as potential mitigation strategies, should be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation.

Continuing Public Involvement

The public will continue to be updated on the status of the current plan through the San Miguel County Emergency Management's Hazard Mitigation Plan website. The most current version of the plan will be available on this site, as well as information regarding any proposed updates or status reports on mitigation actions completed or in progress. Copies of the final adopted plan will be distributed to the Lone Cone Library in Norwood and the Wilkinson Public Library in Telluride.

APPENDICES

APPENDIX 1: MITIGATION ACTION WORK PLAN

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Egnar Slickrock FPD	GPS units for response vehicles	The Egnar FPD encompasses a large remote geographic area. Much of this area is out of range of cellular service, thus making navigation through the area a challenge. Four-six of these GPS units will help volunteer firefighters respond with improved efficiency and response time. Acquisition of these units will also ensure that responders are executing their response to the correct location and prevent them from getting turned around in the extremely remote regions of the county	3k	EFPD	Grants	2020	New	1A,C	**All Hazards**
High	Egnar Slickrock FPD	Satellite Phones	The Egnar FPD encompasses a large remote geographic area. Much of this area is out of range of cellular service and radio service is erratic and inconsistent, thus making communication in the area a challenge. Communication gaps during emergency response may lead to extended response times. These communication gaps also present life safety issues for responders.		EFPD	Grants	2020	New	1A	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Egnar Slickrock FPD	Improved radio coverage in area	There are many dead areas within the Egnar Slickrock Fire Protection District which prohibit communication in the event of an emergency. The need for additional communications towers is high	200K	SMSO, EFPD	DHS, SMC	2021	Ongoing	1A	**All Hazards**
Low	Egnar Slickrock FPD	Update mapping for the district	The department needs to be updated and informed of new roads, road closures and decommissioned roads within the district to ensure timely emergency response	No direct cost	SMSO, SMC GIS, USGS	SMC	Complete	Ongoing	1A,E	**All Hazards**
Low	Egnar Slickrock FPD	Improved emergency communication to local residents through encouraging the public get NOAA weather radios and sign up for CodeRED	Necessity of early warning to residents of pending severe weather such as severe winter storms, lightning storms, high winds, fire, etc. ESRFD would distribute weather radios to remote residents who do not have other means of acquiring emergency information. This would be coupled with a public education campaign on public alert and warning systems	2k	SMC, EFPD	Grants	Ongoing	Ongoing	1B;3A	**All Hazards**
Medium	Egnar Slickrock FPD	Smoke Detectors	The Egnar FPD encompasses a large remote geographic area. It may take long periods of time to respond to certain residences for emergencies. Smoke detectors would increase fire safety and awareness among residents	Free Red Cross program	EFPD	American Red Cross	2020	New	1B	**All Hazards**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Egnar Slickrock FPD	HazMat PPE for Firefighters	There are no HAZMAT PPE or qualified personnel in the department at this time. The potential for the department to encounter a HAZMAT situation is extremely high. Response time form other departments qualified in this area is long and may result in life or property loss.	$250/pp	EFPD, SMC	Grants	2017	Ongoing	1A;3A	**All Hazards**
Medium	Egnar Slickrock FPD	Fire mitigation and fuels reduction on Public Lands	Areas in the WUI have extremely heavy fuel loads that need to be mitigated to reduce the severity of a wildfire	unknown	SMC, EFPD, USFS, BLM, WRWC	USFS, BLM	2016	Ongoing	1C	**Wildfire**
High	Mountain Village	Address Community Wildfire Protection Plan Actions and prioritize fuels reduction projects	Based on the San Miguel County CWPP the town of Mountain Village was broken into upper and lower sections - outlines prescriptions for reducing wildfire risk.	Variable on scope	TOMV, WRWC, CSFS, SMSO	Town of Mtn Village, WRWC, FEMA, CSFS, owners	2012	Ongoing	1A,C; 2A,C; 3A,B	**Wildfire**
Low	Mountain Village	Water Infrastructure improvements	Ski Ranches water infrastructure is at the end of the pipes use. Full life span does not meet fire flow requirements. This may lead to lack of adequate fire protection resources for home owners in the forested areas	$7.2M	Mountain Village Public Works	TOMV	ongoing	New	1A,B, E;2A, C;3B	**Wildfire**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	Mountain Village	Public Education Campaign on Drought	San Miguel County has experienced drought in the past. It is important to educate residents on the effects of drought and how they can help mitigate the effects once in a drought cycle. Also, talking about potential water restrictions in the case of a drought beforehand helps plan for such an event.	2k	TOMV	TOMV	2016	Ongoing	1A,B	**Drought**
Medium	Mountain Village	Pandemic Flu education	After the recent outbreak of H1N1, the Town of Mountain Village feels it is important to continue to provide the public with resources that are available both during and preceding an outbreak	2k	SMC Public Health, TOMV	SMC Public Health, TOMV	2012	New	1A,B; 2A,;3A	**Pandemic**
Medium	Mountain Village	All Hazard Education	This plan has identified several high and medium risk hazards for the town of Mountain Village. Providing an educational brochure on the risks to residents is a good way to get people thinking about hazards that could potentially affect them.	2k	TOMV, SMSO	TOMV, SMSO, Grants	2012	New	1A,B; 2A,C; 3A	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Mountain Village	Continued Compliance with the NFIP program and implementation of measures to help improve CRS ratings where appropriate	A community's participation and compliance with NFIP ensures that a community manages ordinances to reduce future flood damage. In exchange, the NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners in these communities. The Community Rating System (CRS) is a way to gauge a community's compliance level and makes community with higher (better) CRS ratings eligible for insurance discounts.	unknown	NFIP, TOMV, SMSO	FEMA	2016	New	1A,B; 2A;3A	**Erosion, Flood, Landslide**
Medium	Mountain Village	Mountain Village Town Hall Backup Generator	As it stands, we have on going power outages in the region. This action will prevent TOMV government to continue with essetial functions during region wide prolonged power outages	$375k	Mountain Village Public Works	Grants, TOMV	ongoing	New	1A,E; 2B;3B	**All Hazards**
Medium	Mountain Village	Secondary ingress/Egress road	The Town of Mountain Village has one road in and out. The "old entrance" needs to be graded and stabilized as a secondary egress. The current identified evacuation routes are not safe for multiple vehicle travel	$100k	Mountain Village Public Works/Police	TOMV	ongoing	New	1A,B; 2A,C; 3A,B	**Wildfire**
Medium	Mountain Village	Maintenance Facility Upgrade	Maintenance facility is not designed for maintenance of all emergency response vehicles. An upgrade will enable emergency response vehicles to be more easily maintained for deployment	$1M	Mountain Village Public Works	TOMV and Telluride Fire Protecti		New	1A,E	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
						on District				
High	Norwood FPD	Obtain land for Gurley Fire Station #4	The Fire Protection district would like to have a fire house with equipment located near the Gurley Reservoir. The area has become a very popular place to live and there is great wildfire risk.	unknown	Norwood FPD	SMC, Grants, Donation	2015	New	1A	**All Hazards**
High	Norwood FPD	Frontline fire apparatus replacement for fire protection/ EMS/rescue with Wildland Urban Interface fire engine	Fire jurisdiction is approximately 400 sqm, the majority of which is wildland mountainous terrain. In order to provide full and adequate coverage NFPD must have capable/reliable vehicles that are appropriate for our geographic area. Engine 8, as a 2WD vehicle, is incapable of responding to many events within its service area.	300K	NFPD	Grants, SMC	2018	New	1A,C; 2C	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Norwood FPD	Installation of Power-PRO XT powered ambulance cot system into ambulance 2	1 in 4 EMS workers will suffer a career ending, quality of life back injury within their first four years in the field. The number one cause is lifting. The NFPD is an all-volunteer force with the average age of responders being 45 years old. The installation of a powered ambulance cot system has proven to reduce spinal loading. This has led to reduced injuries, lost or modified workdays and workers	45k	NFPD	Grants	ongoing	New	1A	**All Hazards**
High	Norwood FPD	2000 gallon water tender apparatus replacement for fire protection throughout non-hydrant areas within NFPD	Fire jurisdiction is approximately 400 sqm, the majority of which is wildland mountainous terrain. In order to provide full and adequate coverage NFPD must have capable and portable water abilities/reliable vehicles that are appropriate for our geographic area. Tender 6 and Tender 11 are both 2000 gallon water tenders and are both well beyond their reliable and safe service life (1990 & 2000 models respectively). Both of these vehicles are not NFPA compliant as fire service water tenders, making them unsafe to operate. Additionally, both vehicles are at an age when repair parts may no longer be available.	130k	NFPD	Grants, SMC	ongoing	New	1A,C; 2C	**All Hazards**

DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	Norwood FPD	MDT's for Fire-EMS-Command Vehicles	In order to improve life safety, responses, situational awareness and data integrity, an upgraded mobile data terminal system may prove beneficial	8,500 k/unit	NFPD	AFG Grants Capital Project Planning	2017	New	1A	**All Hazards**
Medium	Norwood FPD	Develop a system for testing warning siren systems	There is a warning system in place but it has not been tested or used for many years	unknown	Norwood FPD	FEMA	2012	New	1A,B; 2A	**All Hazards**
Medium	Norwood FPD	Natural Gas generator for NFPD station 1	Currently the fire station has no electical backup. If the fire station has a loss of power, the ability to perform basic fire and EMS operations will be impeded	20k	NFPD	Grants, NFPD, SMC	ongoing	New	1A;2A	**All Hazards**
Medium	Norwood FPD	Burn building and Training Center	Currently, all fire protection districts train at an out of county facility. They have to rent this facility by the hour and also pay the facilities trainers for their service. Having an in county burn building and training center will increase the staffing and response capability within San Miguel County and allow our FPD's to train as needed, at a fraction of the cost.	$350k	Norwood FPD	Grants	Ongoing	New		**All Hazards**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	San Miguel County	Update GIS imagery (aerial photos) for response and analysis	Imagery is of assistance in identifying, planning, responding to and analysis of disasters	$200,00 for entire county	San Miguel County-GIS/IT	FEMA, State of Colorado CDEM	10 years	New	1A,B,C,D,E;2A,C	**All Hazards**
High	San Miguel County	Obtain good digital data for mapping critical infrastructure in the County	Mapping of critical infrastructure assists in disaster response by helping to protect it	$5k Staff Time	San Miguel County-GIS/IT	County, FEMA, Private industry (utilities)	2 years	New	1A,B,C,D,E;2A,C;3B	**All Hazards**
High	San Miguel County	Floodplain Regulations	Continue to regulate building in floodplains and on parcels along waterways. Portions of San Miguel County have not been mapped for floodplain data. It is important to regulate where development occurs to help prevent property damage and or life loss or injury.	Costs Associated to applicant near floodplain	SMC, SMSO, CDOT	SMC, homeowners	Ongoing	New	1A,D	**Flood**
High	San Miguel County	EOC Backup Generator Project	The primary EOC does not have backup power in the event of an outage	150000	SMSO	State Generator Grant/Homeland Security Grant	2018	Ongoing	1A; 2B	**All Hazards**

DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	San Miguel County	Identify an prioritize action if needed for abandoned mines in the County	SMC has several abandoned mines that pose potential hazard	unknown	SMC, CDPHE, USGS	CDPHE, EPA	2017	New	1A,B; 2C;	**All Hazards**
Low	San Miguel County	Communicable Disease PIO	During the phases of a communicable disease outbreak, information sharing is an integral part of the operational and recovery phases	1.6k/month	SMCDHE	SMC Emergency Response Contract	non specified	New	1A,B; 2A;3B	**All Hazards**
Low	San Miguel County	Replace bridge that provides access to Applebaugh Subdivision	CDOT bridge inspection program has identified this bridge as being substandard to the travel it receives	$700k	Road and Bridge, HOA	Federal Bridge Program, FEMA, Applebaugh HOA	2012	Ongoing	1A,E; 2C	**All Hazards**
Low	San Miguel County	Landslide Mapping	Work with CGS, CDOT and USGS to identify and map vulnerable landslide areas and develop slope stabilization projects to protect homes and infrastructure	range $10k to $500k for Geologic analysis	San Miguel County-GIS/IT	SMC, CDOT, USGS	5 years	Ongoing	1A,B, E;2C; 3A,B	**Erosion, Exp Soils, Landslide**

DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	San Miguel County	Obtain technology infrastructure support to maintaining web based communication during emergencies	Technology infrastructure is currently vulnerable to impact by all hazards	$100k	San Miguel County-GIS/IT	SMC, Towns, Department of Homeland Security	5 years	Ongoing	1A,E; 2B,C; 3B	**All Hazards**
Low	San Miguel County	Continue to refine SMC's Avalanche Control Program through training opportunities	SMC, Road and Bridge have performed avalanche mitigation and control work since the 1980's. It is an important goal of the department to continue to refine the control program as to become more efficient at protecting the Ophir citizens from an uncontrolled avalanche. Improved avalanche training would be beneficial for Road and bridge employees who work in the slide zones.	$2k/year	SMC, Road and Bridge	SMC, Town of Norwood	Ongoing	Ongoing	1A,B; 2C;3B	**Avalanche**
Medium	San Miguel County	Continued Ophir Avalanche studies and Improved Control work	Control work must continue as necessary and avalanche studies are important for determining the work that is necessary to keep citizen safe from uncontrolled avalanches	$20k	Road and Bridge/ Town of Ophir	Road and Bridge, SMC, Town of Ophir	2012	New	1A,B, E;2C; 3B	**Avalanche**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	San Miguel County	Obtain GIS satellite imagery for wildfire risk analysis	Satellite imagery can be used to analyze forest characteristics for assessing wildfire danger and post-event damage	500k	San Miguel County-GIS/IT	local counties, private parties	10 years	New	1A,B, C	**Tornado**
Medium	San Miguel County	Map the FEMA floodplain in populated areas of the County in digital format	Digital floodplain data are currently unavailable	$1M for surveyed data and $10k for digitized FIRM maps	San Miguel County-GIS/IT	FEMA	10y years	New	1A,B, D;2A, C	**Flood, Landslide**
Medium	San Miguel County	Conduct annual workshop for protective and preventative response measures for pandemic flu	SMC Department of Health and Environment has prepared and tested a Pandemic Flu plan that was tested during the H1N1 epidemic. However, the plan needs to be reviewed and exercised annually for improvements and training		SMC, Public Health	Emergency Preparedness Dept, CDPHE, SMC	Ongoing	New	1A,B; 2B	**Pandemic**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	San Miguel County	Upgrade County Snow equipment	As more residents move to outlaying areas of SMC, heavier, newer equipment is required to handle severe winter conditions and assist in Wildfire events	$300k	Road and Bridge	Road and Bridge/ Grants	2012	Ongoing	1A,C, E;2C	**Severe Weather**
Medium	San Miguel County	Indentify areas where snow drifting is problematic and install snow fences to reduce problem	Certain stretches of roads that the County Road and Bridge department maintains experience heavy snow drifting in the winter making snow removal more time consuming and dangerous	100k	Road and Bridge	Road and Bridge	2012	Ongoing	1A,E	**Flood**
Medium	San Miguel County	Continue to participate with CDOT in the bridge inspecting program	The nation's bridges have been and will continue to be evaluated under Federal inspection requirements that are administrated through CDOT. Working with this agency to continue inspecting the bridges along state and county roads endures safety and structure soundness	No direct cost	CDOT, Road and Bridge	CDOT	Annually or after hazard event	Ongoing	1A,D, E	**Erosion, Flood, Landslide**
Medium	San Miguel County	Inventory Snow Removal Capabilities Geographically	Residents of the County continue to build their homes and live in remote areas of the County which increases the miles and distances that Road and Bridge must go to provide snow removal services on County Roads	No direct cost	Road and Bridge		Anually	Ongoing	1A;2C	**Avalanche**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	San Miguel County	Improve and continue Avalanche control work	SMC's Road and Bridge Department performs control work along a 2 mile section of County Road 065 for the safety of Ophir residents. There are six avalanche paths capable of reaching the road.	$4-6k/ year	Road and Bridge/ Town of Ophir	Road and Bridge, SMC, Town of Ophir	Anually	Ongoing	1A;2C	**Avalanche**
Medium	San Miguel County	Continue Stream Bank Erosion Mitigation Projects	Spring runoff or heavy rains may cause stream banks to erode which may cause banks to become unstable and therefore cause road closures. Spring runoff may also soften road shoulders which can be a potential cause for an accident.	Varies depending on project and damage done vs. preventative	Road and Bridge	Road and Bridge Operating Budget	Ongoing	Ongoing	1A,E	**Erosion, Flood, Landslide**
Medium	San Miguel County	Continue Culvert Improvements and Bridge Maintenance	Damaged or unstable bridges may cause closures for repair work which could affect many homes for which they provide access. Maintenance includes brush clearing, debris removal, crack sealing and rip-rap placement to prevent scouring	Situational	Road and Bridge	SMC Road and Bridge, HOA's, CDOT	Ongoing	Ongoing	1A,E	**Erosion, Flood, Landslide**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	San Miguel County	Work with CDPHE and other health resources to develop or improve continuity of operations plans for clinics	It is the delegated responsibility of the SMC PHE to provide guidance to other health facilities in the County to help them coordinate and develop their continuity of operations plans.	$15k	SMC, Public Health	SMC DPHE	Ongoing	Ongoing	1A,B; 2A,B	**All Hazards**
Medium	San Miguel County	Hazmat Transportation Regulation	It is important to the citizens of San Miguel County that hazardous materials transportation on the highways and county roads is kept to a minimum.	No direct cost	SMC, SMSO, CDOT	n/a	Ongoing	Ongoing	1A,B, E;2A, C;3A, B	**All Hazards**
High	San Miguel County EM	Promote Disaster Preparedness	Promote disaster preparedness including obtaining disaster preparedness kits and provide general information to the public via printed material and website information. Obtain disaster preparedness kits.	$2k	Emergency Management	EM Operating Budget	Ongoing	Ongoing	1A	**All Hazards**
High	San Miguel County EM	Drought Public Education	Encourage public awareness surrounding awareness during drought and non-drought periods and have Public Information Campaign when in drought period.	$1k/ year	Emergency Management	EM Operating Budget	Ongoing	Ongoing	1A,B	**Drought**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	San Miguel County EM	Landslide Public Education	Encourage public awareness surrounding landslides in the County on topics such as preparedness and flood insurance education	$1k	Emergency Management	EM Operating Budget	ongoing	Ongoing	1A,B, D;2A, C	**Landslide**
High	San Miguel County EM	Test Warning System Capability	Improve and exercise county wide warning systems for hazards	No direct cost	Emergency Management, SMSO	EM Operating Budget	Ongoing	Ongiing	1A,B; 2C	**All Hazards**
High	San Miguel County EM	Wildfire Mitigation Fuels Reduction	The TFPD has many areas as identified in the County's Community Wildfire Protection Plan that are high risk of wildfire. Completing mitigation actions in prescribed areas would reduce the severity of a wildfire if one were to occur	$1M	TFPD, WRWC	Grant Funding, TFPD, WRWC	10 years	Ongoing	1A,B, C	**Wildfire**
High	San Miguel County EM	NOAA Radio Transmitter for Telluride Region	Currently, the majority of the county is not in a coverage area to receive warning messages through the National Weather Service. Full coverage of the county would be ideal; however, to obtain NOAA Radio Transmitter for Telluride Region first would benefit the largest population. A second tower in the Wright's Mesa Area and a third tower in the Egnar Area would allow coverage for most of the county.	$60k	Emergency Management	Grants	funding dependent	Ongoing	1A,B	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	San Miguel County EM	SAR Card Public Education	Continue public education to encourage back country rescue cards/hunting and fishing licenses for SAR efforts. In the event an individual needs to be rescued, the SAR fund covers costs. Add information to SMC Website	$1k	Emergency management, SMSO	SO Operating Budget	Ongoing	Ongoing	1A,B	**All Hazards**
High	San Miguel County EM	Target Notification Campaign	Continue to develop Target Notification System Campaign for both landline and mobile phone for floodplain occupants	$1k	Emergency management, SMSO	EM Operating Budget	Ongoing	Ongoing	1A,B, D	**All Hazards**
High	San Miguel County EM	Public Education for Ingress/Egress Issues	Homes and properties must be accessible by emergency responders to effectively assist with warning, evacuation, fire fighting measures, etc. to protect lives and property.	2000	Emergency Management/ Telluride Fire/ WRWC	grants, EM Budget	Ongoing	Ongoing	1A,B, C;2A	**All Hazards**
Low	San Miguel County EM	Water Conservation	Work with water supply organizations to promote conservation and efficiency initiatives	$1k	Emergency management, Water Orgs	Water supply Orgs	Ongoing	Ongoing		**Drought**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	San Miguel County EM	Severe Weather Alert List for NWS	Currently, the NWS service responds to request for assistance on an 'as needed basis'. Prepare a list of severe weather events that would prompt dispatch to notify NWS forecasters in Grand Junction	No direct cost	Emergency management, SMSO	n/a	ongoing	Ongoing	1A,B; 3A	**All Hazards**
Medium	San Miguel County EM	All Hazard Publication Education	Have a 'one stop shop' for the public to get their preparedness information on all hazards within the county	No direct cost	Emergency Management	EM Operating Budget	Ongoing	Ongoing	1A,B; 2A,B	**All Hazards**
Medium	San Miguel County EM	Remote controlled Quadcopter /Drone	Many of the areas we respond to and develop plans for can be challenging to access. We often need to view large areas in order to gain situational awareness. This vehicle will also be useful in hazmat assessments and responses as well as possible search and rescue applications. Post disaster damage assessments are another area in which an expanded view of large swaths of land would be needed.	$3k	Emergency Management, SMSO, SAR, Hazmat	Grants		New	1A,C, D,E	**All Hazards**
Medium	San Miguel County EM	Recruit Weather Spotters	Recruit and train more volunteer weather spotters in the County with an emphasis on areas that aren't currently covered	$2k	Emergency management	Grants, EM Budget and NWS	2016	Ongoing	1A,B	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	San Miguel County EM	Expand Event Pre-Warn Capability with the NWS	Currently, the NWS service responds to request for assistance on an 'as needed basis'. If there were a group of pre-warn events the NWS could assist with events sooner. IPAWS and EAS.	$2k	Emergency Management, NWS, SMC, TRUG Dispatch Centers	Grants	funding dependent	Ongoing	1A,B	**All Hazards**
Medium	San Miguel County EM	Identify Special Needs Population	Identify special needs population to ensure needs are met during extreme weather	No direct cost	Emergency Management	County staff time	Onging outreach	Ongoing	1A,B	**All Hazards**
Medium	San Miguel County EM	Develop Skyward/HAM Alternate Communication Capability	Recruit and organize Skyward/ HAM Radio operators for emergency communication in the county.	$2k	Emergency Management	Grants, Grayhead Equip and Regional Partners	Ongoing	Ongoing	1A	**All Hazards**
Medium	San Miguel County EM	Conduct Wildfire Education Workshops	Conduct public education workshops for training property owners to manage fuel on their own land to mitigate the impact of wildfire on their property	$1k/ year	Emergency Management, FPDs WRWC, CSFS	Grant funding, EM Operating Budget, WRWC, CSFS	Ongoing	Ongoing	1A,B, C	**Wildfire**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Telluride FPD	Install dry hydrants	Installing dry hydrants provides water resources and additional access points for firefighters during events	$8k/ site location	TFPD	Grants, Budget for Capital Resources	5 years	Ongoing	1A,C	**Wildfire**
High	Telluride FPD	Operations Plan	work with WRWC to develop an initial attack/operations plan using parcel level risk assessment data	15k	TFPD/WRWC/ SMC	Grants, TFPD, SMSO	In progress, WRWC ongoing 2018	New	1A,B, C	**Wildfire**
High	Telluride FPD	AreaRAE	Telluride has many large festivals which are of great importance to the local economy. This hazardous material monitoring system (Chemical, Biological, Nuclear) will be instrumental in bolstering life safety of our residents and festival attendees.	$70k	TFPD	Grant, Budget		New	1A,E; 2A,C	**All Hazards**
High	Telluride FPD	New Station (Fire/EMS) at Lawson Hill	TFPD needs offices and to shift responder quarters to make space for additional emergency equipment. This will improve standards of cover, housing for responders and offices for staff. This will also decrease insurance rates	$12-14M	TFPD	Grant, Mill Levy, Bond		New	1A	**All Hazards**
High	Telluride FPD	Provide GIS map books in all TFPD vehicles/ apparatus	Map books provide vital area specific information for first responders. Currently, only some of the response vehicles have map books.	unknown	TFPD, SMC GIS	Grants, TFPD Budget	2 years	Ongoing	1A,C; 3B	**All Hazards**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Telluride FPD	Increase rural fire delivery	In the TFPD, there are many homes or properties that require considerable response time from the district fire stations. District would like to improve their ISO rating.	unknown	TFPD	TFPD	Ongoing	Ongoing	1A,C	**All Hazards**
Low	Telluride FPD	Training Officer	Increase District Training Capabilities	?	TFPD	TFPD	2017	Ongoing	1A,B	**All Hazards**
Low	Telluride FPD	Assign additional personnel to Station 4	Currently, there are very few volunteer firefighters that reside in the town of Ophir or in the subdivisions in that area. Therefore, volunteers from Mountain Village often respond to Ophir incidents.	$5k/person	TFPD	TFPD	2 years	Ongoing	1A,C	**All Hazards**
Low	Telluride FPD	Continue existing apparatus replacement program	TFPD has some outdated equipment but has a replacement program/ schedule for acquiring new apparatus. Funding for continuation would ensure the district has up to date technology and equipment.	$1.2M over long term	TFPD	AFG Grants Capital Project Planning	Ongoing	Ongoing	1A;2C	**All Hazards**
Medium	Telluride FPD	Acquire hose couplings that match regional jurisdictions for interoperability	It is important that surrounding jurisdiction work collaboratively to acquire equipment that is interoperable for multi-agency event response.	300	TFPD	TFPD	2012	New	1A,C	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Telluride FPD	HazMat Team Leader/Employee	TFPD acts as DERA for SMC, Montrose County (MC) and Montrose FPD. This position will provide leadership, coordination and training, including grants and budgeting for Telluride HazMat.	$100k	TFPD			New	1A,B, E	**HazMat**
Medium	Telluride FPD	Hazardous Materials Response Engine	TFPD acts as San Miguel County (SMC) DERA to and area mutual aid. This will allow us to consolidate HazMat equipment to one apparatus/vehicle	$400k	TFPD	Grants, Capital budget		New	1A	**HazMat**
Medium	Telluride FPD	New Type III Fire Engine	Add wildfire suppression resources to TFPD	$380k	TFPD	Grant, Budget (reserves/Capital)		New	1A,C	**Wildfire**
Medium	Telluride FPD	Communications tower HWY 62 at mile marker 10	The geographical characteristics of SMC cause radio communications dead zones. This would improve communications gaps in these dead zones	$200k	TFPD			New; in progress	1A	**All Hazards**
High	Town of Norwood	Increase snow removal equipment	The town of Norwood has limited equipment that is antiquated and limited employees to run the equipment. Norwood has approximately 4 miles of streets that snow is removed from. This does not include alley ways or public parking lots. Per an agreement with CDOT, the town must remove the snow in the	$50k	Town of Norwood	General funds/ grants	2011	Ongoing	1A	**Severe Weather**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
			middle of Grand Ave. within 72 Hours of a snow event.							
Low	Town of Norwood	Weather Shelter Map	Educate town residents and visitors of the locations of the extreme winter weather shelters in the area.	less than 1K	Town of Norwood	Town of Norwood	2011	Ongoing	1A,B; 2A	**All Hazards**
Low	Town of Norwood	Map Critical Infrastructure	In the case of a disaster event, having Norwood's infrastructure lines mapped would be beneficial for determining damage, and preventative measures.	$2,500	SMC and Town of Norwood	SMC, Town of Norwood	2012	Ongoing	1A,E; 2A;3B	**All Hazards**
Low	Town of Norwood	Pandemic Flu Prevention	With the recent outbreak of the H1N1 pandemic, the town of Norwood feels it is important to educate its citizens on prevention and protective measures regarding the flu.	No direct cost	Town of Norwood and SMC DPHE	N/a	2012	Ongoing	1A,B	**Pandemic**
Low	Town of Norwood	Drought awareness Education Campaign	The service area includes 85 miles of water line within two counties. Drought has had severe effects on the area in the past and it is important to educate residents about drought mitigation and water usage reduction	No direct cost	Town of Norwood and NWC	N/a	Ongoing	Ongoing	1A,B, C	**Drought**

DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	Town of Norwood	Establish water usage schedule	Setting policies and educating the area residents regarding water use restrictions. The NWC has a policy for restricted use at different levels of water shortages.	No direct cost	Town of Norwood/ Norwood Water Commission	N/a	Ongoing	Ongoing	1A,B, C	**Drought**
Low	Town of Norwood	Installation of Irrigation System	The town residents would be able to enjoy green lawn without the cost of using treated water. Norwood would be able to utilize the 119 shares of irrigation that they hold from the Gurley Reservoir. This would promote conservation of treated town water and would also provide a way for residents to help mitigate against wildfire by irrigating their property.	100000	Town of Norwood	Water conservation agencies, SMC, Town of Norwood	TBD	Ongoing	1A;2C	**Drought**
Medium	Town of Norwood	Acquire additional potable water tanks	The NWC has low pressure zones due to service line installed above the elevation of the water treatment plan. Installation of potable water tanks at strategic locations would alleviate low pressure within the system. Also, water storage in potable tanks could be useful during wildfire or drought events.	$150 per 100,000 gal of holding capacity	Town of Norwood	Town of Norwood, NWC	2011	Ongoing	1A,C, E;2C	**Drought**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Town of Norwood	Infrastructure Upgrade	Much of the water infrastructure in over 30 years old and was not properly installed. A portion of the infrastructure is undersized for the amount of customers. The NWC needs to replace the water mains with new large pipe and loop the line so stagnation does not occur. Additional pressure reducing valves need to be installed to help maintain constant pressure.	3 phase: phase #1 $5M	Town of Norwood	DOLA, Colorado Water Power Authority	outlined in 2009 Capital Improvement Plan	Ongoing	1A,E	**All Hazards**
Medium	Town of Ohpir	Emergency Response	Extreme weather events, infrastructure failure occur often. Hiring planning and response staff would help mitigate the impacts of these events.	50k	Town of Ophir	Ophir, Grants, Relief funding, Volunteers		New	1A,B, E;2B, C	**Severe Weather**
High	Town of Ophir	Update and expand medical equipment	Much of the Towns EMS and Search and Rescue equipment is outdated, Ophir is a secluded area and response time from Fire Departments is long.	15k	FPD, County	Town of Ophir, Fire Protection District, SMC	2012	New	1A,E	**All Hazards**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Town of Ophir	Install street signs and update maps	Ophir has no street signs and emergency response has been lost in the past when trying to respond to an incident	5k	Ophir/ SMC Emergency Management	Town of Ophir grant	2012	New	1A,B, C,E;2 C	**All Hazards**
High	Town of Ophir	Create alternative power source	Ophir experiences power outages frequently. Whether the power is knocked out by an avalanche or severe weather, having back up power would highly benefit the town's residents	200k-500k	Town of Ophir	Grant Fund	2012	New	1A,E; 2C	**Avalanche**
High	Town of Ophir	Update town's snowplow equipment	Ophir receives a tremendous amount of snow and high winds which cause snow to drift over roads. Upgraded snow equipment would help keep the town's one access road open.	250k	Town of Ophir	grants, donation	2013	New	1A,E; 2C	**Avalanche**
High	Town of Ophir	Conduct Rockfall Mitigation on Ophir Loop on HWY 145	Rockfall is a common issue along this stretch of State Highway. Many cars have been damaged and a large enough event could cause loss of life or shut down the highway.	500k	Town of Ophir/ CDOT	CDOT	2013	New	1A,E; 2C	**Landslide**
High	Town of Ophir	Bury the Power Line through the Ophir Valley	In the past, Power has been lost due to avalanches, windstorms and other severe weather that knock down the lines.	1M+	Town of Ophir/ SMC	Grants, SMC, Tri-State	2016	New	1A,E; 2C	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Town of Ophir	Obtain a fire engine for new fire station near Ophir	The town of Ophir has looked into obtaining a fire engine for the volunteer fire fighters who reside in Ophir. Funding for the truck is lacking, thus fire fighters must leave Ophir to get the truck and return to the incident	200k-500k	FPD, County	Grants, Fire Protection District, County	2013	New	1A,C,E;2C	**All Hazards**
Medium	Town of Ophir	Acquire a snowcat/snowmobile for emergency use during road closures	The town of Ophir is cut off frequently from the rest of the world when avalanches block the only road to the town. Having a snowcat and or snowmobile would allow a means of transportation over the avalanche path for medical emergencies, supply delivery etc.	55k	Town of Ophir	grants	2013	New	1A,E; 2C	**Avalanche, Severe Weather**
Medium	Town of Ophir	Bury Waterfall Canyon water supply line	This water line provides Ophir with its drinking water. It is an above ground water line, subject to freezing and damage due to hazards	1M+	Town of Ophir	Grants	2016	New	1A,E	**All Hazards**
Medium	Town of Ophir	Road Infrastructure and Drainage	Extreme weather, snow, heavy traffic, rain, runoff	100k	Town of Ophir	Town of Ophir, Grant, Collaborative efforts	Ongoing	New	1A,E	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
High	Town of Sawpit	Stormwater Drainage Maintenance	The town of Sawpit experiences street flooding, debris flow and riverine flooding during the summer monsoon season. Preparing and implementing a maintenance plan for keeping the drainage ways and culverts free of debris helps to mitigate the severity of these flooding events	$5k annually	Town of Sawpit, SMC	SMC Road and Bridge, FEMA	1-5 years	Ongoing	1A,D, E;2C	**Erosion, Flood, Landslide**
Low	Town of Sawpit	Address ingress/ egress issues in the town of Sawpit	The town of Sawpit needs to address this issue to allow for fire apparatus to access homes and properties.	$25k	CDOT, Sawpit and SMC	Grants, homeowners and SMC	2015	Ongoing	1A,B, C,E	**All Hazards**
Medium	Town of Sawpit	Map 100 and 500 Year floodplains in the Town of Sawpit	The town of Sawpit currently has no 100 or 500 year floodplain maps.	5000	Town of Sawpit, SMC GIS	SMC, FEMA	1-5 years	Ongoing	1A,B, D,E;2 A,B,C	**Erosion, Flood, Landslide**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Town of Sawpit	Continue to insist that Hwy 145, which runs through Sawpit, remain an non-designated Hazardous Materials transportation route	Hwy 145 is currently not a designated hazardous materials transportation route. However, in the winter, it is designated as an alternative route. Sawpit residents are concerned about the Hwy becoming a primary route and want to ensure that this action does not take place.	No direct cost	CDOT, Sawpit and SMC	n/a	Ongoing	Ongoing	1A,B,E;2C	**All Hazards**
High	Town of Telluride	Telluride Regional Wastewater Treatment Plant Upgrade (TRWWTP)	A combination of regional growth, more stringent discharge limits, and aging infrastructure has required development of a masterplan for improvements to be implemented from 2017-2027	40M	Telluride Public Works and Planning Depts	Grants, Loans, service fees, tap fees, bonds	2027	New	1A,B,E;2C	**All Hazards**
High	Town of Telluride	Resurfacing highway 145 Spur	The highway 145 spur is the only available access to and from Telluride. Resurfacing will ensure safe and reliable connectivity to the broader highway system for emergency response, evacuations, etc.	3M	Telluride Public Works and Planning Depts	Street, Bridge & Alley Fund (Town Capital Funds)		New	1A,C,D,E;2A,C	**All Hazards**

FINAL DRAFT

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Low	Town of Telluride	San Miguel River Restoration on the valley floor	Historic channelization of the San Miguel River has disconnected the riverfront from its floodplain. Restoring this 3 mile segment of th San Miguel will serve to attenuate flood flow in the river	5M	Town Managers office	Grants, Town funding (open space capital fund)	Ongoing	New (phase 1 complete)	1A,D; 2C	**Erosion, Flood**
Low	Town of Telluride	Increase public awareness about riverine flooding and debris flow in Telluride	Telluride has experienced two significant debris flow events on the Cornet Alluvial fan. The San Miguel River is highly constrained. It is important that the residents in the town understand the risks and are educated about preventative measures.	$1k/ year	Telluride planning and public works departments	operating budget	Ongoing	Ongoing	1A,B, D,E;2 A,;3A	**Erosion, Flood, Landslide**
Medium	Town of Telluride	Stormwater Runoff Mitigation	Mitigating the quality and quantity of stormwater runoff in an urbanizing town	50k-100k annually	Telluride Public Works and Planning Depts, Environmental & Engineering division	Capital budget	Ongoing	New	1A,D, E	**Flood**

Priority Ranking	Jurisdiction	Mitigation Action	Description	Cost Est	Stake holder	Target Funding	Timeline	Status	Goal Obj	Hazard
Medium	Town of Telluride	Storm Drainage Improvements	Telluride is located in a river valley. Portions of the town were once wetlands, crating low spots with poor/difficult drainage	$30k annually	Telluride Public Works	Operating and Capital Improvement budgets	2015	Ongoing	1A,D,E;2C	**Erosion, Flood, Landslide**
Medium	Town of Telluride	Replace Pacific Ave. culverts with a span bridge	Cornet Creek carries significant sediment loads, which it deposits at its downstream flat segment, prior to the confluence with the San Miguel River. The culverts trap sediment, sometimes reducing flow capacity and are more difficult to maintain.	$1M	Telluride Public Works	Capital Improvement Budget or grants	2017	Ongoing	1A,D,E	**Erosion, Flood, Landslide**
Medium	Town of Telluride	Cornet Creek Channel Maintenance	Cornet Creek has a history of debris flows of various sizes. Small to moderate events can be mitigated by channel maintenance.	up to $50k annually	Telluride Public Works	Operating and Capital Improvement budgets	Annually	Ongoing	1A,D,E;2C	**Erosion, Flood, Landslide**
Medium	Town of Telluride	Continue to remove sediments from In-stream sedimentation basin at Bear Creek/ San Miguel confluence	The San Miguel River does not have sufficient energy to transport its sediment load from the upper basin and maintain sufficient flood flow capacity. A 2001 restoration design created the ISB to solve this problem	$10-20k annually	Telluride Public Works	Capital Improvement Budget or grants	Annually	Ongoing	1A,D,E	**Erosion, Flood, Landslide**

APPENDIX 2: SUPPORTING DOCUMENTS

Stakeholder Letter

FINAL DRAFT

San Miguel County Sheriff's Office
684 CR 63L
Telluride, Colorado, 81435
William S. Masters, Sheriff
"Upholding Liberty and Personal Responsibility"

August 11, 2015

To Whom It May Concern,

Our office is facilitating a required update to the countywide San Miguel County All Hazard Mitigation Plan. The plan was last updated in 2011 and was compiled to assist in reducing and mitigating future losses from natural and technological hazard events. The plan outlines historical hazard events, profiles individual hazards and analyzes potential impacts of these hazards to the people, property, infrastructure and critical facilities in San Miguel County.

Your special district, jurisdiction or agency is receiving this letter as an invitation to participate in this important process to update the plan. The Disaster Mitigation Act of 2000 requires all local governments to have an approved plan to be eligible for certain federal disaster assistance and mitigation funding programs. These funding programs include FEMA Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA), and Hazard Mitigation Grant Program (HMGP).

The planning process depends on local participation. To support this project, I am forming a planning team with representatives from the County, Towns, Special Districts and other local, state and federal agencies that are located in or that serve San Miguel County. Your jurisdictional representative will need to attend planning team meetings, assist with plan development, provide information for risk assessment and capabilities assessment and provide feedback on drafts of all chapters. Additionally, they will develop and prioritize mitigation actions for their jurisdiction and then work with their jurisdiction to assign responsibility to implement these mitigations.

We ask that your special district, jurisdiction or agency participate in this important process. If you have multiple representatives that you would like to attend, please feel free to invite them.

San Miguel County Hazard Mitigation Plan Kickoff Meeting
August 25th at 10 am – 12 Noon
Telluride Fire Station
135 W Columbia Ave, Telluride, CO 81435

Please respond if you or your representative will or will not be able to attend via email to jenniferd@sanmiguelcounty.org or give me a call at the number listed below. Thank you in advance for your participation in this vital planning process.

Jennifer Dinsmore, Emergency Management Coordinator
(970) 728-9546

Stakeholder Meeting Signup Sheets

Meeting 1 August 25, 2015

San Miguel County
Hazard Plan Update
Planning Team Sign-in

Name	Agency	Phone	Email
Dave Schneck	SMC Env. Health	729 1187	Daves@sanmiguelcounty.co.gov
KAREN HENDERSON	SMC PLANNING	728-3083	karenh@sanmiguelcounty.co.gov
Carrie Andrews	Lone Cone Library District	708-0985	carrie@lonecone library.org
Kiernan Lannon	Telluride Historical Museum	728-3344	Kiernan@telluridemuseum.org
JIM PRINGLE	NATL. WEATHER SERVICE	(970)243-7007 x726	james.pringle@noaa.gov
Lynn Black	SMC	728-3844	
Ted Mueller	Norwood Fire Dist	970.327.4840	norwoodted@aol.com
Randy Barnes	Town of Ophir	970.728.4943	admin@town-ophir.co.gov
Gordon Reichard	TMC	728 9782	greichard@telluned.org
Steven Zwick	SMC Atty	728-3879	szwick@sanmiguelcounty.gov
CHRIS BRODY	MVPD	728-9281	Cbrody@mtnvillage.org
FINN KJOME	TMV Public Works	729 3441	fkjome@mtnvillage.org
WAYNE PANDORF	DOWL, LLC	497-8827	wpandorf@dowl.com
Laurie Brandt	DOWL	497-8821	lbrandt@dowl.com
JAMES KALAR	TELLURIDE F.D	728-3878	jkalar@telluride-co.gov
JOHN BENNETT	TELLURIDE FPD	728-3807	jbennett@telluridefire.com
Jenn Dunshore	SMSO EM	728-9546	jdunshore@sanmiguelcounty.org

San Miguel County
Hazard Plan Update
Planning Team Sign-in

Name	Agency	Phone	Email
JAMES HOLAIR	TELLURIDE P.D	970. 728. 3848	vicemr@telluride-co.gov
CHRIS BROADY	Mountain Village P.D.	970.728-9281	cbroady@mtnvillage.org
Lilia Falk	West Region Wildfire Council	970-729-1718	wrwc.lilia@gmail.com
Heather Wickland	San Miguel County GIS	970-369-5570	heatherw@sanmiguelcountyco.gov
Kody Barnes	Ophir	970 728 4943	administrator@ophir.co.gov
JOHN BENNETT	Telluride Fire District	970-728-3809	jbennett@telluridefire.com
TRISHA VANHEUTEBRAKE	SMCOHE	970 729-1699	trishaw@sanmiguelcountyco.gov
PATRICIA GAVELDA	Colorado DHSEM	970-747-8280	patricia.gavelda@state.co.us

9/21/2015

Meeting 3 and 4

Not on File

Worksheets Utilized in the Planning Process

Worksheet 1: Historic Hazard Event Data Collection Sheet

Instructions: Please fill out one sheet for each event that has occurred within the last five years (or that was not captured in the current plan) with as much detail as possible. Attach supporting documentation, photocopies of newspaper articles or other original sources.

Type of natural hazard event:	
Date of event:	
Description of the nature and magnitude of the event:	
Location (community or description with map):	
Injuries:	
Deaths:	
Property damage:	
Infrastructure damage:	
Business/Economic impact:	
Road/School/Other closures:	
Other damage:	
Total damages:	
Insured losses:	
Fed/State Disaster relief funding ($):	
Opinion on likelihood of occurring again:	
Source of information:	
Comments:	

Contact Information	
Name of Jurisdiction:	
Submitted By:	
Email:	
Phone:	

San Miguel County Hazard Mitigation Plan Update Worksheet

Worksheet #2: Vulnerability Assessment

Instructions: Please complete (to the extent possible) the vulnerable buildings, populations, critical facilities and infrastructure for each hazard that affects your jurisdiction. This information will be used to estimate disaster losses, which can then be used to gauge potential benefits of mitigation measures. Attach supporting documentation, photocopies of engineering reports or other sources.

Hazard:

Location and Description of Potential Impact:

Building Inventory:

Residential	**Count**	**Estimated Value**
Comments		
Commercial	**Count**	**Estimated Value**
Comments		

Industrial	**Count**	**Estimated Value**
Comments		
Agricultural	**Count**	**Estimated Value**
Comments		

Other (Define, e.g., gov.)	**Count**	**Estimated Value**
Comments		

Worksheet #3: Local Capabilities

Jurisdiction:	Y/N/NA/Unknown	Comments
Comp Plan/General Plan		
Special Plans		
Subdivision Ordinance		
Zoning Ordinance		
NFIP/FPM Ordinance		
Substantial Damage Language		
Admin./Certified Floodplain Manager		
# of Flood threatened Buildings		
# of Flood Insurance Policies		
# of Repetitive Losses		
Maintain Elevation Certificates		
CRS Rating, if applicable		
Stormwater Program		
Erosion or Sediment Controls		
Building Code Version		
Full-Time Building Official		
Conduct "as-built" Inspections		
BCEGS Rating		
Local Emergency Operations Plan		
Fire Department ISO Rating		

Local Capabilities Continued...

Worksheet #4: Mitigation Strategy - Identify Mitigation Actions

Instructions: For each type of loss identified on previous worksheets, determine possible actions. Record information below.

Hazard:

Priority	Possible Actions (include Location)	Sources of Information (include sources you reference and documentation)	Comments (Note any initial issues you may want to discuss or research further)	Planning Reference (Determine into which pre-existing planning suggested projects can be integrated)

Contact Information:

Name of Jurisdiction:

Submitted By:

Email Address:

Phone:

Worksheet #5: Potential Mitigation Projects

Instructions: Use this guide to record potential mitigation projects identified during the planning process. Provide as much detail as possible and use additional pages as necessary. These will be collected following Planning Team meetings on mitigation goals and measures and included in the plan.

Jurisdiction:

Point of Contact:

Mitigation Project:

Issue/Background:

Other alternatives:

Responsible Agency:

Priority (High-Medium-Low):

Cost Estimate:

Benefits (Avoided Losses):

Potential Funding:

Schedule:

Worksheet Submitted By:

Name & Title:

Phone:

Email:

Key Project Tasks for All Hazard Planning Team

Task 1. Planning Process

- ✓ 1.1 Project Initiation
- ✓ 1.2 Develop Public Outreach Strategy
- ✓ 1.3 Multi-jurisdictional Planning Team Meetings
- ✓ 1.4 Individual Jurisdiction Meetings
- ✓ 1.5 Conduct Public Outreach
- ✓ 1.6 Document Planning Process

Task 2. Hazard Analysis and Risk Assessment

- ✓ 2.1 Data Collection and Analysis
- ✓ 2.2 Hazard Identification
- ✓ 2.3 Hazard Profiles and Mapping
- ✓ 2.4 Inventory of Community Assets
- ✓ 2.5 Vulnerability Assessment
- ✓ 2.6 Summarize Findings and Conclusions

Task 3. Capability Assessment

- ✓ 3.1 Review Existing Capabilities
- ✓ 3.2 Summarize Findings and Conclusions
    - Task 4. Mitigation Strategy
- ✓ 4.1 Update Goals and Objectives
- ✓ 4.2 Analyze Mitigation Actions and Projects
- ✓ 4.3 Prepare Mitigation Action Plans
- ✓ 4.4 Complete Mitigation Action Prioritization

Task 5. Plan Maintenance Process

- ✓ 5.1 Update Procedures for Monitoring, Evaluating & Updating the Plan
- ✓ 5.2 Update Process for Implementation through Existing Planning
- ✓ Mechanisms
- ✓ 5.3 Update Procedures for Continued Public Involvement

Task 6. Plan Adoption and Approval

- ✓ 6.1 Acceptance of Planning Team
- ✓ 6.2 Assist County with Plan Approval

6.3 Assist Jurisdictions with Plan Adoption

Roles and Responsibilities

Emergency Management Coordinator

- ❑ Oversee, manage, and document completion of all project tasks
- ❑ Serve as lead coordinating agency
- ❑ Assist with collection of documents, GIS data and other information
- ❑ Coordinate logistics for all project meetings
- ❑ Hosting and managing project collaboration and sharing
- ❑ Responding to general inquiries from the public, stakeholders, etc.
- ❑ Coordinating with all participating jurisdictions

Participating Jurisdictions

- ❑ Designate Local Jurisdiction Lead (primary POC)
- ❑ Attend Planning Team meetings
- ❑ Coordinate logistics for local jurisdiction meetings (if applicable)
- ❑ Assist with data collection and information sharing
- ❑ Coordinate with and report back to other local staff, officials, etc.
- ❑ Assist with public outreach
- ❑ Develop/Update Mitigation Action Plans

- ❑ Review and comment on draft plan materials
- ❑ Coordinate local plan adoption procedures

APPENDIX 3: ADOPTION DOCUMENTATION

Requirement §201.6(c)(5):

The local hazard mitigation plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, county commissioner, Tribal Council).Adoption by ordinance or resolution:

San Miguel County

RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF SAN MIGUEL COUNTY, COLORADO, ADOPTING THE ALL HAZARDS MITIGATION PLAN

RESOLUTION 2018-014

WHEREAS, the Board of County Commissioners, County of San Miguel, State of Colorado recognizes the threat that natural hazards pose to people and property within our community; and

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

WHEREAS, an adopted All Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the Board of County Commissioners of San Miguel County and staff fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

WHEREAS, the Colorado Department of Homeland Security and Management and the Federal Emergency Management Agency (FEMA), Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

NOW, THEREFORE, BE IT RESOLVED, that the Board of County Commissioners of San Miguel County hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado Department of Homeland Security and Management and the Federal Emergency Management Agency, Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

SAN MIGUEL COUNTY, COLORADO
BOARD OF COUNTY COMMISSIONERS

By: Kris Holstrom 05/25/2018
Kris Holstrom, Chair

Vote:				
Kris Holstrom	Aye	Nay	Abstain	Absent
Hilary Cooper	Aye	Nay	Abstain	Absent
Joan May	Aye	Nay	Abstain	Absent

ATTEST:

By: Carmen L. Wahl
Chief Deputy Clerk to the Board

COUNTY CLERK SAN MIGUEL COUNTY, CO.

RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF MOUNTAIN VILLAGE, COLORADO, ADOPTING THE SAN MIGUEL COUNTY ALL HAZARD MITIGATION PLAN

RESOLUTION NO. 2018 – 2018-0426-08

RECITALS:

A. The Town Council of the Town of Mountain Village, Colorado hereby recognizes the threat that natural hazards pose to people and property within the Town of Mountain Village.

B. Undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences.

C. Adopting an All Hazard Mitigation plan is often a required condition of funding for mitigations projects under many Federal Emergency Management Agency ("FEMA") pre and post disaster mitigation grant programs.

D. The Town of Mountain Village fully participated in the mitigation planning process which resulted in this All Hazard Mitigation Plan.

E. The Colorado State Department of Emergency Management, FEMA and Region VIII officials have reviewed the All Hazard Mitigation Plan and have approved it contingent upon the official adoption of the participating governments and entities including the Town of Mountain Village.

NOW, THEREFORE, BE IT RESOLVED, the Town Council of the Town of Mountain Village hereby adopts the San Miguel County All Hazard Mitigation plan as an official plan of the Town of Mountain Village.

BE IT FURTHER RESOLVED, that the San Miguel County Emergency Management Coordinator shall submit this Resolution to the Colorado State Department of Homeland Security and Emergency Management, FEMA and Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval by such agencies.

ADOPTED AND APPROVED by the Town Council of the Town of Mountain Village, Colorado, at a regular meeting held on the 26th day of April, 2018.

TOWN OF MOUNTAIN VILLAGE,
COLORADO, a home rule municipality

By: Laila Benitez
Laila Benitez, Mayor

ATTEST:
By: Jackie Kennefick
Jackie Kennefick, Town Clerk

APPROVED AS TO FORM: By:
James Mahoney, Town Attorney

RESOLUTION # 0411 SERIES 2018

FOR ADOPTION OF PRE-HAZARD MITIGATION PLAN

Whereas, the Board of Trustees of the Town of Norwood, San Miguel County, Colorado, recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the Norwood Board of Trustees of the Town of Norwood fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado State Department of Emergency Management and the Federal Emergency Management Agency, Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the Board of Trustees of the Town of Norwood hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado State Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA), Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

RESOLVED, APPROVED, AND ADOPTED on the Eleventh day of April, 2018.

By: _____
C. Kieffer Parrino, Mayor

ATTEST:

By: Gretchen R Wells
Gretchen R. Wells, Town Clerk

RESOLUTION #2018-3

FOR ADOPTION OF PRE-HAZARD MITIGATION PLAN

Whereas, the General Assembly Town of Ophir, San Miguel County, Colorado, recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the General Assembly of Town of Ophir fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado State Department of Emergency Management and the Federal Emergency Management Agency, Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the General Assembly of Town of Ophir hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado State Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA), Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

C Platt

Date: 5-15-18

Corinne Platt, Mayor

Lisa Rutledge

Date: 5/15/18

Attest: Lisa Rutledge, Town Clerk

RESOLUTION NO. 11
(Series of 2018)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF TELLURIDE, COLORADO, ADOPTING THE ALL HAZARD MITIGATION PLAN

Whereas, the Town Council of the Town of Telluride, Colorado recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the Town Council of the Town of Telluride fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado State Department of Emergency Management and the Federal Emergency Management Agency, Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the Town Council of the Town of Telluride hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado State Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA), Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

RESOLVED, APPROVED AND ADOPTED BY THE TOWN COUNCIL OF THE TOWN OF TELLURIDE, COLORADO on the 1st day of May, 2018.

TOWN OF TELLURIDE

Sean Murphy, Mayor

ATTEST

Tiffany Kavanaugh, Town Clerk

APPROVED AS TO FORM:

Kevin J. Geiger, Town Attorney

TOWN OF SAWPIT
FOR ADOPTION OF THE
SAN MIGUEL COUNTY ALL HAZARD MITIGATION PLAN

San Miguel County, Colorado

Whereas, the Town of Sawpit, Colorado, recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the Town of Sawpit, Colorado participated as a stakeholder in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado Department of Homeland Security and Management and the Federal Emergency Management Agency (FEMA), Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the Town of Sawpit, Colorado hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado Department of Homeland Security and Management and the Federal Emergency Management Agency, Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

Signed	Title	Date
[illegible]	MAYOR	6/4/18

RESOLUTION TEMPLATE

RESOLUTION #2018-1

FOR ADOPTION OF PRE-HAZARD MITIGATION PLAN

Whereas, the Egnar/Slickrock Fire Protection District Board, San Miguel County, Colorado, recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the Egnar/Slickrock Fire Protection District Board fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado State Department of Emergency Management and the Federal Emergency Management Agency, Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the Egnar/Slickrock Fire Protection District Board hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado State Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA), Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

5/1/18

Ian Fahring, Chief

NORWOOD FIRE PROTECTION DISTRICT
P.O. BOX 411
NORWOOD, CO 81423

RESOLUTION

RESOLUTION #18-1

FOR ADOPTION OF PRE-HAZARD MITIGATION PLAN

Whereas, the Board of Directors of the Norwood Fire Protection District, San Miguel County, Colorado, recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the Board of Directors of the Norwood Fire Protection District fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado State Department of Emergency Management and the Federal Emergency Management Agency, Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the Board of Directors of the Norwood Fire Protection District hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado State Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA), Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

Joseph Conway 6-13-2018

TELLURIDE FIRE PROTECTION DISTRICT

RESOLUTION # 2018-03

APRIL 24TH, 2018

FOR ADOPTION OF PRE-HAZARD MITIGATION PLAN

Whereas, the Board of Directors of the Telluride Fire Protection District, San Miguel County, Colorado, recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted All Hazard Mitigation Plan is required as a condition of funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the Board of Directors of the Telluride Fire Protection District fully participated in the mitigation planning process to prepare this All Hazard Mitigation Plan; and

Whereas, the Colorado State Department of Emergency Management and the Federal Emergency Management Agency, Region VIII officials have reviewed the All Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governments and entities;

Now, therefore, be it resolved, that the Board of Directors of the Telluride Fire Protection District hereby adopts the San Miguel County All Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the San Miguel County Emergency Management Coordinator will submit this Adoption Resolution to the Colorado State Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA), Region VIII to enable the San Miguel County All Hazard Mitigation Plan's final approval.

Telluride Fire Protection District

Laura Ellison, President

Attest:

Chris Broady, Vice President

APPENDIX 4: INFORMATION SOURCES

1. **San Miguel County Hazard Mitigation Plan, 2010**
2. **Mesa County Hazard Mitigation Plan**
3. **Montezuma County Hazard Mitigation Plan**
4. **2005 and 2011 San Miguel County All Hazards Mitigation Plans**
5. **Buys, Christian J, Historic Telluride 1998**
6. **Department of Homeland Security and Emergency Management**
7. **Colorado Department of Public Health and Environment - www.cdphe.com**
8. **Colorado Department of Transportation**
9. **Colorado Division of Local Affairs- http://dola.colorado.gov**
10. **Debris and Flood Control Plan for Cornet Creek Telluride, Colorado. Dibble and Associates August 1983**
11. **Federal Emergency Management Agency**
12. **Ferrick, Michael G. and Murphey, Dennis M. Investigation of River Ice Processes on the San Miguel River, 1999.**
13. **Flood Insurance Study, San Miguel County, Colorado 1978**
14. **High Plains Regional Climatic Center- www.hprcc.unl.edu/**
15. **Institute of Arctic and Alpine Research-University of Colorado**
16. **National Climatic Data Center- www.ncdc.noaa.gov/**
17. **NOAA in correlation with National Weather Service and NOAA Storm Prediction Center- www.noaa.gov/**
18. **Norwood Fire Protection District- www.norwoodfiredistrict.org**
19. **San Miguel County- www.sanmiguelcountyco.gov**
20. **State of Colorado Natural Hazards Mitigation Plan**
21. **Sheldus Database**
22. **Telluride Fire Protection District- www.telluridefire.com**
23. **Town of Telluride- www.telluride-co.gov/**
24. **Town of Norwood- www.town.norwood.co.us/**
25. **Town of Mountain Village- www.mountain-village.co.us/**
26. **Town of Ophir- www.town-ophir.co.gov/**
27. **Colorado State Demography**
28. **US Census Bureau –www.census.gov/**
29. **U.S Drought Monitor- http://drought.unl.edu/dm**
30. **Westminster Natural Hazards Mitigation Plan 2010**
31. **Mears, A.I., Baumgart, .S., Carrara, P.E., and Madole, R.F., 1974. Debris Flow Hazard on Cornet Creek at Telluride, Colorado. Report prepared by the Institute of Arctic and Alpine Research, University of Colorado, through NASA-PY Grant NGL-06-003-200, January.**
32. **Local Mitigation Planning Book, 2013**
33. **FEMA Mitigation Ideas, 2013**