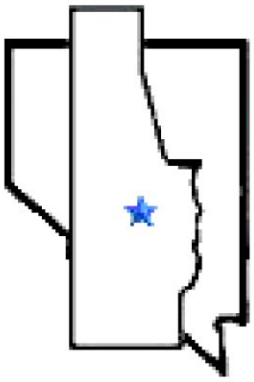
WHITE PINE COUNTY

NEVADA

EUREKA COUNTY



White Pine County and Eureka County

Multi-Jurisdictional Hazard Mitigation Plan

2019

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ABADRL	Arthropod-Borne Animal Diseases Research Laboratory
AIS	Aquatic Invasive Species
AML	Abandoned Mine Lands
BLU	Bluetongue Disease
BLM	United States Bureau of Land Management
CIA	Central Intelligence Agency
CDC	Center for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
City	City of Ely
Counties	White Pine County and Eureka County
CRS	Community Rating System
DETR	Nevada Department of Employment, Training and Rehabilitation
DHS	Department of Homeland Security
DMA 2000	Disaster Mitigation Act of 2000
DPS	Nevada Department of Public Safety
DOJ	United States Department of Justice
DOT	United States Department of Transportation
EHS	Extremely Hazardous Substance
EMPG	Emergency Management Planning Grant
EOC	Emergency Operation Center
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
FEMA	Federal Emergency Management Agency
FBI	Federal Bureau of Investigation
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
GBNP	Great Basin National Park
GIS	Geographic Information System
HAZUS-MH	(abbreviation for HAZards United States) is a geographic information system-based natural hazard loss estimation software package developed and freely distributed by the Federal Emergency Management Agency
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program

HMP	Hazard Mitigation Plan
HMTA	Hazardous Materials Transportation Act
IBC	International Building Code
IND	Improvised Nuclear Device
IOM	Institute of Medicine
LEPC	Local Emergency Planning Committee
LHA	Local Health Authority
LHMP	Local Hazard Mitigation Plan
M	Magnitude
MMI	Modified Mercalli Intensity
mph	miles per hour
NBMG	Nevada Bureau of Mines & Geology
NCDC	National Climatic Data Center
NDEM	Nevada Division of Emergency Management
NDEP	Nevada Division of Environmental Protection
NDF	Nevada Division of Forestry
NDOM	Nevada Division of Mines
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NERMP	Nevada Earthquake Risk Mitigation Plan
NFIA	National Flood Insurance Act
NFIF	National Flood Insurance Fund
NFIP	National Flood Insurance Program
NFIRA	National Flood Insurance Reform Act
NRC	National Response Center
NSHD	Nevada State Health Division
NOAA	National Oceanic and Atmospheric Association
NWS	National Weather Service
OSHA	Occupational Safety & Health Agency
PA	Public Assistance
PDM	Pre-Disaster Mitigation
PUF	Polyurethane Foam
POC	Point of Contact
RDD	Radiological Dispersal Devise
RCRA	Resource Conservation and Recovery Act
RFC	Repetitive Flood Claims

SARA	Superfund and Reauthorization Act
SERC	State Emergency Response Commission
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SNWA	Southern Nevada Water Authority
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
State	State of Nevada
SR	State Route
SRL	Severe Repetitive Loss
TRPA	Tahoe Regional Planning Agency
TSCA	Toxic Substances Control Act
UNR	University of Nevada Reno
URM	Unreinforced Masonry Buildings
USC	United States Code
USDA	US Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USGS	United States Geological Survey
WMD	Weapons of Mass Destruction

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Across the United States, natural and human-caused disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The toll on families and individuals can be immense and damaged businesses cannot contribute to the economy. The time, money and effort to respond to and recover from these emergencies or disasters divert public resources and attention from other important programs and problems. White Pine County and Eureka County, Nevada, recognize the consequences of disasters and the need to reduce the impacts of natural and human-caused hazards.

The elected and appointed officials of White Pine County and Eureka County also know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost effective means for reducing the impact of natural and human-caused hazards. Applying this knowledge, the White Pine County Hazard Mitigation Planning Committee and the Eureka County Hazard Mitigation Planning Committee prepared the *White Pine County and Eureka County, Nevada, Multi-Jurisdictional Hazard Mitigation Plan*. With the support of various County and City officials, the State of Nevada, and the United States Department of Homeland Security/Federal Emergency Management Agency (FEMA), this plan is the result of several months' worth of work to create a hazard mitigation plan that will guide the Counties toward greater disaster resistance in full harmony with the character and needs of the community and region.

People and property in White Pine County and Eureka County are at risk from a variety of hazards that have the potential for causing widespread loss of life and damage to property, infrastructure, and the environment. The purpose of hazard mitigation is to implement actions that eliminate the risk from hazards, or reduce the severity of the effects of hazards on people and property. Mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation encourages long-term reduction of hazard vulnerability. The goal of mitigation is to save lives and reduce property damage. Mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical community facilities, reduce exposure to liability and minimize community disruption. Preparedness, response, and recovery measures support the concept of mitigation and may directly support identified mitigation actions.

The *White Pine County and Eureka County, Nevada, Multi-Jurisdictional Hazard Mitigation Plan* has been updated in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under Sec. 104 the Disaster Mitigation Act of 2000 (DMA 2000), Public Law 106-390 of October 30, 2000. Since the first plan was adopted in 2014, 21 mitigation actions have been completed, most of which are ongoing actions. This updated plan identifies hazard mitigation actions intended to eliminate or reduce the effects of future disasters throughout White Pine County and Eureka County.

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This section provides an overview of the Disaster Mitigation Act of 2000 (DMA 2000; Public Law 106-390), the adoption of the *White Pine County and Eureka County, Nevada, Multi-Jurisdictional Hazard Mitigation Plan* (HMP) by the local governing body, and supporting documentation for the adoption.

1.1 DISASTER MITIGATION ACT OF 2000

The DMA 2000 was passed by Congress to emphasize the need for mitigation planning to reduce vulnerability to natural and human-caused hazards. The DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 United States Code [USC] 5121-5206 [2008]) by repealing the act's previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322). In addition, Section 322 provides the legal basis for the Federal Emergency Management Agency's (FEMA's) mitigation plan requirements for mitigation grant assistance.

To implement the DMA 2000 planning requirements, the Federal Emergency Management Agency (FEMA) published an Interim Final Rule in the *Federal Register* on February 26, 2002. This rule (44 Code of Federal Regulations [CFR] Part 201) established the mitigation planning requirements for states, tribes, and local communities. The planning requirements are described in detail in Section 2 and identified in their appropriate sections throughout this Plan. In addition, a crosswalk documenting compliance with 44 CFR is included as Appendix E.

1.2 ADOPTION BY THE LOCAL GOVERNING BODY AND SUPPORTING DOCUMENT

The requirements for the adoption of an HMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 REQUIREMENTS: PREREQUISITES

Adoption by the Local Governing Body

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).

Element

Has the local governing body adopted the plan?

Is supporting documentation, such as a resolution, included?

Source: FEMA, March 2008.

White Pine County and Eureka County, to be referred to as White Pine County and Eureka County or the Counties throughout this plan and the City of Ely to be referred to as Ely or the City, are the jurisdictions represented in this HMP. There are no other political subdivisions within White Pine County and Eureka County. The HMP meets the requirements of Section 409 of the Stafford Act and Section 322 of the DMA 2000.

The local governing bodies of White Pine County and Eureka County (White Pine County Board of Commissioners and Eureka County Board of Commissioners) and City of Ely (City of Ely City Council) have adopted this HMP. The signed resolutions are provided in Appendix A.

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This section provides an overview of the HMP. This includes a review of the purpose and authority of the HMP and a description of the document.

2.1 PLAN PURPOSE AND AUTHORITY

The DMA 2000, also referred to as the 2000 Stafford Act amendments, was approved by Congress on October 10, 2000. On October 30, 2000, the President signed the bill into law, creating Public Law 106-390. The purposes of the DMA 2000 are to amend the Stafford Act, establish a national program for pre-disaster mitigation, and streamline administration of disaster relief.

The HMP meets the requirements of the DMA 2000, which calls for all communities to prepare hazard mitigation plans. By preparing this HMP, White Pine County, Eureka County, and the City of Ely are eligible to receive Federal mitigation funding after disasters and to apply for mitigation grants before disasters strike. This HMP starts an ongoing process to evaluate the risks different types of hazards pose to the Counties and City, and to engage the Counties, City and the communities in dialogue to identify the steps that are most important in reducing these risks. This constant focus on planning for disasters will make the Counties and City, including their residents, property, infrastructure, and the environment, much safer.

The local hazard mitigation planning requirements encourage agencies at all levels, local residents, businesses, and the non-profit sector to participate in the mitigation planning and implementation process. This broad public participation enables the development of mitigation actions that are supported by these various stakeholders and reflect the needs of the entire community.

States are required to coordinate with local governments in the formation of hazard mitigation strategies, and the local strategies combined with initiatives at the state level form the basis for the State Mitigation Plan. The information contained in HMPs helps states to identify technical assistance needs and prioritize project funding. Furthermore, as communities prepare their plans, states can continually improve the level of detail and comprehensiveness of statewide risk assessments.

FEMA's Hazard Mitigation Assistance (HMA) grant programs provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages including the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA). A local jurisdiction must have an approved LHMP to be eligible for these programs and for FEMA disaster assistance under Public Assistance (PA) grants C through G.

Adoption by the local governing body demonstrates the jurisdiction’s commitment to fulfilling the mitigation goals and objectives outlined in the HMP. Adoption legitimizes the updated HMP and authorizes responsible agencies to execute their responsibilities. The resolutions adopting this HMP are included in Appendix A.

2.2 STAFFORD ACT GRANT PROGRAMS

The following grant programs require a State, tribe, or local entity to have a FEMA-approved State or Local Mitigation Plan.

Hazard Mitigation Grant Program (HMGP): HMGP provides grants to State, tribes, and local entities to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property as a result of natural disasters and to enable mitigation measures to be implemented during the immediate recovery from disaster. Projects must provide a long-term solution to a problem: for example, elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The amount of funding available for the HMGP under a particular disaster declaration is limited. The program may provide a State or tribe with up to 20 percent of the total disaster grants awarded by FEMA. The cost-share for this grant is 75/25 percent (Federal/non-Federal).

Pre-Disaster Mitigation (PDM) Program: PDM provides funds to State, tribes, and local entities, including universities, for hazard-mitigation planning and the implementation of mitigation projects before a disaster event. PDM grants are awarded on a nationally competitive basis. Like HMGP funding, a PDM project's potential savings must be more than the cost of implementing the project. In addition, funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. Congress appropriates the total amount of PDM funding available on an annual basis. The cost-share for this grant is 75/25 percent (Federal/non-Federal).

Flood Mitigation Assistance (FMA): FMA is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994. The Biggert-Waters Flood Insurance Reform Act of 2012 (Public Law 112-141) consolidated the Repetitive Flood Claims and Severe Repetitive Loss grant programs into FMA. FMA funding is available through the National Flood Insurance Fund (NFIF) for flood hazard mitigation projects as well as plan development and is appropriated by Congress. States, territories, and federally-recognized tribes are eligible to apply for FMA funds. Local governments are considered subapplicants and must apply to their Applicant State, territory, or federally-recognized tribe. FMA provides from 75% to 100% Federal funding for a mitigation activity grant depending on whether the properties are eligible as repetitive loss or severe repetitive loss.

2.3 PLAN ORGANIZATION

The remainder of this HMP consists of the following sections.

- ***Section 3 - Community Description***

Section 3 provides a general history and background of the Counties and historical trends for population, demographic and economic conditions that have shaped the area. Trends in land use and development are also discussed.

- ***Section 4 - Planning Process***

Section 4 describes the planning process, identifies Planning Committee members, and the key stakeholders within the communities and surrounding region. In addition, this section documents

public outreach activities and the review and incorporation of relevant plans, reports, and other appropriate information.

- ***Section 5 - Risk Assessment***

Section 5 describes the process through which the Planning Committees identified and compiled relevant data on all potential natural hazards that threaten the Counties and the immediately surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the Counties and how these events impacted residents and their property.

The descriptions of natural hazards that could affect the Counties are based on historical occurrences and best available data from agencies such as FEMA, the U.S. Geological Survey (USGS), and the National Weather Service (NWS). Detailed hazard profiles include information on the frequency, magnitude, location, and impact of each hazard as well as probabilities for future hazard events.

- ***Section 6 – Vulnerability Analysis***

Section 6 identifies potentially vulnerable assets such as people, housing units, critical facilities, infrastructure and lifelines, hazardous materials facilities, and commercial facilities. These data were compiled by assessing the potential impacts from each hazard using GIS and FEMA's natural hazards loss estimation model, HAZUS-MH. The resulting information identifies the full range of hazards that the Counties could face and potential social impacts, damages, and economic losses.

- ***Section 7 - Capability Assessment***

Although not required by the DMA 2000, Section 7 provides an overview of the Counties' and City's resources in the following areas for addressing hazard mitigation activities:

- Legal and regulatory resources
- Administrative and technical: The staff, personnel, and department resources available to expedite the actions identified in the mitigation strategy
- Fiscal: The financial resources to implement the mitigation strategy

- ***Section 8- Goals, Objectives & Actions - Mitigation Strategy***

As Section 8 describes, the Planning Committees developed a list of mitigation goals, objectives, and actions based upon the findings of the risk assessment and the capability assessment. Based upon these goals, the Planning Committees reviewed and prioritized a comprehensive range of appropriate mitigation actions to address the risks facing the community. Such measures include preventive actions, property protection techniques, natural resource protection strategies, structural projects, emergency services, and public information and awareness activities.

- ***Section 9 - Plan Maintenance Process***

Section 9 describes the Planning Committees' formal plan maintenance process to ensure that the HMP remains an active and applicable document. The process includes monitoring, evaluating,

and updating the HMP; implementation through existing planning mechanisms; and continued public involvement.

- ***Section 10 - References***

Section 10 lists the reference materials used to prepare this HMP.

- ***Appendices***

The appendices include the Adoption Resolution, Maps, Planning Committee Meetings, and Public Involvement, and Maintenance Tools.

This section describes the history, location, and geography of the Counties and City as well as its government, demographic information, and current land use and development trends.

3.1 WHITE PINE COUNTY

Location, Geography, and History

White Pine County is located in eastern Nevada, south of Elko County and bordered on the east by Utah. White Pine County was established in 1869 as a result of a mining boom on the slopes of Mt. Hamilton. Hamilton was originally designated as the County Seat. However, in 1887, the City of Ely was named the County Seat after a fire destroyed much of Hamilton.

White Pine County is an isolated rural area of 8,941 square miles. The major population is located in the center portion of the county in or around the City of Ely, including the towns of Ruth and McGill. All major transportation corridors pass through this populated area including Highways US 6, 50, & 93, the Nevada Northern Railroad, and the county airport. The other communities, Lund, Preston and Baker, are widely scattered and even more isolated. Mining, transportation, tourism, and agriculture are major players in this economically depressed area.

Most of the population resides at an elevation of 5,000 to 7,000 feet above sea level. The average high summer temperature is 80 degrees and the average low winter temperature is 12 degrees. The average number of sunny days is 114 and the average annual precipitation is 9.27 inches. White Pine County's climate is semi-arid. The topography is basin and range with mountain ranges from 8,000 to 12,000 feet in elevation. The highest point is Wheeler Peak in the Snake Mountain range at 13,061 feet in elevation. Water for the county is obtained through surface water resources, primarily in the form of springs, and ground water resources. There are four major reservoirs, numerous small ponds and lakes, and ninety streams within the County.

Government

The White Pine County governing body is composed of a five-member elected representation called the Board of Commissioners. The Commissioners are elected by and accountable to the voters. All members of the board serve 4-year terms.

Below please see White Pine County key officials and departments.

White Pine County - Key Officials

County Commissioner Seat 1	Assessor	School District, Superintendent
County Commissioner Seat 2	Building Official	Senior Program Supervisor
County Commissioner Seat 3	Clerk	Sheriff
County Commissioner Seat 4	Community and Economic Development Director	Social Services Director
County Commissioner Seat 5	Fire	Treasurer
	Public Health Nurse	
	Recorder	

White Pine County Departments

Assessor	Finance	School District
Aquatics Center	Fire/ EMS	Senior Center
Building	Human Resources	Sheriff
Commissioners	Justice Court	Social Services
Clerk	Juvenile Probation	Treasurer
Cooperative Extension	Library	
District Court	Public Health	
Emergency Management	Recorder	
Facilities Maintenance	Roads	

Demographics

According to the U.S. Census Bureau, American Community Survey, White Pine County's estimated 2016 population, including incorporated cities, was 9,893 people. (The Nevada State Demographer's Projected 2017 Population is 10,705.) Approximately 25.6 percent of the County's population was under the age of 20, 59.4 percent was between 20 and 64 years old, and 15 percent was over the age of 65.

According to the 2012-2016 American Community Survey, the entire County's labor force was 3,827 people, 3.8 percent of whom were unemployed. The Nevada Department of Employment, Training and Rehabilitation (DETR) however, has reported unemployment at a lower level. As of July 2017, DETR reported the labor force was 4,709 with an unemployment rate of 3.9 percent. For 2016, the median household income was $58,156, (for Nevada as a whole that figure was $53,094), while the median family income was $68,158. 12.8 percent of the County residents were living below the poverty level, compared with 14.9 percent statewide. The County's per capita income was $24,186, while that for Nevada was $27,253.

Land Use and Development Trends

Ninety-three percent of the land in White Pine County is administered by four federal agencies: Bureau of Land Management (4.4 million acres), National Park Services (Great Basin National Park, 77,640 acres), U.S. Forest Service (Humboldt National Forest, 825,592 acres), and the U.S. Fish and Wildlife Service (a portion of the Ruby Lake National Wildlife Refuge, 10,706 acres).

Tribal lands constitute 1.24 percent (70,852 acres) of the County's land area including the Ely Shoshone and Goshute Reservation. State government administers .2 percent of the County's land including the Nevada State Parks Division (Cave Lake and Ward Charcoal Ovens State Parks) the Nevada State Prisons Department (Ely State Maximum Security Prison and the Ely Conservation Camp), University of Nevada (Great Basin College), and Nevada Division of Wildlife (Steptoe Valley Wildlife Management Area, 5,000 acres). Local governmental units including White Pine County, the City of Ely, and the White Pine County School District own approximately .03 percent of the land area in the County.

Privately owned land in White Pine County totals approximately 5.04 percent. This is divided among urban areas, privately owned industrial and mining developments, and agricultural lands concentrated in Steptoe, Spring, and Snake Valleys and the Lund-Preston area of White River Valley. Agricultural lands comprise the majority of private land in the County. According to the 2012 Census of Agriculture, there are a total of 160 farms and ranches in the County accounting for 193,315 acres of farmland with an average size of 1,208 acres each.

Residential and commercial zones are concentrated in the communities of Ely, Ruth, McGill, Baker, Lund, the land along US 93 between Ely and McGill, and a residential area known as Cross Timbers northwest of Ely. The remainder of the County is zoned for agricultural land, open space, and five-acre residential property.

The December 2008 update to the White Pine County Land Use Plan, evaluated a need for between 897 and 1,500 housing units countywide in the next twenty years. This is based on potential growth from future construction of two power plants and their plans to construct 100 percent of the housing units needed during construction of the respective project sites.

The Southern Nevada Water Authority (SNWA) has proposed a buried pipeline system to convey groundwater from central and eastern Nevada, including White Pine County, to Southern Nevada to enhance the area's limited water resources. Approval for BLM right-of-way is currently being litigated. The project could result in sever impacts to the availability of water for future development.

Ely Shoshone Tribe

The five-member Ely Shoshone Tribal Council governs the Ely Shoshone Reservation, independent of any other local state, or federal entities. The tribal government provides law enforcement, housing, medical and social services, planning and economic development for its members. A portion of the Ibapah Reservation is in the northeastern corner of the County. The tribal government is located in Utah.

The approximately 732-member Ely Shoshone Tribe provides its people with a broad variety of services and activities from health care to a pre-school. 299 members of the Ely Shoshone Tribe live in White Pine County. Their land encompasses several separate land areas near the City of

Ely totaling approximately 3,637 acres, of which 3,526 are designated for traditional, ceremonial, commercial and recreational purposes. The remaining 111 acres are for residential uses.

3.2 CITY OF ELY

Location, Geography, and History

Ely is the largest city in White Pine County and is the only incorporated city in White Pine County. Ely also serves as the County seat. Ely was founded as a stagecoach station along the Pony Express and Central Overland Route. Major roads include U.S. Route 6, U.S. Route 50 (Ely is the eastern end of the portion of U.S. 50 known as the "Loneliest Road in America"), and U.S. Route 93. The historic Lincoln Highway, the first road across America went through Ely, entering from the north on U.S. 93 and departing town to the west on U.S. 50. Ely is located approximately 250 miles Southwest from Salt Lake City, 250 miles north of Las Vegas, and 350 miles east of Reno.

Ely's mining boom came later than the other towns along U.S. 50, with the discovery of copper in 1906 in McGill and Ruth. This made Ely a mining town, suffering through the boom-and-bust cycles so common in the west.

Government

The City of Ely governing body is composed of a five-member elected representation called the City Council and Mayor. The council members and mayor are elected by and accountable to the voters. All of the members of the council serve 4-year terms.

The Mayor is responsible for the general direction, supervision, administration, and coordination of all affairs for the City. Below please see City of Ely key officials and departments.

City of Ely – Key Officials

City Council	Ely Fire Department Chief	Public Works Director
Clerk-Treasurer	Mayor	

City of Ely Departments

City Council	Fire Department	Public Works

Demographics

According to the U.S. Census Bureau, American Community Survey, Ely's estimated 2016 population was 4,169 people. Approximately 30 percent of the County's population was under the age of 20, 51.6 percent was between 20 and 64 years old, and 18.3 percent was over the age of 65.

According to the 2012-2016 American Community Survey, the entire County's labor force was 1,895 people, 6.1 percent of whom were unemployed. The median household income was $50,361, (for Nevada as a whole that figure was $53,094), while the median family income was $60,170. The County's per capita income was $28,001, while that for Nevada was $27,253.

Land Use and Development Trends

Residential and commercial zones are concentrated in the City of Ely. The City of Ely does not have its own land use document; however, White Pine County has coordinated closely with the City in the development of the County's plan. According to the December 2008 update to the White Pine County Land Use Plan, there is a potential need for between 595 and 895 housing units in the City of Ely in the next twenty years. Due to current economic conditions, many of the smaller commercial businesses in the downtown area have closed resulting in an abundance of vacant commercial buildings.

The Southern Nevada Water Authority (SNWA) has proposed a buried pipeline system to convey groundwater from central and eastern Nevada, including White Pine County, to Southern Nevada to enhance the area's limited water resources. Approval for BLM right-of-way is currently being litigated. The project could result in severe impacts to the availability of water for future development.

3.3 EUREKA COUNTY

Location, Geography, and History

Eureka County was established in 1873 and expanded twice, shortly thereafter, to encompass its present territory. Its lands were derived from the existing political units of Elko, Lander and White Pine counties. The Town of Eureka, first settled in 1865, was designated the County Seat, in 1873.

Eureka County contains an area of approximately 4,179.96 square miles. The population is concentrated in three unincorporated communities, Eureka Town, Crescent Valley, and Beowawe. Eureka, the county seat, is located in the southern portion of the county, and Crescent Valley and Beowawe are located in the north. At 6,500 feet, Eureka has the highest elevation of the three towns, both Beowawe and Crescent Valley are at an elevation of 4,000 feet. The primary industries in Eureka County are ranching, agriculture and mining.

Government

The local governing body is composed of a three-member elected representation called the County Commissioners. Members are elected at large by the citizenry to overlapping four-year terms. Each year the Board selects one of its members to serve as Chairman. The Board receives advice from several advisory and citizen commissions.

Working in conjunction with other elected officials, the Board seeks to represent the interests of the residents of the county. The Board oversees the development and implementation of financial, administrative, and other policies.

Eureka County - Key Officials

County Commissioner District 1	Assessor	Justice of the Peace
County Commissioner District 2	Treasurer	Public Works Director
County Commissioner District 3	Clerk/Recorder	Comptroller
	Sheriff	Eureka Senior Center Coordinator
	District Attorney	EMS Coordinator

County Departments

Assessor	Natural Resources	School District
Clerk/Treasurer	Senior Services	
Commissioners	Sheriff	
Comptroller	Recorder/Auditor	
District Attorney	Planning Commission	
Justice Court	Library	
Emergency Services	TV District	
Juvenile Probation	Crescent Valley	

Demographics

Eureka County, Nevada Socioeconomic Conditions & Trends Update 2015 reports the 2014 population of Eureka County as 1,903. According to the U.S. Census Bureau American Community Survey, Eureka County's estimated 2016 population, including incorporated cities, was 1,730 people. (The Nevada State Demographer's Projected 2017 Population is 1,932.) Eureka County has a relatively young population. 26 percent of the county population, or 520 people, are under the age of 20. Approximately 54 percent of the population, or 1,077 people, are between age 20 and 60, while only 20 percent (248 people) are age 60 or older. Since 2000, the younger population age group (under the age of 20) has declined in Eureka County. This is consistent with State and National trends. As more working age people move into Eureka County for employment, there will likely be an increase in persons age 55 and younger.

According to the 2012-2016 American Community Survey, the entire County's labor force was 932 people, 2.5 percent of whom were unemployed. The Nevada Department of Employment, Training and Rehabilitation (DETR) however, has reported unemployment at a higher level. As of July 2017, DETR reported the labor force was 1.102 with an unemployment rate of 3.3 percent. For 2016, the median household income was $70,000 (for Nevada as a whole that figure was $53,094), while the median family income was $106,597. 10.8 percent of the County residents were living below the poverty level, compared with 14.9 percent statewide. The County's per capita income was $34,031, while that for Nevada was $27,253.

Land Use and Development Trends

Approximately 79 percent of the 2,668,251 acres of land in Eureka County is managed by federal agencies (Bureau of Land Management and U.S. Forest Service). This land is primarily used for livestock grazing, mining, geothermal energy production, and outdoor recreation.

Eureka County has not adopted a zoning ordinance. Existing land use patterns within the County have evolved from economic activity such as mining and agriculture. Locations of limited private land resources have also served to influence land use patterns.

The single greatest land use within the County is open space agricultural, comprised of a series of designated grazing allotments. Approximately 2.4 million acres (90 percent of Eureka county land) is used for cattle and sheep grazing and pasture, and for crops such as hay or grass. Also interspersed throughout the County is all or part of 23 mining districts. Mining represents the next-largest land use within the County. Superimposed over these allotments and mining districts, the U.S. Department of Defense has designated certain areas within the County as special use airspace for military training.

The population is concentrated in three unincorporated communities, Eureka Town, Crescent Valley, and Beowawe. Overall housing units in Eureka County increased from 801 units in 1993 to 1,069 in 2013 then declined in 2014. Mobile homes remained the dominant housing type, accounting for 64 percent of county housing in 2014. Mobile homes account for 93 percent of the housing units in Crescent Valley, and 36 percent of Eureka Town's housing stock. Single-family detached and multi-family units remain a small portion of the overall housing stock although more than 100 multi-family units are planned for the Eureka Canyon subdivision to accommodate the influx of mining related population. A total of 50 multi-family units were

completed in 2012. Additional housing structures are anticipated in the subdivision as individual residential lots are now available for development.

Eureka County faces several development constraints including water availability, remoteness, and shopping. According to projections prepared by the Nevada State Demographer, Eureka County population could remain fairly stable over the next several years. Directly and indirectly, mining activity will be the primary cause for increased or decreased growth within the County. In addition to mining related growth, smaller gains could occur as a result of migration to the County for retirement and quality of life.

This section provides an overview of the planning process; identifies the Planning Committees' members, and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used in the development of this HMP. Additional information regarding the Planning Committees and public outreach efforts is provided in Appendices C and D.

The requirements for the planning process, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Planning Process

Documentation of the Planning Process

Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

1. An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
2. An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the planning process; and
3. Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

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.

Element

- Does the new or updated plan provide a narrative description of the process followed to prepare the plan?
- Does the new or updated plan indicate who was involved in the planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan Committee, provided information, reviewed drafts, etc.?)
- Does the new or updated plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)
- Does the new or updated plan indicate that an opportunity was given for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?
- Does the updated plan document how the planning team reviewed and analyzed each section of the plan?
- Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?
- Does the updated plan indicate for each section whether or not it was revised as part of the update process?

Source: FEMA, March 2008.

4.1 OVERVIEW OF PLANNING PROCESS

The first step in the planning update process was to reestablish the Planning Committees. The Planning Committees' membership was drawn from White Pine and Eureka Local Emergency Planning Commissions (LEPC) which regularly address current emergency management activities. The LEPCs publicized the activities of the Planning Committees to the public and applicable State and Federal agencies. The Counties were assisted by the State of Nevada Division of Emergency Management and the State Hazard Mitigation Officer in preparing this plan update. Ron Damele of Eureka County Emergency Management and Elizabeth Frances of White Pine County's Emergency Management served as the primary Points of Contact (POC) for the Counties, City, and the public.

While there was no other formal plan maintenance for White Pine County during the 5 years since the previous plan was adopted, Eureka County reviewed hazards and different elements of the plan annually through their LEPC meetings. Additionally, the Nevada Division of Emergency Management held a table top exercises in August 2018 to discuss the status of the plan and mitigation strategies. The information from the Table Top Exercise has been incorporated into the plan update.

Once the Planning Committees were formed, the following five-step planning process took place during the 13-month period from December 2017 to January 2019.

- **Organize resources:** The Planning Committees identified resources, including County and City staff, agencies, and local community members, who could provide technical expertise and historical information needed in the development of the HMP.
- **Assess risks:** The Planning Committees identified the hazards specific to the Counties, and developed the risk assessment for the nine identified hazards. The Planning Committee reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
- **Assess capabilities:** The Planning Committees reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards.
- **Develop a mitigation strategy:** After reviewing the risks posed by each hazard, the Planning Committees worked to develop a comprehensive range of potential mitigation goals, objectives, and actions. Subsequently, the Planning Committees identified and prioritized the actions to be implemented.
- **Monitor progress:** The Planning Committees developed an implementation process to ensure the success of an ongoing program to minimize hazard impacts to the County.

The following table provides the section format and details on the update.

Table 4-1. Plan Outline and Update Effort

Plan Section	Update Effort	What Changed
Section 1 – Official Record of Adoption	Minor Revisions	Typographical changes only.
Section 2 - Background	Minor Revisions	Updated information to reflect changes in current grant programs.
Section 3 – Community Description	Moderate Revisions	Updated demographics.
Section 4 – Planning Process	Moderate Revisions	This section details the plan update planning process. Committee tables were updated. Public and stakeholders outreach efforts are provided.

Section 5 – Hazard Analysis	Major Revisions	Each hazard profile and hazard ranking were reviewed. Historic events for the last 5 years were updated. Hazard mapping was reviewed. Additionally, climate change was reviewed as appropriate for each hazard profile. Where applicable, climate change information was incorporated into the Location, Extent, and Probability of Future Events section of each hazard profile.
Section 6 – Vulnerability Analysis	Moderate Revisions	Population and building stock, as well as critical facilities and infrastructure, were reviewed and updated. Each hazard was also reviewed for environmental impacts. New calculations for vulnerability were made where appropriate.
Section 7 – Capability Assessment	Minor Revisions	Capability assessment was reviewed with Planning Committees and minor revisions were made.
Section 8 – Mitigation Strategy	Minor Revisions	The status of each mitigation action was reviewed with the committee and documented in Appendix F. The Committees reviewed the priority of each action utilizing the STAPLE+E criteria.
Section 9 – Plan Maintenance	Minor Revisions	The Planning Committees discussed how to better implement an annual review of the HMP and incorporated this into the document.
Section 10 – Reference	Minor Revisions	Updated to include materials referenced for this update.

Each section of the previous LHMP plan was reviewed for content and the Committees revised every section of the plan.

4.2 HAZARD MITIGATION PLANNING COMMITTEE

4.2.1 Formation of the Planning Committees

White Pine County

As previously noted, the planning process began in December 2017. Since there were several recent turnovers in the Emergency Manager position, Elizabeth Frances of White Pine County, formed the White Pine County Planning Committee, also utilizing staff from the Local Emergency Planning Committee (LEPC), relevant County and City agencies and community organizations. The Planning Committee members are listed in Table 4-1. The Planning Committee meetings are described in section 4.2.2. Meeting minutes are provided in Appendix C.

Table 4-1: White Pine County and City of Ely Hazard Mitigation Planning Committee

Name	Department	Participation
Chair: Elizabeth Frances	White Pine County Finance Department	Organized Planning Committee, schedule meetings, reviewed drafts and provided input.
Tim Woolever	White Pine County Emergency Manager	Chair of the Committee, chaired meetings, provided evaluation and information on the hazard profiles Attended meetings, reviewed drafts and provided input
Ross Rivera	City of Ely, Fire Chief	Lead for City of Ely and primary for wildland fire, provided evaluation and information on the following sections, hazard profile, vulnerability analysis, risk assessment, mitigation strategies, plan maintenance Attended meetings, reviewed drafts and provided input
Janell Woodward	State Hazard Mitigation Officer	Provided information on tools, guidance, plan outline, state hazards, mitigation strategies, plan maintenance Reviewed drafts and provided input
Stephanie Hicks	Nevada Division of Emergency Management, Mitigation Planner	Led HMP update, provided information on tools, guidance, plan outline, state hazards, mitigation strategies, plan maintenance Attended meetings, prepared drafts and final plan
Desiree Barnson	White Pine County Social Services	Provided input on all plan sections; hazard information; vulnerability; and mitigation strategies Attended meetings and reviewed drafts
Burton Hilton	White Pine County Assessor	Provided input on all plan sections; hazard information; vulnerability; and mitigation strategies Attended meetings and reviewed drafts
Scott Henriod	White Pine County Sheriff's Office	Provided hazard information, attended meetings, and reviewed drafts
Rod McKenzie	White Pine County Water Advisory Board	Provided hazard information; vulnerability and mitigation strategy Attended meetings and reviewed drafts
Pete Magnum	White Pine County School District	Provided input on all plan sections; hazard information; vulnerability; and mitigation strategies Attended meetings and reviewed drafts
Kathryn Griffith	Local Emergency Planning Committee Member	Provided hazard information, attended meetings, and reviewed drafts
Matthew Walker	William Bee Ririe Hospital	Provided hazard information, attended meetings, and reviewed drafts
Brad Christiansen	City of Ely Building Department	Provided hazard information, vulnerability and mitigation strategy, and building codes Attended meetings, reviewed drafts and provided input
Bill Calderwood	White Pine County Public Works	Provided hazard information, attended meetings, and reviewed drafts
Sandra Robertson	Member of Public	Provided hazard information, attended meetings, and reviewed drafts
Dave Berry	City of Ely – Streets Department	Provided hazard information, attended meetings, and reviewed drafts

Juan Carlos Cervantes	Cooperative Extension	Provided hazard information, attended meetings, and reviewed drafts

Eureka County

The planning process for Eureka County also began in December 2017. Ron Damele, Emergency Manager for Eureka County, formed the Eureka County Planning Committee, utilizing staff from the Local Emergency Planning Committee (LEPC), relevant County agencies and community organizations. The Planning Committee members are listed in Table 4-2. The Planning Committee meetings are described in section 4.2.2. Meeting minutes are provided in Appendix C.

Table 4-2: Eureka County Hazard Mitigation Planning Committee

Name	Department	Participation
Chair: Ron Damele	Eureka County Emergency Management, Public Works Department, Flood Plain Manager	Chair of the Committee, chaired meetings, provided evaluation and information on the following sections, hazard profile, vulnerability analysis, risk assessment, mitigation strategies, plan maintenance, provided public outreach Attended meetings, reviewed drafts and provided input on all hazards.
Michael Mears	Eureka County Assessor	Provided hazard information, vulnerability, mitigation strategy, and GIS mapping Attended meetings, reviewed drafts and provided input on all hazards
Janell Woodward	State Hazard Mitigation Officer	Provided information on tools, guidance, plan outline, state hazards, mitigation strategies, plan maintenance Reviewed drafts and provided input
Stephanie Hicks	Nevada Division of Emergency Management, Mitigation Planner	Led HMP update, provided information on tools, guidance, plan outline, state hazards, mitigation strategies, plan maintenance Attended meetings, prepared drafts and final plan
Keith Logan	Eureka County Sheriff's Office	Provided hazard information, vulnerability and mitigation strategy Attended meetings, reviewed drafts and provided input on all hazards.
Mike Sharkozy	Eureka County Commissioner	Review drafts
Amanda Pearce	Clerk	Provided hazard information, vulnerability and mitigation strategy Attended meetings, reviewed drafts and provided input
Jayme Halpin	Firefighting	Provided hazard information Attended meetings and reviewed drafts
Roger Hubbard	Firefighting	Reviewed drafts
Shalene French	Eureka County EMS	Provided hazard information Attended meetings and reviewed drafts

Cathy Sampson	Eureka County EMS	Provided hazard information Attended meetings and reviewed drafts
Earl Overholser	Environmental	Provided hazard information, vulnerability and mitigation strategy Attended meetings, reviewed drafts and provided input on all hazards.
John Schweble Jr	NDOT	Reviewed drafts
Misty Rowley	Broadcast Media	Reviewed drafts
Ron Jensen	McEwen Mining	Provided hazard information Attended meetings and reviewed drafts
Jesse Watts	Sheriff Elect	Provided hazard information, vulnerability and mitigation strategy Attended meetings and reviewed drafts

4.2.2 Participants

- White Pine County
- City of Ely
- Eureka County
- White Pine County Sheriff's Department
- Eureka County Sheriff's Department
- White Pine County School District
- Eureka County School District
- White Pine County Fire Department
- City of Ely Fire Department
- Eureka County Emergency Services
- Nevada Division of Forestry
- Bureau of Land Management
- Ely Shoshone Tribe
- State Public Health
- William Bee Ririe Hospital
- Eureka Clinic
- Ruby Hill Mining
- McEwen Mining
- Nevada Division of Emergency Management

4.2.3 Planning Committee Meetings

- ***December 2017 – March 2018***

The HMP update was initiated by Eureka County. In December, a conference call was held to discuss the planning process, schedule and future meetings. In January, Eureka County held their first Planning Committee meeting to initiate the update to the HMP and select their Planning Committee members.

In February, Sections 1-3 were distributed for the Committees for review. Information regarding updates to demographics was requested from the Counties and also the Tribe. The Committees reviewed and updated the Incorporation of Existing Plans/Study Table to identify all the plans/studies available and that will be incorporated into the HMP.

In March, White County and the City of Ely established their Planning Committee members.

- ***April 2018***

Planning Committee meetings were held in both White Pine and Eureka County. The Committees discussed the objectives of the DMA 2000, the hazard mitigation planning process, the public outreach process, and the steps involved in developing the HMP and achieving the County's goals. The planning process was discussed including the purpose of the plan. A press release and notification letter to Elko County and relevant agencies of the HMP was discussed and a draft reviewed.

During the meetings the Committees reviewed the 19 potential hazards from the original Nevada State HMP were reviewed (Section 5) and modifications to the hazards list were discussed. The members were tasked to prioritize the hazards by their total impact in the community. A group exercise to review each hazard rating was accomplished. The exercise formula considered the historical occurrence of each respective hazard, the potential area of impact when the disaster does occur, and the magnitude. The exercise identified the specific hazards that the Planning Committee wanted to address in the HMP.

The Committee completed the Incorporation of Existing Plans/Study Table to identify all the plans/studies available (as shown in section 4.4). Press releases were published on April 26 and May 3, 2018 in the Eureka Sentinel.

- ***May 2018 – July 2018***

The Committees continued to develop hazard profiles and collect data regarding hazard history. Coordinated via telephone calls with the Counties and City. A press releases was published on July 27, 2018 in the Ely Times.

- ***August 2018***

Planning Committee Meetings were held in both White Pine and Eureka County. The Committees reviewed the critical facilities and infrastructure in Section 6 – Vulnerability Analysis. The Committees provided information regarding current projects in the County and recent projects that were constructed in the last 5 years. The Committees also reviewed Section 7 – Capability Assessment and provided updates to legal and regulatory capabilities, as well as financial capabilities.

A Table Top Exercise was completed at each of the meetings in order to review and prioritize the mitigation actions. Following the meeting, approximate costs for completion of the mitigation actions were determined and reviewed by the Committees.

- ***September 2018 – January 2019***

Continued work on the hazard profiles and vulnerability analysis. The draft HMP update was completed.

The draft HMP update was distributed to the Planning Committees for review. Meetings were held in both White Pine and Eureka County to discuss the drafts. Comments and recommended changes were provided for final incorporation into the plan.

- ***January 2019***

In January a press release was published in the Eureka Sentinel and Ely Times newspapers advising citizens of the draft hazard mitigation plan update and inviting them to provide input.

- ***December 2018 – January 2019***

The completed plan was distributed to the Planning Committee for their review. The plan was provided to the Nevada Division of Emergency Management for review and submission to FEMA.

See Appendix D for a list of attendees, meeting handouts and minutes.

4.3 PARTICIPATION AND PUBLIC INVOLVEMENT

The public was invited to participate in the planning committee meetings and meeting agenda were posted. Additionally, two press releases were published in the Eureka Sentinel in April and May 2018.

A second round of press releases were issued in October 2018 in the Eureka Sentinel and the Ely Times regarding the public review draft period and requesting public comment and participation. Additionally, community letters were prepared and posted at the following locations:

- Eureka Post Office
- Eureka Court House
- Eureka Senior Center
- Crescent Valley Town Hall
- Crescent Valley Senior Center
- White Pine County Library

The letter and press release advised that copies of the draft plan were available for reviewing at the local libraries, as well as a copy of the draft plan was posted on the White Pine County and Eureka County websites.

The press releases can be found in Appendix C.

4.4 INCORPORATION OF EXISTING PLANS AND OTHER RELEVANT INFORMATION

During the planning process, the Planning Committees reviewed and incorporated information from existing plans, studies, reports, and technical reports into the HMP. A synopsis of the sources used follows.

- ***Eureka County Water Resources Master Plan* (2016):** The plan promotes the development and protection of water resources and raises awareness of the potential threat of flooding.
- ***Eureka County, Nevada Socioeconomic Conditions* (2015):** Population and Housing
- ***Joint Water Conservation Plan for the Town of Eureka Water System, Devil's Gate GID District #1 and District #2 Crescent Valley Town Water System* (2014):** 2014. Promotes water conservation through public outreach, customer education and responsible stewardship.
- ***White Pine County School District Standardized Emergency Operations Plan* (2016):** Standardized "All Hazards" school emergency operations plan addressing the four phases of emergency management, (Prevention/Mitigation, Preparedness, Response, and Recovery).
- ***Eureka County Master Plan (*2010*)**:* Guiding document which includes Element 3 Growth Management, Element 6 Natural Resources, Element 7 Land Use, Element 11 Conservation, and Element 13 Open Space.
- ***White Pine County Comprehensive Economic Development Strategy (*2012*)**:* This document provides geography, history, and land use information regarding White Pine County.
- ***City of Ely Floodplain Management Ordinance*:** These regulations apply to development within all areas of special flood hazards within the jurisdiction of the City of Ely.
- ***City of Ely Building Code*:** These regulations adopt of the most current edition of the building code, mechanical code, administrative code, plumbing code, fire code, and electrical code as used by the State of Nevada for populations of less than 100,000.
- ***City of Ely Fire Prevention Code***: These regulations adopt the latest edition of the uniform fire code.
- ***Community Wildfire Risk/Hazard Assessment Project, Eureka County (*RCI, May 2005*)*:** This document includes findings and recommendations for mitigating the threat to property from wildland fires.
- ***Community Wildfire Risk/Hazard Assessment Project, White Pine County (*RCI, April 2005*)*:** This document includes findings and recommendations for mitigating the threat to property from wildland fires.
- ***Emergency Operations Plan (*Eureka County 2009 & White Pine County 2017*)**:* This document is the main reference source for managing disasters and large scale emergencies in Eureka County.
- ***Eureka County Hazardous Materials Response Plan (*2012*)**:* This plan provides guidance to emergency response personnel on the general plan of action for a response to a hazardous materials emergency and provides for a resource directory.

- ***Eureka County School District School Emergency Response Plan:*** This document is the main reference source for managing disasters and large scale emergencies in the Eureka County School District.
- ***FEMA Flood Insurance Study for Eureka County, NV (*FEMA 2011*):*** This outlined the principal flood problems and floodplains within the County.
- ***FEMA Flood Insurance Study for White Pine County, NV (*FEMA 2010*):*** This outlined the principal flood problems and floodplains within the County.
- ***Lessons Learned: Summary of Findings and Recommendations For the Blue Ribbon Commission on America's Nuclear Future (2011):*** As one of the designated Affected Units of Local Government, Eureka County, Nevada, drafted this document to provide recommendations to the Blue Ribbon Commission on America's Nuclear Future regarding Yucca Mountain and its transportation routes.
- ***White Pine County Public Lands Policy Plan (2007):*** This document details White Pine County's Vision and strong policy voice concerning public lands and defines public lands related issues and needs.
- ***White Pine County Hazardous Materials Contingencies (2016)****:* This plan provides guidance to emergency response personnel on the general plan of action for a response to a hazardous materials emergency and provides for a resource directory.
- ***State of Nevada Multi-Hazard Mitigation Plan****:* This plan, prepared by NDEM, was used to ensure that the County's HMP was consistent with the State's Plan.
- ***State Maintained Highways of Nevada (January 2012):*** This report provides descriptions and Maps of Highways by County.

The following FEMA guides were also consulted for general information on the HMP process:

- ***How-To Guide #1: Getting Started: Building Support For Mitigation Planning*** **(FEMA 2002c)**
- ***How-To Guide #2: Understanding Your Risks – Identifying Hazards and Estimating Loss Potential*** **(FEMA 2001)**
- ***How-To Guide #3: Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies*** **(FEMA 2003a)**
- ***How-To Guide #4: Bringing the Plan to Life: Implementing the Hazard Mitigation Plan*** **(FEMA 2003b)**

A complete list of the sources consulted is provided in Reference, Section 10.

A hazard analysis includes the identification and screening of each hazard and subsequent profiling of each hazard. Hazard identification is the process of recognizing the natural and human-caused events that threaten an area. Natural hazards result from unexpected or uncontrollable natural events of sufficient magnitude. Human-caused hazards result from human activity and include technological hazards and terrorism. Technological hazards are generally accidental or result from events with unintended consequences, for example, an accidental hazardous materials release. Terrorism is defined as the calculated use of violence or threat of violence to attain goals that are political, religious, or ideological in nature.

Even though a particular hazard may not have occurred in recent history in the study area, all hazards that may potentially affect the study area are included in the screening process. The hazards that are unlikely to occur or for which the risk of damage is accepted as being very low, are eliminated from consideration.

All identified hazards will be profiled by describing hazards in terms of their nature, history, magnitude, frequency, location, and probability. Hazards are identified through the collection of historical and anecdotal information, review of existing plans and studies, and preparation of hazard maps of the study area. Hazard maps are used to determine the geographic extent of the hazards and define the approximate boundaries of the areas at risk.

5.1 HAZARD IDENTIFICATION AND SCREENING

The requirements for hazard identification, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Hazard Identification and Risk Assessment

Identifying Hazards

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

Element

- Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)?
- Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction?
- Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction?
- Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods?

Source: FEMA, March 2008.

The first step of the hazard analysis is the identification and screening of hazards, as shown in Table 4-1. During the first HMP meetings, the Planning Committees (comprised of representatives from the County agencies, City agencies, State Division of Emergency Management, Nevada Division of Forestry, healthcare providers, mining companies, and school districts) reviewed the State's identified hazards from the State of Nevada Hazard Mitigation Plan and identified 19 possible hazards (16 natural hazards and 3 human-caused hazards).

Table 5-1: Identification and Screening of Hazards

Hazard Type	Should It Be Profiled?	Explanation
Avalanche	Yes	Although a low frequency, there have been a few avalanches in the Counties.
Drought	Yes	Statewide drought declarations were issued in 2002, 2004, 2009, and 2012.
Earthquake	Yes	Several active fault zones pass through the Counties.
Epidemic	Yes	Eureka County experienced a pandemic in 1918-1919.
Expansive Soils	Yes	There are a few incidents of infrastructure damage
Flood (Including Dam/Levee Failure)	Yes	Flash floods occur during thunderstorm and there is a history of flooding during rapid snow-melts.
Hail & Thunderstorm	Yes	Both Counties are susceptible to thunderstorms which cause localized flooding and wildfire.
Hazardous Material Event	Yes	Both Counties have several facilities that handle or process hazardous materials. Hazmat travels through the Counties on several highways.
Infestations	Yes	Eureka County has experienced infestations of Mormon Crickets.
Land Slide	Yes	White Pine County has experienced minor landslides.
Land Subsidence & Ground Failure	Yes	Both Counties are susceptible to land subsidence and ground failure.
Mining Hazards (including explosives)	Yes	Both Counties have a history rich in mining and discussed not only the dangers of abandoned mines but also the recovery of improperly disposed explosives.
Severe Weather Snow/Ice/Windstorm/ Extreme Heat	Yes	Both Counties are susceptible to severe weather. Previous events have caused loss of power/utilities and damage to property.
Seiche	No	No recent historic events have occurred.
Tornado	Yes	Eureka County and nearby Elko County have both have a history of minor tornadoes.
Utility Loss/Power Loss	Yes	Both White Pine County and Eureka County have experienced power loss.
Volcano	No	No significant historic events have occurred in the Counties.
WMD / Terrorism	Yes	Due to the sensitivity of this hazard, while the risk will be identified, it will not be discussed further in the vulnerability analysis or mitigation strategies.
Wildland Fire	Yes	The terrain, vegetation, and weather conditions in the region are favorable for the ignition and rapid spread of wildland fires.

Assigning Vulnerability Ratings

During Committee meetings the members were tasked to prioritize the hazards by their total impact in the community. An exercise requiring the committee to review each hazard rating was accomplished. The exercise formula took into account the historical occurrence of each respective hazard, the potential area of impact when the disaster does occur, and the magnitude. Please see Table 4-2 below for scoring criteria.

It is important to note that hazards of the same magnitude and the same frequency can occur in similar sized areas; however, the overall impact to the areas would be different because of population densities and property values in the areas impacted.

Table 5-2: Vulnerability Ratings Rubric

		Frequency	Magnitude/Severity	Warning Time	Duration
Lowest	1	1000+ years	1-5% Damaged; No deaths; Local	> 48 hrs	1 - 3 Days
	2	100 -1000 years	5-15%; No deaths; City/Community	24 to 48 hrs	4 - 7 Days
	3	10 -100 years	15-30%; < 5 Deaths; County	12 to 24 hrs	8 - 14 Days
	4	5 -10 years	30-50%; > 5 Deaths; State	6 to12 hrs	15 - 20 Days
Highest	5	0 - 5 years	50+%; Significant Deaths; Region IX	< 6 hrs	20+ Days

The Planning Committees determined that sixteen hazards pose a threat to the Counties: avalanche, drought, earthquakes, epidemic, expansive soils, floods, hazardous materials events, infestation, land slide, land subsidence and ground failure, mining hazards, severe weather, tornado, utility loss/power loss, WMD/terrorism, and wildland fires. The remaining hazards excluded through the screening process were considered to pose no threat to life and property in the Counties due to the low likelihood of occurrence or the low probability that life and property would be significantly affected. Should the risk from these hazards increase in the future, the HMP can be updated to incorporate a vulnerability analyses for these hazards.

The Committees referenced historical records, and data provided in the 2014 White Pine and Eureka County Multi-Jurisdictional Hazard Mitigation Plan, as well as HAZUS runs from Nevada Bureau of Mines and Geology (NBMG) for scientific data that was used for magnitude, economic and frequency scores based on historical frequencies and / or projected probabilities of the hazards identified.

The Committees utilized the rating to analyze and prioritize the hazards to focus upon during the profiling, vulnerability assessment and mitigation strategy. Table 5-3 is a summary of the hazards rating results of both the members present at the meeting and those that supplied feedback via e-mail after the meeting.

The Committee then discussed the results of the ranking and through Committee deliberation, drought, earthquake, flood, hazardous materials, severe weather, utility/power loss, and wildland fires are considered high hazards. Epidemic, and WMD/terrorism are considered medium hazards. Avalanche, expansive soils, infestation, and land slide, land subsidence and ground failure, mining hazards and tornado are considered low hazards.

Table 5-3 below reports the rankings by each jurisdiction and Table 5-4 reports the combined multi-jurisdictional ranking of the hazards.

Table 5-3: Hazard Ranking Results — White Pine County

Hazard Type	Frequency	Magnitude/Severity	Warning Time	Duration of Loss of Critical Facilities & Services
Natural				
Avalanche	Low	Low	Medium	Low
Drought	High	Medium	Low	Medium
Earthquakes	Low	Medium	High	High
Epidemic	Low	Low	Medium	Low
Expansive Soils	Low	Low	Low	Low
Flood (Includes dam failure & canal failure)	Medium	Medium	Medium	Medium
Infestations	Medium	Low	Low	Medium
Landslide	Low	Low	Low	Low
Land Subsidence & ground Failure	Very Low	Very Low	Very Low	Very Low
Severe Weather (Extreme Heat, Thunderstorm, Snow, Tornado, Windstorm)	Very High	Very High	Medium	Medium
Tornado	Low	Low	Medium	Low
Utility Loss/Power Loss	High	Low	Very High	Very Low
Wildfire	Very High	High	Very High	Low
Human Caused				
Hazmat	High	Medium	Very High	Low
Mining Hazards	Medium	Very High	Low	Very Low
WMD/Terrorism	Low	Very Low	Very High	Very Low

Table 5-3: cont'd — City of Ely

Hazard Type	Frequency	Magnitude/Severity	Warning Time	Duration of Loss of Critical Facilities & Services
Natural				
Avalanche	Very Low	Very Low	Very Low	Very Low
Drought	High	Medium	Low	Medium
Earthquakes	Low	Medium	High	High
Epidemic	Low	Low	Medium	Low
Expansive Soils	Low	Low	Low	Low
Flood (Includes dam failure & canal failure)	Medium	Medium	Very High	Low
Infestations	Low	Low	Low	Low
Land Slide	Low	Low	Low	Low
Land Subsidence & ground Failure	Very Low	Very Low	Very low	Very Low
Severe Weather (Extreme Heat, Thunderstorm, Snow, Tornado, Windstorm)	High	High	Medium	Medium
Tornado	Very Low	Very Low	Medium	Low
Utility Loss/Power Loss	High	Low	Very High	Very Low
Wildfire	Medium	Low	Very High	Low
Human Caused				
Hazmat	Medium	Medium	Very High	Low
Mining Hazards	Very Low	Very Low	Very Low	Very Low
WMD/Terrorism	High	Very Low	Very Low	Very Low

Table 5-3: cont'd — Eureka County

Hazard Type	Frequency	Magnitude/Severity	Warning Time	Duration of Loss of Critical Faciities & Services
Natural				
Avalanche	Low	Low	Medium	Low
Drought	Very High	Medium	Very Low	High
Earthquakes	High	Medium	Very High	High
Epidemic	Low	Low	Low	Medium
Expansive Soils	Low	Very Low	Low	Low
Flood (Includes dam failure & canal failure)	Medium	Medium	Medium	Medium
Infestations	Medium	Low	Very Low	Low
Land Slide	Low	Low	Medium	Low
Land Subsidence & Ground Failure	Very Low	Very Low	Very Low	Very Low
Severe Weather (Extreme Heat, Thunderstorm, Snow, Tornado, Windstorm)	Very High	High	Medium	High
Tornado	Low	Low	Medium	Low
Utility Loss/Power Loss	Medium	Medium	Medium	Medium
Wildfire	Very High	Very High	Very High	Very High
Human Caused				
Hazmat	High	Medium	High	Low
Mining Hazards	Very Low	Very Low	Very Low	Very Low
WMD/Terrorism	Low	Low	Medium	Medium

Table 5-4: Hazard Ranking

High Risk	Medium Risk	Low Risk
Drought Earthquake Flood Wildfire Hazardous Materials Severe Weather Utility/Power Loss	Epidemic WMD/Terrorism	Avalanche Expansive Soils Infestations Land Slide Land Subsidence & Ground Failure Mining Hazards Tornado

The high and medium ranked hazards will be carried through to the Risk Assessment and will be addressed in the Mitigation Strategy with the exception of WMD/terrorism. The hazards with a "low" rating will have a Hazard Profile developed but will not be carried through to the Risk Assessment or Mitigation Strategy, as currently and historically those hazards have occurred in unpopulated areas having little to no impact, measurable magnitude, or feasible mitigation actions. The "low" ranked hazards will be profiled for future reference in order to monitor the possible impact of these hazards in relation to the growth within the county and increasing visitor appeal.

The White Pine County and Eureka County hazard rating results are similar to the *2018 Nevada Enhanced Hazard Mitigation Plan* in that both plans have ranked earthquake, flood, and fire as high risk. However, White Pine County and Eureka County have additional high risk hazards which include drought, hazardous materials, severe weather and utility/power loss. The *2018 Nevada Enhanced Hazard Mitigation Plan* ranked drought, hazardous materials, and severe weather as a medium risk. The State HMP does not identify utility/power loss as a hazard. Mining hazards are also another risk not identified in the State HMP; however, was added as human caused risks due to the historic and current mining operations that exist in the Counties.

5.2 HAZARD PROFILE

The requirements for hazard profile, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment – Profiling Hazards

Profiling Hazards

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.

Element

Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the plan?

Does the risk assessment identify the **extent** (i.e., magnitude or severity) of each hazard addressed in the plan?

Does the plan provide information on **previous occurrences** of each hazard addressed in the plan?

Does the plan include the **probability of future events** (i.e., chance of occurrence) for each hazard addressed in the plan?

Source: FEMA, March 2008.

The specific hazards selected by the Planning Committees for profiling have been examined in a methodical manner based on the following factors:

- Nature
- History
- Location of future events
- Extent of future events
- Probability of future events

The hazards profiled for the County are presented in Section 5.2 hazards in alphabetical order. The order of presentation does not signify the level of importance or risk. Low hazards were not profiled.

5.2.1 Avalanche

Planning Significance –	White Pine Co. — Low City of Ely — Very Low Eureka Co. — Low

5.2.1.1 Nature

An avalanche occurs when a mass of snow detaches from a mountainside and slides or falls downward. Snow avalanches can be subdivided into loose-snow avalanches and slab (dry or wet) avalanches. Wet slide avalanches may occur during and after (a) a rapid rise in air temperature inducing a melting snow pack, (b) a rain on snow event, and (c) during the spring thaw. The majority of slab avalanches occur on natural slopes between 25 to 50 degrees, although snow avalanches have been recorded on slopes as low as 15 degrees depending on snow type, water content, temperature, and snow- and wind-loading on the existing snow pack. Over 90% of fatalities are triggered by the victims themselves as a result of loading the snow pack by skiing, snowboarding, climbing, or snowmobiling. The snowpack varies within the state, with a maritime snow climate, relatively heavy snowfall and mild temperatures in western and southern Nevada, whereas northeastern Nevada (Ruby Mountains) is somewhat transitional between maritime and continental (Utah and Colorado), characterized by low snowfall and colder temperatures.

The following three variables interact to determine whether an avalanche is possible:

1. Terrain: the slope must be steep enough to avalanche.
2. Snow pack: the snow must be unstable enough to avalanche.
3. Weather: Weather is another important variable. Changing weather can quickly change snowpack stability.

5.2.1.2 History

The avalanche history in the table below was gathered from a variety of online resources and includes both White Pine County and Eureka County and adjacent areas of the northern Ruby Mountains in Elko that would impact emergency services in eastern Nevada.

Table 5-5: History of Avalanche Occurrences

Date	*Location*	*Description/injuries/damages*
February 11, 1884	Aurum, Nevada, north-west of Spring Valley	Snow slide came down the canyon above a boarding house killing 3 people.
February 27, 2007	Ruby Mountains Elko County, NV	Avalanches in Ruby Mountains threatened snowmobilers and skiers. No deaths or injuries.
Winter of 2011-2012	North Clark Street, Eureka, Nevada	Snow slide down part of the hill in the canyon above North Clark Street. No deaths, injuries or damages.

5.2.1.3 Location, Extent, and Probability of Future Events

Avalanche possibilities exist in White Pine County and Eureka County although there have been no written records of avalanches occurring in the more populated areas of these counties. Therefore, there is a very low probability of future occurrences that will result in injury or property damage.

The Ruby Mountains in Elko County also have this risk, but only in unpopulated areas. Care must be exercised by those snowmobiling or backcountry skiing in Ruby Mountains, as the slopes are prone to avalanches; extreme care is required.

Climate change:

Climate change could have some minor effects on the frequency of avalanches in the future. Snow levels, on average, will be higher in Nevada if climate change trends continue. This could lead to greater variability in the stability of snow layers between warmer and colder winter storms, potentially triggering more avalanches.

5.2.2 Drought

Planning Significance –	White Pine Co. — High
	City of Ely — High
	Eureka Co. — High

5.2.2.1 Nature

Drought is a normal, recurrent feature of virtually all climatic zones, including areas of both high and low rainfall, although characteristics will vary significantly from one region to another. Erroneously, many consider it a rare and random event. It differs from normal aridity, which is a permanent feature of the climate in areas of low rainfall. Drought is the result of a natural decline in the expected precipitation over an extended period of time, typically one or more seasons in length. Other climatic characteristics, such as high temperature, high wind, and low relative humidity, impact the severity of drought conditions.

Drought can be defined using both conceptual and operational definitions. Conceptual definitions of drought are often utilized to assist in the widespread understanding of drought. Many conceptual definitions portray drought as a protracted period of deficient precipitation resulting in extensive damage to agricultural crops and the consequential economic losses. Operational definitions define the beginning, end, and degree of severity of drought. These definitions are often used to analyze drought frequency, severity, and duration for given periods of time. Such definitions often require extensive weather data on hourly, daily, monthly, or other time scales and are utilized to provide a greater understanding of drought from a regional perspective. Four common definitions for drought are provided as follows:

- 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 demands 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 weather-related supply shortfall. This may also be called a water management drought.

A drought's severity depends on numerous factors, including duration, intensity, and geographic extent as well as regional water supply demands by humans and vegetation. Due to its multi-dimensional nature, drought is difficult to define in exact terms and also poses difficulties in terms of comprehensive risk assessments.

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after

its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

5.2.2.2 History

White Pine County and Eureka County lie within Nevada's Northeastern climate division 2. The State Climatologist prepared historical data on drought for each county from the National Climatic Data Center (NCDC) records from 1895 to 2006. In the Northeastern division there were 93 observed months in the time span from 1895—2006 that were rated as Extreme Drought; -4 or less. The major drought years in this division were 1924, 1926, 1928, 1928, 1929, 1931, 1934, 1954, 1992, and 2001. The worst year was 1934, in which every month was considerably below –4, with August peaking at –8.53.

By November of 2012, all of Nevada's 17 counties had been designated by the U.S. Department of Agriculture to be in severe drought and classified as primary natural disaster areas due to losses caused by ongoing drought. The U.S. Seasonal Drought Monitor classified the majority of Nevada as being in a D3, extreme drought intensity. Implications from this drought include increased risk of wildfires, water shortages, insect infestations, and crop damages.

Four years (through December of 2015) of extremely dry conditions and below average snowpack in northern Nevada's mountain ranges resulted in significant impacts to the Humboldt and other river systems, as well as associated surface and groundwater water supplies. These drier conditions in both White Pine County and Eureka County resulted in reduced recharge to groundwater basins, as well as inflow reductions to springs, seeps and streams that support healthy rangeland conditions and provide habitat for Nevada wildlife.

5.2.2.3 Location, Extent, and Probability of Future Events

In White Pine County and Eureka County, moderate, severe and extreme drought conditions (D0 to D4-rated intensities on the U.S. Seasonal Drought Monitor) have persisted over the past 10 years.

Drought would affect the Counties economically due to the large amount of water usage from agriculture and the many homes on wells. Wells would need to be modified for a lower ground water table and agriculture would require reduced water usage crops or water delivery systems which would minimize water loss.

The U.S. Seasonal Drought Outlook forecasts that Nevada, including White Pine County and Eureka County, will continue to be affected by drought. However, in 2015 summer rain in northeastern and extreme southern- Nevada drove some improvement in the four-year drought gripping Nevada. Additionally, the 2015-2016 winter snowpack hit a 5-year high followed by extreme precipitation during the winter of 2016-2017. Improvements in drought conditions are reflected in the Palmer Drought Severity Index below which shows that White Pine County and Eureka County have moved out of the extreme drought range. Since the drought outlook changes constantly and could change significantly before this report is revised, real- time current

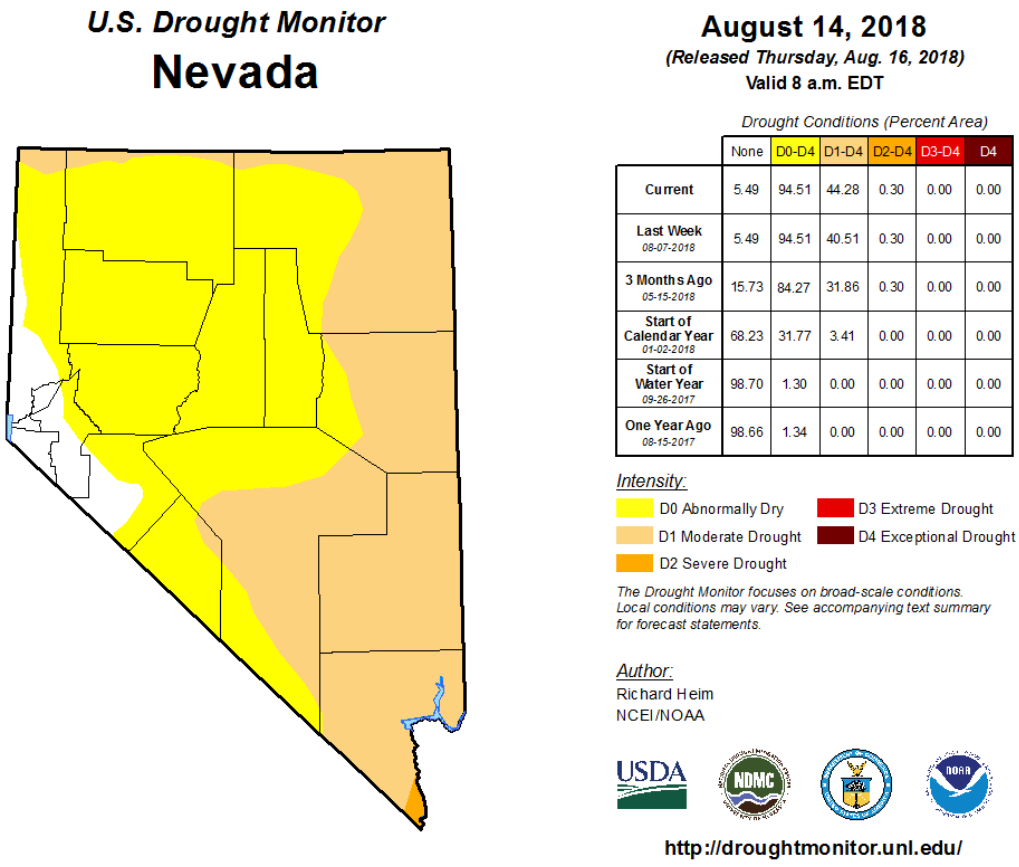
updates for these maps are available at this link:
http://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NV

As of February 2018, the region is only at 60-79% of its average precipitation for the winter. Although the last two winters had above average and average precipitation, the temperatures were warmer which resulted in less snowpack. Mountain snowpack is critical to keep the Counties out of drought conditions. The longer-term forecasting by the Palmer Drought Severity Index estimates that White Pine County and Eureka County can expect extreme drought conditions in the future.

Climate change:

Recent publications from the climate science community indicate that climate change may be expected to lead to more frequent, longer duration and more extreme drought conditions in the future. Nevada's desert climate characterized by hot summers and low humidity may become more extreme. In addition, higher snow elevations would lead to less overall mountain snowpack and less spring and summer runoff, lessening water availability for farmland, ranchland, and natural vegetation.

Figure 5-1: Drought Severity Index



5.2.3 Earthquake

Planning Significance –	White Pine Co. — Medium
	City of Ely — Medium
	Eureka Co. — High

5.2.3.1 Nature

An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, after just a few seconds, can cause massive damage and extensive casualties. The most common effect of earthquakes is ground motion, or the vibration or shaking of the ground during an earthquake.

The severity of ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. Ground motion causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. There are two kinds of seismic waves. P (primary) waves are longitudinal or compressional waves similar in character to sound waves that cause back-and-forth oscillation along the direction of travel (vertical motion). S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side to side (horizontal motion). There are also two kinds of surface waves: Raleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

In addition to ground motion, several secondary hazards can occur from earthquakes, such as surface faulting. Surface faulting is the differential movement of two sides of a fault at the earth's surface. Displacement along faults, both in terms of length and width, varies but can be significant (e.g., up to 20 feet), as can the length of the surface rupture (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures including railways, highways, pipelines, and tunnels.

Earthquake-related ground failure due to liquefaction is another secondary hazard. Liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure and causing some of the empty spaces between granules to collapse. Porewater pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations. Liquefaction causes lateral spreads (horizontal movements of commonly 10 to 15 feet, but up to 100 feet), flow failures (massive flows of soil, typically hundreds of feet, but up to 12 miles), and loss of bearing strength (soil deformations causing structures to settle or tip). Liquefaction can cause severe damage to property.

The effects of earthquake waves at the surface can be measured using the Modified Mercalli Intensity (MMI) Scale, which consists of arbitrary rankings based on observed effects, or the Richter Magnitude Scale, a mathematical basis that expresses the effects of an event in magnitude (M).

5.2.3.2 History

Nevada is earthquake country. Over 250,000 earthquakes have been recorded within or adjacent to the state since 1857. During this same period another one million earthquakes (estimated) occurred but were not recorded. The Nevada Seismological Laboratory records between 8,000 and 17,000 background earthquakes each year in Nevada.

The State of Nevada is one of the most seismically active states in the Union. It ranks in the top three states subject to the largest earthquakes over the last 150 years, with only Alaska and California having experienced more events One of the major active faults in Nevada is the Steptoe Valley fault zone located in White Pine County. The University of Nevada Reno, Bureau of Mines and Geology, reports that there are active faults nearly everywhere in Nevada.

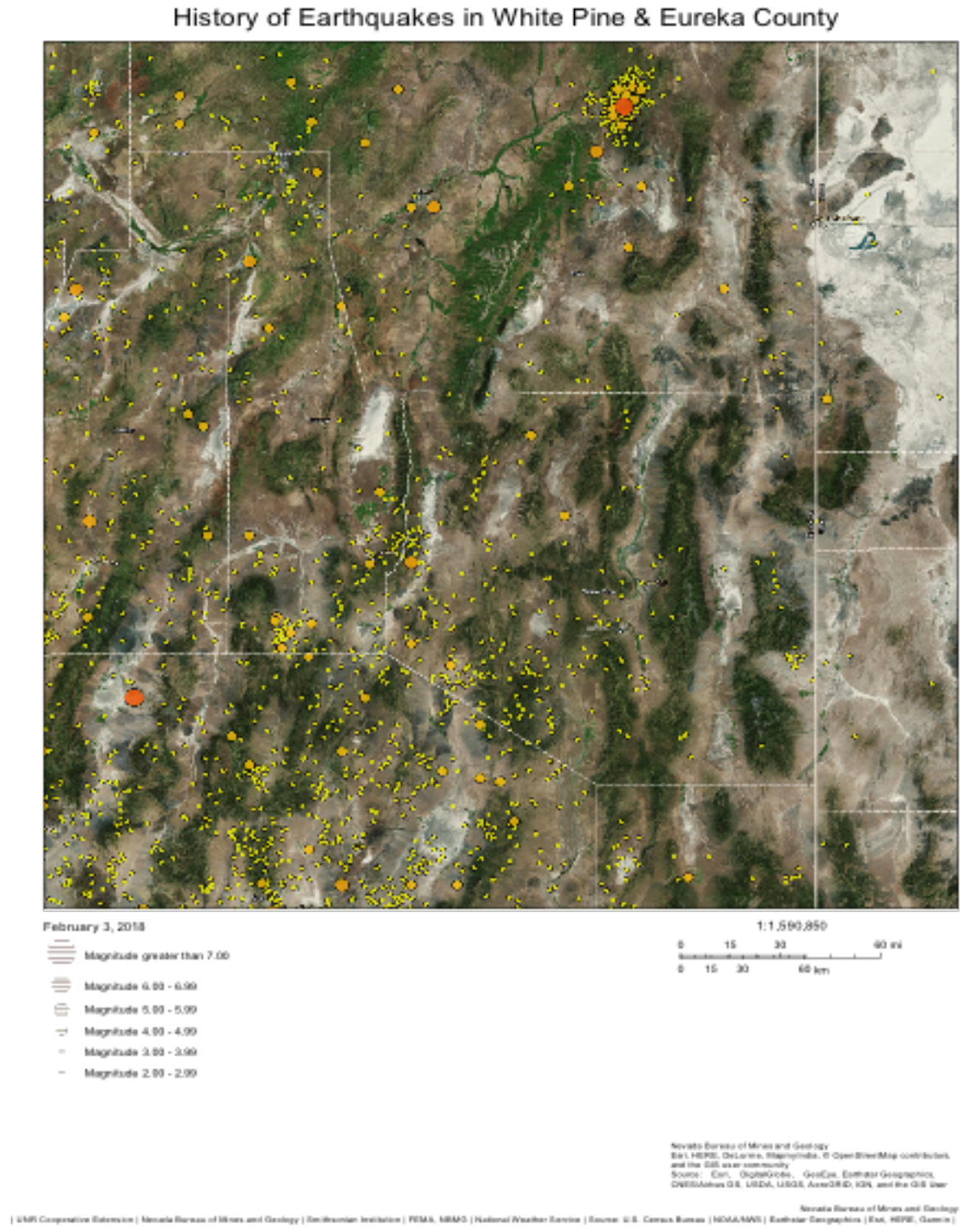
Table 5-6: Historical Earthquakes in White Pine County and Eureka County

Date	Location	Description
4/1872	Eureka	Slight shock.
11/1873	Eureka	Quaking lasted a couple of nights, quite a perceptible quiver for several seconds.
4/1875	Eureka	Severe quake with a magnitude of 5+. Occurred approximately at 6:00pm and lasted about 3 seconds. The Eureka daily Sentinel reported that the earthquake "brought to the feet of every man, woman, and child in town. Everyone rushed frantically to the streets, and not a few clambered up the hillsides for safety, fearful that the town was about to be demolished."
12/1881	Eureka	Heavy shock in Eureka.
8/29/2013	White Pine County	3.6 magnitude 35.6 miles WSW of Ely
6/3/2016	Eureka County	3.6 magnitude 8.7 miles NE of Eureka
2/28/15	White Pine County	3.9 magnitude 36.1 miles SW of Ely

The Committee reported one other significant earthquake approximately 5 or 6 years ago in Boulder Flat; however, no additional data was found.

The figure below provides the historical earthquakes in White Pine County and Eureka County.

Figure 5-2: Historic Earthquakes in Nevada



5.2.3.3 Location, Extent, and Probability of Future Events

The location of damage from an earthquake would have the greatest impact in the City of Ely and town of Eureka with the highest population densities. The maps in Appendix B, Figures B-2 and B-3 show greater detail of the fault lines in White Pine County and Eureka County.

The Nevada Earthquake Safety Council, in part through the services of the Nevada Bureau of Mines and Geology (NGMG) and the Nevada Seismological laboratory, aids in earthquake risk assessment and earthquake mitigation activities for the State of Nevada. The Planning Committees will utilize the Nevada Earthquake Risk Mitigation Plan (NERMP) for consideration in identifying mitigation strategies.

The Executive Summary of the NERMP states that Nevada is earthquake country, ranking third in the nation in the number of major earthquakes. Since the 1850s, 62 earthquakes have occurred in Nevada that have had potentially destructive magnitudes of 5.5 (Richter Scale) or greater. Nevada is a national leader in population growth, and the risk of harm and loss from earthquakes increases proportionally with population and development. We can expect earthquakes to continue to occur in Nevada and some of these will strike our growing urban centers and communities.

"The occurrence rates of major historical earthquakes in western Nevada produced 1 ½ to 7 times higher probabilities of having a major earthquake than estimates based on instrumental seismicity and geological data sets." NBMG Open-File Report 03-3, Nevada Bureau of Mines and Geology, 2003. The extent & probability for White Pine County and Eureka County is shown in the figure below was provided by the Nevada Bureau of Mines & Geology and is the probability of earthquakes of various magnitudes occurring within 50 years within 50 kilometers. This probability is used for the entire county as 90 percent of the population lives within 50 kilometers of the community.

Table 5-7: Earthquake Probability

County	% of Probability of magnitude greater than					Rank by Probability
	5.0	5.5	6.0	6.5	7.0	
Eureka	40-50	~30	10-15	4-6	<0.5	28th highest in the state of NV
Ely	20-30	~5	4-6	1.5-2	<0.5	35th highest in the state of NV

Source: Bureau of Mines & Geology, UNR, Estimated Losses from Earthquakes Near NV Communities, 2012.
http://data.nbmg.unr.edu/Public/freedownloads/misc/Presentations/earthquakes/Earthquake_Hazards_in_Eureka_and_White_Pine_Counties_8May2012.pdf

Climate change:

No significant impacts to the frequency or magnitude of earthquakes in Nevada are expected as a result of climate change.

5.2.4 Epidemic

Planning Significance –	White Pine Co. — Medium
	City of Ely — Low
	Eureka Co. — Medium

5.2.4.1 Nature

A disease is a pathological (unhealthy or ill) condition of a living organism or part of the organism that is characterized by an identifiable group of symptoms or signs. Disease can affect any living organism, including people, animals, and plants. Disease can both directly (via infection) and indirectly (via secondary impacts) harm these living things. Some infections can cause disease in both people and animals. The major concern here is an epidemic, a disease that affects an unexpected number of people or sentinel animals at one time. (Note: An epidemic can result from even one case of illness if that illness is unheard of in the affected population, i.e., smallpox.)

Of great concern for human health are infectious diseases caused by the entry and growth of microorganisms in man. Most, but not all, infectious diseases are communicable. They can be spread by coming into direct contact with someone infected with the disease, someone in a carrier state who is not sick at the time, or another living organism that carries the pathogen. Disease-producing organisms can also be spread by indirect contact with something a contagious person or other carrier has touched and contaminated, like a tissue or doorknob, or another medium (e.g., water, air, food).

According to the Centers for Disease Control and Prevention (CDC), during the first half of the twentieth century, optimism grew as steady progress was made against infectious diseases in humans via improved water quality and sanitation, antibiotics, and inoculations (October 1998). The incidences and severity of infectious diseases such as tuberculosis, typhoid fever, smallpox, polio, whooping cough, and diphtheria were all significantly reduced during this period. This optimism proved premature, however, for a variety of reasons, including the following: antibiotics began to lose their effectiveness against infectious disease (e.g., Staphylococcus aureus); new strains of influenza emerged in China and spread rapidly around the globe; sexually transmitted diseases resurged; new diseases were identified in the U.S. and elsewhere (e.g., Legionnaire's disease, Lyme disease, toxic shock syndrome, and Ebola hemorrhagic fever); acquired immunodeficiency syndrome (AIDS) appeared; and tuberculosis (including multidrug-resistant strains) reemerged (CDC, October 1998).

In a 1992 report titled *Emerging Infections: Microbial Threats to Health in the United States*, the Institute of Medicine (IOM) identified the growing links between U.S. and international health, and concluded that emerging infections are a major and growing threat to U.S. health. An emerging infectious disease is one that has newly appeared in a population or that has been known for some time, but is rapidly increasing in incidence or geographical range. Emerging infectious diseases are a product of modern demographic and environmental conditions, such as global travel, globalization and centralized processing of the food supply, population growth and increased urbanization.

In response to the threat of emerging infectious diseases, the CDC launched a national effort to protect the U.S. public in a plan titled *Addressing Emerging Infectious Disease Threats*. Based on the CDC's plan, major improvements to the U.S. health system have been implemented, including improvements in surveillance, applied research, public health infrastructure, and prevention of emerging infectious diseases (CDC, October 1998).

Despite these improvements, infectious diseases are the leading cause of death in humans worldwide and the third leading cause of death in humans in the U.S. (American Society for Microbiology, June 21, 1999). A recent follow-up report from the Institute of Medicine, titled *Microbial Threats to Health: Emergence, Detection, and Response*, notes that the impact of infectious diseases on the U.S. has only grown in the last ten years and that public health and medical communities remain inadequately prepared. Further improvements are necessary to prevent, detect, and control emerging, as well as resurging, microbial threats to health. The dangers posed by infectious diseases are compounded by other important trends: the continuing increase in antimicrobial resistance; the diminished capacity of the U.S. to recognize and respond to microbial threats; and the intentional use of biological agents to do harm (Institute of Medicine, 2003).

The CDC has established a national list of over 50 nationally reportable diseases. A reportable disease is one that, by law, must be reported by health providers to report to federal, state or local public health officials. Reportable diseases are those of public interest by reason of their communicability, severity, or frequency. The long list includes such diseases as the following: AIDS; anthrax; botulism; cholera; diphtheria; encephalitis; gonorrhea; Hantavirus pulmonary syndrome; hepatitis (A, B, C); HIV (pediatric); Legionellosis; Lyme disease; malaria; measles; mumps; plague; polio (paralytic); rabies (animal and human); Rocky Mountain spotted fever; rubella (also congenital); Salmonellosis; SARS; Streptococcal disease (Group A); Streptococcal toxic-shock syndrome; *Streptococcus pneumoniae* (drug resistant); syphilis (also congenital); tetanus; Toxic-shock syndrome; Trichinosis, tuberculosis, Typhoid fever; and Yellow fever (Centers for Disease Control and Prevention, May 2, 2003).

Many other hazards, such as floods, earthquakes or droughts, may create conditions that significantly increase the frequency and severity of diseases. These hazards can affect basic services (e.g., water supply and quality, wastewater disposal, electricity), the availability and quality of food, and the public and agricultural health system capacities. As a result, concentrated areas of diseases may result and, if not mitigated right away, increase, potentially leading to large losses of life and damage to the economic value of the area's goods and services.

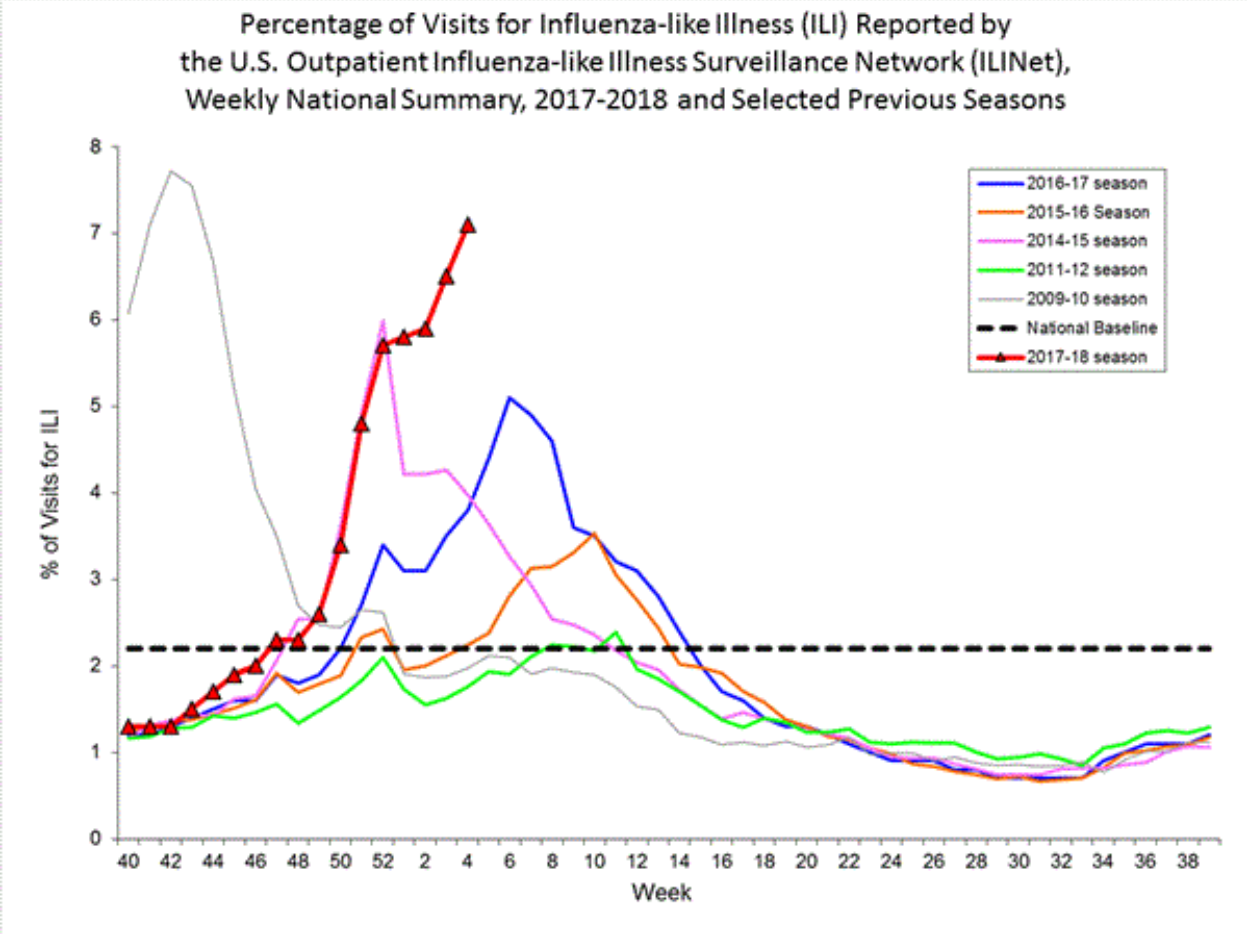
5.2.4.2 History

The influenza pandemic of 1918 and 1919, known as the Spanish Flu, had the highest mortality rate in recent history for an infectious disease. More than 20 million persons were killed worldwide, some 500,000 of which were in the U.S. alone (Centers for Disease Control and Prevention, October 1998). More recent incidences of major infectious diseases affecting people in the U.S. include the following:

- **H1N1,** an influenza strain that was first recognized in Mexico and entered the U.S. in Southern California in April 2009. H1N1 was recognized as a worldwide pandemic by the World Health Organization in May 2009. The CDC graph below illustrates the

number of office visits due to the flu and demonstrates how easily the U.S. medical system can be overwhelmed by a pandemic.

Figure 5-3: Percentage of Visits for Influenza-like Illness (ILI)



Source: https://www.cdc.gov/flu/weekly/index.htm#S1 (Posted for week ending January 28, 2018)

H1N1 varies from other influenzas in that it doesn't seem to affect populations born after 1950 due to that group's immunity to a similar strain. The CDC has taken an aggressive approach to this highly contagious strain and is in the process of inoculating the U.S. public through vaccinations.

Estimating the number of individual flu cases in the United States is very challenging because many people with flu don't seek medical care and only a small number of those that do seek care are tested. More people who are hospitalized or die of flu-related causes are tested and reported, but under-reporting of hospitalizations and deaths occurs as well. Although H1N1 was thought to have caused less than 1% mortality rate, newer

studies show those numbers could have been 15% higher (Centers for Disease Control and Prevention, May 2010).

- **West Nile Virus (WNV)**, a seasonal infection transmitted by mosquitoes, caused an epidemic which grew from an initial U.S. outbreak of 62 disease cases in 1999 to 4,156 reported cases, including 284 deaths, in 2002. However due to communities' aggressive approach to mosquito control the number of cases dropped to 1356 with 44 deaths in 2008 (Centers for Disease Control and Prevention, October 2009).
- **Severe acute respiratory syndrome (SARS)**, which is estimated to have killed 915 and infected 8,422 worldwide by mid-August 2003. In the U.S., there were 175 suspect cases and 8 confirmed cases all who traveled to other parts of the world, although no reported deaths (Centers for Disease Control and Prevention, October 2009).
- **Norovirus** - CDC estimates that more than 20 million cases of acute gastroenteritis are due to norovirus infection, and it is now thought that at least 96% of all food borne outbreaks of gastroenteritis can be attributed to noroviruses (Centers for Disease Control and Prevention, October 2009).
- **Escherichia coli (abbreviated as *E. coli*)** are a large and diverse group of bacteria. Although most strains of *E. coli* are harmless, others can make you sick. Some kinds of *E. coli* can cause diarrhea, while others cause urinary tract infections, respiratory illness and pneumonia, and other illnesses. Experts think that there may be about 70,000 infections with *E. coli* O157 each year in the United States. (Centers for Disease Control and Prevention, October 2009).

5-8: Historic Occurrences of Epidemics Registered in Nevada

Date	Details
February 1992	Cholera outbreak confirmed. At least 26 passengers from Aerolineas Argentinas Flight 386 that brought a cholera outbreak to Los Angeles traveled on to Las Vegas, where 10 showed symptoms of the disease. Cholera or cholera-like symptoms developed in 67 passengers of Flight 386.
Spring 2000	Five cases of the measles confirmed. Outbreak identified and confirmed, Clark County Health District (CCHD) Office of Epidemiology (OOE) worked with the Immunization Clinic and the media to alert the community about the prevention of the spread of the disease.
October 2004	Norovirus confirmed at a major public accommodation facility on the Strip. Details regarding the spread of this disease and the exact number affected are still under investigation and pending at time of print of this plan.
2004	During October 13-19, a total of 200 cases of human West Nile Virus were reported in 20 states, which included Nevada. During 2004, 40 states including Nevada reported a total of 2,151 cases of human West Nile Virus.
Fall 2004	Chickenpox (varicella) outbreak in Clark County, Nevada elementary school. 32 students from all grades were infected.

April 2006	Norovirus outbreak at a Reno, Nevada daycare, Noah's Ark. 30 Norovirus cases were confirmed. 2 additional people were infected after the daycare had been cleaned and sanitized.
March 2007	A norovirus outbreak in Las Vegas, Nevada sickened at least 215 inmates and 41 staff members at the Clark County Detention Center. Most of those sickened complained of stomach-related distress such as diarrhea, vomiting and cramps. None were hospitalized.
April 2009	H1N1 virus confirmed by the WHO as a worldwide epidemic. The CDC is currently working on vaccinating the public for the 2009-2010 flu season.
2014-current	Outbreaks of Bovine Trichomoniasis are frequently dealt with by the NV Department of Agriculture.
2015	While no cases of Ebola present in NV, the heightened awareness and, to some extent, fear within the public causes the governor to form an Ebola Task Force to monitor the situation and develop medical response plans. Approximately, 32 persons in NV required active monitoring during this timeframe.
2015	Nevada healthcare personnel treat multiple cases of Measles related to the CA outbreak. Approximately 11 Nevadans were diagnosed or evaluated for measles.
2018	Isolated cases of Pertussis (Whooping Cough occurred in both Eureka County in Crescent Valley and in White Pine County.

Several members of the Eureka County Planning Committee recall an epidemic that occurred in Palisades in the 1900's and mass illness from food poisoning as the result of spoiled mayonnaise in approximately 2004-2005. Several attempts were made to contact the Public Information Officer at the State of Nevada Health Department. However, this information was not able to be confirmed. Any additional information received will be added to the plan update.

5.2.4.3 Location, Extent, and Probability of Future Events

In Nevada, the Nevada State Health Division (NSHD) and Local Health Authorities (LHAs) have surveillance systems in place, in cooperation with CDC to actively test for communicable diseases. Local sentinel providers send specimens to the Nevada State Health Laboratories and are required to report findings to NSHD. Epidemiologists track symptoms and diseases to determine if outbreaks are occurring and if mitigation practices need to be employed.

Public health professionals have many ways to keep communicable diseases from becoming epidemics. Required immunizations are the most effective way to protect a community from some infectious diseases. Other ways include public information, personal hygiene, social distancing and in certain cases, isolation and quarantine measures are employed.

For animal disease mitigation, immunizations and disease screening are used to protect domesticated animals. A large majority of the animals imported into the state of Nevada are required at the minimum to have an examination performed by a licensed veterinarian and a

health certificate issued to further aid in animal disease mitigation (pasture to pasture movements are excluded).

If a disease outbreak is present in a localized herd, quarantines, movement restrictions, and possibly culling are options that may be utilized to prevent spread of disease.

Climate change:

It is unknown how climate change will affect the frequency or occurrences of epidemic in Nevada. However, temperature dependencies are seen in correlations between disease rates and weather variations over weeks, months or years and in close geographic associations between key climate variables and the distributions of important vector-borne diseases. These temperature dependencies can impact both humans and livestock. Temperature has also been found to affect food-borne infectious diseases.

5.2.5 Expansive Soils

Planning Significance –	White Pine Co. — Low
	City of Ely — Low
	Eureka Co. — Low

5.2.5.1 Nature

Soils and soft rock that tend to swell or shrink due to changes in moisture content are commonly known as expansive soils. Changes in soil volume present a hazard primarily to structures built on top of expansive soils. The most extensive damage occurs to highways and streets.

In the United States, two major groups of rocks serve as parent materials of expansive soils; they occur more commonly in the West than in the East. The first group consists of ash, glass, and other rocks of volcanic origin. Glass and aluminosilicate minerals in these volcanic materials often decompose to form expansive clay minerals (most commonly smectite, a group of clay minerals that incorporate water in their crystal structures). The second group consists of sedimentary rock containing clay minerals, examples of which are the shales of the semiarid west-central states. Because clay materials are most susceptible to swelling and shrinking, expansive soils are often referred to as swelling clays. Expansive soils also include soils with sodium sulfate, and collapsible soils that contain gypsum (hydrated calcium sulfate). Expansive soils can be recognized by visual inspection in the field. Shales, claystone, weathered volcanic rocks, and residual soils containing smectite often have a characteristic "popcorn" texture, especially in semi-arid areas.

Most engineering problems caused by swelling clays involve soils underneath areas covered by buildings and slabs or layers of concrete and asphalt, such as those used in construction of highways, walkways, and airport runways.

Houses and one-story commercial buildings are more apt to be damaged by expansive soils than are multi-story buildings, which usually are heavy enough to counter the swelling pressures. However, if constructed on wet clay, multi-story buildings may be damaged by shrinkage of the clay if moisture levels are substantially reduced, such as by evaporation from beneath heated buildings.

The best method to prevent or reduce damage from expansive soils is avoidance. When other choices are not possible, applied engineering practices such as removal of the soil, application of heavy loads, preventing access to water, presetting, or stabilization are necessary.

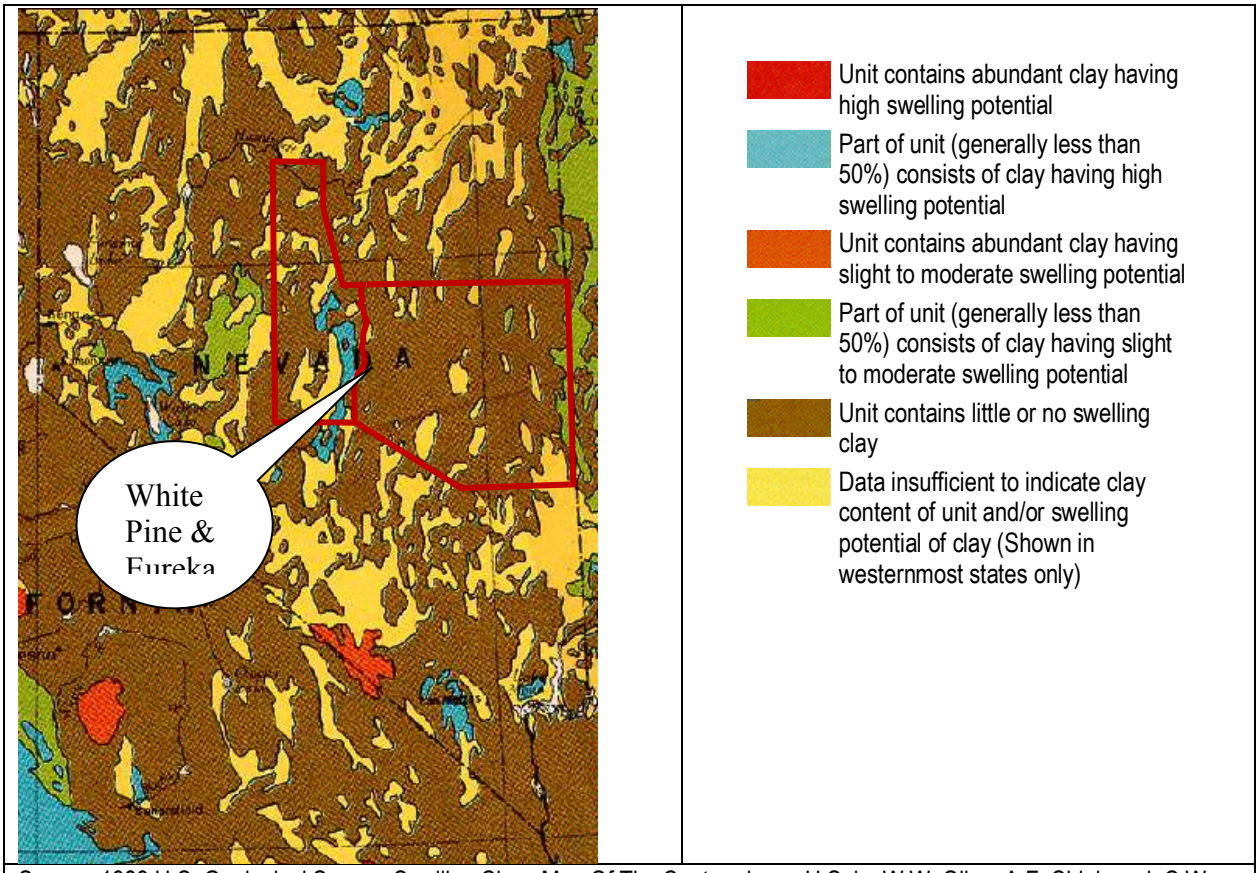
5.2.5.2 History

There is no history of expansive soils in White Pine County or Eureka County. However, according to the White Pine County Building Department, there have been several instances of frost heave.

Frost heave is the upheaval of ground due to subsurface freezing and growth of ice crystal. Frost heave typically occurs in silty soils with shallow groundwater, where capillary action can supply water to the zone of ice build-up. Frost heave is enhanced during extended cold spells. White

Pine County has seen waterline breaks and asphalt issues due to buildings and infrastructure being contracted on shallow or rock foundations. Additionally, Eureka County reports that frost heave is an issue with highways and roads. In fact, because of damages caused by frost heave NDOT enforces weight, load and route restrictions on Highway 278 and State Route 306 between April and June each year.

5.2.5.3 Figure 5-4: Soil Map of Nevada



Source: 1989 U.S. Geological Survey, Swelling Clays Map Of The Conterminous U.S. by W.W. Olive, A.F. Chleborad, C.W. Frahme. Julius Schlocker, R.R. Schneieder, and R.I. Shuster; 1989

5.2.5.4 Location, Extent, and Probability of Future Events

Expansive soils are considered to be in the "low risk" hazard category because there is no history of this in either White Pine County or Eureka County. If the hazard occurs, it will most likely be handled efficiently by local authorities through their building codes or by the Nevada Department to Transportation through its building practices in areas prone to this hazard. White Pine County has already incorporated into their building code, requirement to test soils in areas where it is likely that such soils exist. Additionally, concrete foundations must be constructed to a minimum 36 inches for frost depth or if shallower requires insulation and the building must be heated. The Counties will continue to monitor this hazard in the future.

5.2.6 Flood

Planning Significance –	White Pine Co. — Medium
	City of Ely — Medium
	Eureka Co. — Medium

5.2.6.1 Nature

Flooding as defined by the National Flood Insurance Program is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from:

- Overflow of inland or tidal waters;
- Unusual and rapid accumulation or runoff of surface waters from any source;
- Mudflow, (a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water, or
- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.

Floodplains are lowlands adjacent to water bodies that are subject to recurring floods. Floods are natural events that are considered hazards only when people and property are affected. Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.
- Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Floods also cause economic losses through closure of businesses and government facilities; disrupt communications; disrupt the provision of utilities such as water and sewer service; result in excessive expenditures for emergency response; and generally, disrupt the normal function of a community.

Dam Failures

Dam failures involve unintended releases or surges of impounded water resulting in downstream flooding. The high-velocity, debris-laden wall of water released from dam failures results in the potential for human casualties, economic loss, lifeline disruption, and environmental damage. Failures may involve either the total collapse of a dam, or other hazardous situations such as damaged spillways, overtopping from prolonged rainfall, or unintended consequences from normal operations. Severe storms with unusually high amounts of rainfall within a drainage basin, earthquakes, or landslides may cause or increase the severity of the failure.

Factors causing failure may include natural or human-caused events, or a combination of both. Dam failures usually occur when the spillway capacity is inadequate and water overtops the dam. Piping, when internal erosion through the dam foundation occurs, is another factor in a dam failure. Structural deficiencies from poor initial design or construction, lack of maintenance or repair, or gradual weakening from aging are factors that contribute to this hazard.

5.2.6.2 History

White Pine County & City of Ely

In White Pine County, flooding is most commonly attributed to spring snowmelt runoff and localized summer cloudbursts. The primary sources of flooding in Ely are Gleason Creek and Murry Creek. The Gleason and Murry Creek Watershed is located above Ely in east-central Nevada and lies in the Egan Mountain Range. Gleason Creek does not sustain a year-round flow of water. Intermittent rains and snowmelt are the contributing sources of flows. Murry Springs, a natural spring, yields a continuous supply of high-quality water to Murry Creek and is the major source in meeting Ely's present and projected water needs.

Maximum spring snowmelt floods on Gleason Creek usually occur in March or April during a melt period that is free of storm activity. The typical snowmelt flood on Gleason Creek has damaging flows for a few hours on each of several successive days. Such events occur when there is a combination of extensive snow cover, frozen ground beneath the snow, and several successive hot days. Analysis of past events indicates that no snowmelt flood has occurred when anyone of these three factors was missing. Snowmelt flows from the Murry Creek Watershed do not usually contribute significantly to damages in Ely.

Frequently, a summer cloudburst is large enough to produce flood flows through Ely. The storms, usually confined to relatively small areas of the watershed, are characterized by high peaks and short durations. These floods usually carry a considerable amount of sediment and debris so that any channel obstruction, such as fences or road crossings, will choke the channel and cause flows to abandon the relatively small closed conduits that underlie the city in favor of the streets.

Eureka County

In Eureka County, flooding is most commonly attributed to flash flooding as the result of localized intense precipitation events such as a thunderstorm. The Town of Eureka is located in a canyon between the Fish Creek Range and the Diamond Mountains. The drainage basin for Eureka contains approximately 14 square miles and includes Eureka Canyon, Windfall Canyon, York Canyon and Goodwin Canyon. Soils affected by mining have been reworked and vary greatly in amount of vegetation and infiltration/runoff potential. During and after intense rainfall

the four canyons carry runoff to a confluence just above the south end of the town. Here the canyon narrows to less than a quarter of a mile in width. The Eureka County Road Department and the Nevada Department of Transportation periodically must clear roadways of the debris left by flash floods and repair culverts and roadside ditches damaged by erosion.

The table below provides historical flooding in and near White Pine County, City of Ely, and Eureka County.

Table 5-9: Historical Floods in White Pine County, City of Ely, and Eureka County

Date	Location	Description
July 24, 1874	Town of Eureka	15 people were killed and extensive damage was caused by flooding. Excerpts from the newspaper state, "the entire ground was covered by a terrible seething mass of waters at least three feet in height….", "Eureka Hall, a building 100 by 25 feet, was nearly carried away and added to the horror of the scene…", and "was seen a two-story house, to one of the shutters of which clung a man with the energy of despair, as he drifted to almost certain death."
July 24, 1876	Town of Eureka	Following the 1874 event, a diversion canal was constructed so the damage was less severe and there were no fatalities.
August 15, 1878	Town of Eureka	The diversion canal again reduced damages and there were no fatalities.
December 31, 1909 to January 2, 1910	City of Ely	Preceding the rain, temperatures were very low and precipitation was light. By the time the rain started the ground was frozen and covered with not more than 1.0 foot of snow. On December 31, 1.30 inches of rain fell at Ely, followed by 0.37 inch on January 1 and 0.34 inch on January 2. Data on the hourly distribution of this precipitation are not available. Even with this adverse combination of rain, light snow cover, and frozen ground the runoff was not extreme. Newspaper accounts indicate that there was shallow flow in the main street of Ely, but this flow was less than the flow from snowmelt alone which occurred during the February-March snowmelt runoff of the same year.
February 28, 1910	Humboldt River at Palisade	17.0 foot high crest.*
1910	City of Ely	Damaging snowmelt flood.
1910	Eureka	Flooding caused substantial damage and washed out the railroads.
1911	City of Ely	Damaging snowmelt flood.
March 5, 1921	Humboldt River at Palisade	7.54 foot high crest.*
1922	City of Ely	Damaging snowmelt flood.
1935	City of Ely	Damaging snowmelt flood.
April 8, 1942	Humboldt River at Palisade	7.38 foot high crest.*
February 26, 1943	Humboldt River at Palisade	9.02 foot high crest.*

Table 5-9: Historical Floods in White Pine County, City of Ely, and Eureka County

Date	Location	Description
1944	City of Ely	Damaging snowmelt flood.
June 11, 1945	Humboldt River at Palisade	7.11 foot high crest.*
1945	City of Ely	Damaging snowmelt flood.
May 2, 1952	Humboldt River at Palisade	8.88 foot high crest.*
1956	City of Ely	Damaging snowmelt flood.
February 2, 1962	Humboldt River at Palisade	9.28 foot high crest.*
1964	Diamond Valley	Flooding causing crop loss and damage to personal property.
April 2, 1969	City of Ely	Damaging snowmelt flood. Produced a flow of 405 cubic feet per second (cfs) at the U.S. Army Corps of Engineers' Gleason Creek gage, with an estimated recurrence interval of 30 years. This is the largest flood of record.
April 7, 1969	Humboldt River at Palisade	7.40 foot high crest.*
May 23, 1975	Humboldt River at Palisade	7.03 foot high crest.*
January 12, 1979	Humboldt River at Palisade	7.21 foot high crest.*
February 19, 1980	City of Ely	Winter rain flood which caused significant amounts of road damage throughout the city and numerous basements were flooded in the northeastern section where the land is lower, and inundation was reported to be as much as 3 feet in many places. The high water was reported (The Ely Daily Times, February 19, 1980) to have been reminiscent of the flooding in 1969 when a heavy snowpack was followed by a steady downpour, flooding most of the downtown and Central portions of Ely.
June 7, 1980	Humboldt River at Palisade	7.26 foot high crest.*
March 6, 1983	Humboldt River at Palisade	9.74 foot high crest.*
1983	Diamond Valley	Flooding causing crop loss and damage to personal property.
May 18, 1984	Humboldt River at Palisade	10.2 foot high crest.*
February 20, 1986	Humboldt River at Palisade	8.83 foot high crest.*
March 28, 1993	Humboldt River at Palisade	7.07 foot high crest.*
June 8, 1995	Humboldt River at Palisade	8.74 foot high crest.*
1998	Diamond Valley	Flooding causing crop loss and damage to personal property.

Table 5-9: Historical Floods in White Pine County, City of Ely, and Eureka County

Date	Location	Description
May 24, 2000	Eureka County	The Nevada Highway Patrol reported state highway 278 between mile marker 54 and 55 was flooded.
August 13, 2001	White Pine County	White Pine County sheriff reported flash flooding at the intersection of Cherry Creek road and Highway 93.
August 20, 2001	White Pine County	The Nevada Highway Patrol reported water over Highway 93 15 miles north of Schellbourne or 5 miles south of Lages Station.
September 6, 2002	White Pine County	Heavy rains pushed mud and debris across road in Ruth.
July 24, 2003	Eureka County	Flash floods closed state highway 278 for over 2 hours as mud up to two feet deep in places covered the highway.
July 31, 2003	Eureka County & White Pine County	Water and mud were reported running across many side roads near Eureka. Water was also reported across Highway 50 at Pinto Summit about 4 miles southeast of Eureka. Heavy rains washed mud across road going into the Great Basin National Park. The Nevada Highway Patrol reported mud and rocks washed across highway 50 near Antelope Summit.
August 2, 2003	Eureka County	A weather spotter reported water flowing over a side road along state highway 278 near Hay Ranch.
August 16, 2003	Eureka County	Flash floods closed highway 50 for over two hours five miles northeast of Baker. Mudslides caused closure of highway 50 near Sacramento Summit 18 miles northwest of Baker. Flash flooding on highway 93 twenty miles south of Majors Place caused a vehicle accident.
August 21, 2003	Eureka County	The Eureka county sheriff reported state highway 278 at mile marker 63 under water and sides of road washed out along highway.
August 17, 2004	Eureka County	State highway 306 was flooded 4 miles south of Beowawe and some highway erosion was reported.
May 01, 2005	Eureka County	The Humboldt River continued above flood stage from Palisade to Battle Mountain. Lowland flooding occurred near the river making some rural roads impassable.
May 16, 2005	White Pine County	In White Pine County some rural roads were washed out by flood waters as many streams went above flood stage.
August 1, 2005	White Pine County	Streets in downtown Ely were temporarily closed due to flooding.
August 1, 2007	Eureka County	Declaration of Emergency due to flooding caused heavy rain across Southern Eureka County. Damages to private property, crops, and infrastructure were reported.
September 16, 2011	Eureka County	Very heavy rains from thunderstorms caused flash flooding over portions of Antelope Valley. Portions of the Antelope Valley road was covered in water.
August 13, 2012	White Pine County	Heavy rainfall from a thunderstorm caused flash flooding in Ely. Law enforcement reported water and debris running down several streets.
July 3, 2013	Eureka County	Law enforcement reported flash flooding on State Highway 278 near mile marker 23 north of Diamond Valley. Road was temporarily closed due to debris on the roadway.
August 30, 2013	White Pine County	Emergency manager and Duckwater Health Department reported flash flooding along White Pine County Road north of town through the Pancake mountain

Table 5-9: Historical Floods in White Pine County, City of Ely, and Eureka County

Date	Location	Description
		range which caused a significant washout in the road. Department of Highways and law enforcement reported a flash flood occurred along state route 318 near mile marker 6 with one to one and a half feet of water, mud, large pine trees, and other debris flowing across the roadway. The road was impassable and the debris was cleared with a snowplow.
August 4-5, 2014	Eureka County & White Pine County	Thunderstorms with heavy rain produced flash flooding on highway 278 north of Eureka and along highway 50 west of Eureka. Flowing water was observed on highway 50 through Devils Gate. Water and mud was observed on highway 278 about 4 miles south of Garden Pass. Flash flooding was reported on Duckwater Road in White Pine county near Pogues station.
August 10, 2014	White Pine County	Thunderstorms with heavy rain caused flash flooding on alternate State Route 93 near Lages Station. A 2-mile section of the highway was flooded and a car was washed off the road. Partial washouts on dirt roads in the area were observed.
August 12, 2014	Eureka County & White Pine County	Abundant monsoon moisture generated thunderstorms that produced flash flooding, large hail, and strong winds across portions of central and northeast Nevada. Flash flooding and debris were observed across Mustang Road in the Diamond Valley area. Flash flooding on State Route 278 between mile markers 14 and 17. A plow truck was needed to clear debris and water off the road. Water ran across State Highway 93 near Lages Station. Debris was observed in the middle of the roadway. Multiple areas of flooding was also observed near the Station as well as the slopes of the burn scar. Debris was washed over State Route 892 between mile marker 24 and 26 in the Newark Valley. Flash flooding and debris was washed onto State Route 893 at mile marker 40.
September 21, 2014	Eureka County & White Pine County	NDOT reported flash flooding on a county road on the west side of the Diamond Range. A 20-foot section of culvert was washed away. Water was observed flowing across State Route 278 at mile marker 32. In White Pine County, water and debris from flash flooding flowed across US Highway 6. Debris came down from an old burn scar. A rain gauge in the vicinity recorded 1.11 inches of rain. Ten inches of water was observed flowing over US Highway 6 near Sacramento Pass.
September 27, 2014	Eureka County	Heavy rain resulted in 2 feet of water flowing across state route 278 about 6 miles south of Carlin.
June 10, 2015	Eureka County	The Eureka County Sheriff's department reported flooding and mud on State Route 306 between mile marker 16 and Interstate 80, and flooding on State Route 278 between mile marker 61 and 74.
July 22, 2015	Eureka County	Flash flooding was reported along State Highway 379 about 10 miles south of Eureka and State Route 306 between Interstate 80 and Beowawe. Very heavy rain caused Fish Creek to overflow its bank and flow across state road 379. The water was at least 6 inches deep.
August 7, 2015	Eureka County	The Eureka County Sheriff reported flash flooding on county route 101 and Highway 50 north and west of Eureka.
August 12, 2015	White Pine County	Nevada Department of Wildlife Spring Creek rearing station reported a loss of 1500 head of fish at the hatchery from flash flooding runoff of Snake Creek due to heavy rain. Recorded rain measurement of 1.35 inches in 2 hours from a nearby observer. Nearby roads were also flooded.

Table 5-9: Historical Floods in White Pine County, City of Ely, and Eureka County

Date	Location	Description
July 25, 2017	White Pine County	Flash flood on US 6/50/93, 9 miles south of Ely. Water over the road in several places, resulting in a car getting swept across the road and turned over. The driver was able to get out before the water filled the car.
August 7, 2017	Eureka County	Flash flooding washed out a road in the extreme southeast portion of Eureka county and damaged some roads near Eureka.

*Flood stage along the Humboldt River at Palisade is 7 feet.

Dam Failure

There have been no dam failures in White Pine County or Eureka County. The following tables list dams in White Pine County and Eureka County. The site numbers correspond with Figures B-6 and B-7 provide in the Appendices.

Table 5-10: Dams in White Pine County

Site	Dam	County
1	171 Ac Pond-McGill Dam	White Pine
2	78 Ac Pond-McGill Dam	White Pine
3	Baker GID WW Pond	White Pine
4	Bald Mountain Pregnant Pond #4	White Pine
5	Bald Mountain Pregnant Pond #5	White Pine
6	Bald Mountain Pregnant Pond #8	White Pine
7	Bald Mountain Pregnant Pond #7	White Pine
8	Bassett Lake Dam	White Pine
9	Blackjack Dam	White Pine
10	Bull Creek #2	White Pine
11	Cave Creek Dam	White Pine
12	Cold Creek Dam	White Pine
13	Comins Lake	White Pine
14	Duck Creek West	White Pine
15	Duck Creek East	White Pine
16	Elderberry #2	White Pine
17	Gardner Dam	White Pine
18	Geyser Dam #2	White Pine
19	Geyser Dam #3	White Pine
20	Geyser Dam #5	White Pine
21	Giroux Tailings (Robinson)	White Pine
22	Goshute Dam	White Pine
23	Ice Plant #1 Dam	White Pine
24	Ice Plant #2 Dam	White Pine
25	Ice Plant #3 Dam	White Pine
26	Illipah Creek Dam	White Pine
27	McGill Concentrator Dam	White Pine
28	Mooney Basin Event Pond	White Pine
29	Mooney Basin Leach Pond	White Pine

30	Preston Dam	White Pine
31	Railroad Crossing Dam	White Pine
32	Silver Creek Dam	White Pine
33	Spring Valley Wash Dam	White Pine
34	WPES Evaporation Pond	White Pine

Source: http://water.nv.gov/DamsQuery.aspx

Table 5-10: cont'd — Dams in Eureka County

	Dam	County
1	A-A Overflow Pond	Eureka
2	A-A Tails Dam	Eureka
3	Barrick Goldstrike TSF 3 Dam	Eureka
4	Barrick Roaster Pond	Eureka
5	Blue House Dam	Eureka
6	Boulder Reservoir Dam	Eureka
7	Bull Creek Dam Number Two	Eureka
8	Carlin Gold Tailings Dam	Eureka
9	Dam C	Eureka
10	Dwyer Dam	Eureka
11	Eisenman Tails #2	Eureka
12	Eureka Sewage Treatment Pond #1	Eureka
13	Eureka Sewage Treatment Pond #2	Eureka
14	Eureka Sewage Treatment Pond #5	Eureka
15	Eureka Sewage Treatment Pond #6	Eureka
16	Gold Quarry Water Treatment Ponds	Eureka
17	James Creek Diversion Dam	Eureka
18	J-D Reservoir Dam	Eureka
19	Mill #4 Tailings Dam #1	Eureka
20	Mill #4 Tailings Dam #2	Eureka
21	Mill #5 / #6 Tailings Dam	Eureka
22	Mill #5 / #6 West Tails Storage Facility	Eureka
23	Mount Hope South Tailings Storage Facility	Eureka
24	Mount Hope STF Underdrain Collection Pond	Eureka
25	Newmont Mill 5/6 East	Eureka

26	Newmont North Area Leachate Ponds	Eureka
27	Newmont South Area Solution Pond	Eureka
28	North Area Leachate Pond Addition	Eureka
29	North Area Leach Stormwater Pond	Eureka
30	North Block Tailings Impoundment	Eureka
31	Palisades 1 Dam	Eureka
32	Palisades 2 Dam	Eureka
33	Palisades 3 Dam	Eureka
34	Palisades 4 Dam	Eureka
35	Palisades 5 Dam	Eureka
36	Palisades 6 Dam	Eureka
37	Pete Waste Rock Disposal Overflow Pond	Eureka
38	Roberts Creek Dam	Eureka
39	Rodeo Creek Diversion Dam	Eureka
40	Rose Dam	Eureka
41	ROTP Stormwater Holding Pond	Eureka
42	ROTP Spill Holding Pond	Eureka
43	Sand Dune Embankment – North	Eureka
44	Sand Dune Embankment – Center	Eureka
45	Sand Dune Embankment -- South	Eureka
46	South Leach Property Ponds	Eureka
47	South Leach Non-Property Pond	Eureka
48	South Leach Non-Property Ponds #2	Eureka
49	South Leach Property Stormwater Pond	Eureka
50	Tonkin Reservoir Dam	Eureka
51	Tonkin Springs Tailings	Eureka
52	T-S Ranch Dam	Eureka
53	TS Ranch Power Plant Evap Ponds	Eureka
54	Whitehouse Dam	Eureka

Source: http://water.nv.gov/DamsQuery.aspx

5.2.6.3 Location, Extent, and Probability of Future Events

Flooding is a common phenomenon in both White Pine and Eureka County and occurs with some regularity over the historic period of record. There is no reason to assume this will

change now or in the future. Earlier snowmelt or less overall snow accumulation (in favor of more rain at higher elevations) may occur in response to climate change. This change could increase the potential flooding and change the historic run-off patterns. However, localized flooding will continue to be of concern to communities living on or near flood-prone areas. Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies often use historical records, such as stream flow gages, to determine the probability of occurrence for floods of different magnitudes. The probability of occurrence is expressed as a percentage for the chance of a flood of a specific extent occurring in any given year.

Factors contributing to the frequency and severity of flooding include the following:

- Rainfall intensity and duration (or warm snow in a pineapple express storm)
- Antecedent moisture conditions
- Single event, warm rain on snowpack, resulting in premature and rapid melting of the snowpack (also known as pineapple express condition)
- Watershed conditions, including steepness of terrain, soil types, amount and type of vegetation, and density of development
- The existence of attenuating features in the watershed, including natural features such as swamps and lakes and human-built features such as dams
- The existence of flood control features, such as levees and flood control channels
- Velocity of flow
- Availability of sediment for transport, and the erodibility of the bed and banks of the watercourse

These factors are evaluated using (1) a hydrologic analysis to determine the probability that a discharge of a certain size will occur, and (2) a hydraulic analysis to determine the characteristics and depth of the flood that results from that discharge.

The magnitude of flood used as the standard for floodplain management in the United States is a flood having a 1 percent probability of occurrence in any given year. This flood is also known as the 100-year flood or base flood. The most readily available source of information regarding the 100-year flood is the system of Flood Insurance Rate Maps (FIRMs) prepared by FEMA. These maps are used to support the National Flood Insurance Program (NFIP). The FIRMs show 100-year floodplain boundaries for identified flood hazards. These areas are also referred to as Special Flood Hazard Areas (SFHAs) and are the basis for flood insurance and floodplain management requirements. The FIRMs also show floodplain boundaries for the 500-year flood, which is the flood having a 0.2 percent chance of occurrence in any given year. FEMA has prepared a FIRM for White Pine County, dated November 16, 2011, and one for Eureka County, dated May 16, 2012. These maps were used to create the floodplain maps in Appendix B, Figure B-4 and B-5 which uses the 100-year flood as a basis and provides the areas susceptible to flood.

Dam Failure

The Planning Committees felt there was a very low rate of probability for dam failure, less than .1%. However, there are several dams that have potential to impact the Counties. In White Pine

County, the Cave Creek Dam, an earthen dam originally constructed in the 1930's, has the potential to impact the McGill Highway. The Illipah Creek Dam could potentially impact a ranch house and agricultural fields located a couple of miles downstream. The Comins Lake Dam could potentially affect Highway 93.

In Eureka County, dams related to mining pose the most significant concern. This is primarily due to the hazardous materials that could be released should there be a breach in the dam. Inundation maps for these dams are not available at this time but will be updates to the plan once they become available.

NFIP

The National Flood Insurance Program (NFIP) is a Federal program which enables property owners in participating communities to purchase insurance protection against losses from flooding. Data on NFIP flood insurance policies have been collected and compiled by FEMA since 1978. Table 5-11 shows flood insurance policy and claims data from 1978 to 2017 for Nevada counties participating in the NFIP. The dollar amounts of claims paid provides a measure of the severity of flood damages in each county.

Table 5-11: Summary of Total NFIP Insurance Coverage, Premiums Paid and Claims in White Pine, City of Ely, and Eureka County Since 1978

County	*Number of Policies*	*Total Coverage*	*Total Claims Since 1978*	*Total Paid Since 1978*	*NFIP claims as a % of total policies*
White Pine County	29	5,824,500	0	0	0%
City of Ely	106	$15,007,700	1	$389.63	0.94%
Eureka County	11	$ 2,480,300	1	$587.73	9.09%
Source: NV State Flood Plain Manager					

White Pine County and Eureka County participate in the NFIP; however, neither county participate in the Community Rating System (CRS). Although the Counties do not participate in the CRS, the Building Departments works closely with the public to ensure that construction standards are met and there is a good understanding of impacts from flooding and measures to minimize impacts.

Repetitive Loss

The state is working with a variety of stakeholders to reduce the number of properties considered to be repetitive loss properties and to prevent severe repetitive loss properties from developing. Up until 2012, severe repetitive loss and repetitive flood properties were handled under 2 separate FEMA programs: the Severe Repetitive Loss (SRL) Program that provided funding to reduce or eliminate long-term risk of flood damage to SRL structures insured under the National Flood insurance Program (NFIP) and the Repetitive Flood Claims (RFC) grant program to assist States and communities in reducing flood damages to insured properties that had one or more claims to the National Flood Insurance Program (NFIP).

Since then, legislative changes made in the Biggert-Waters Flood insurance Reform Act of 2012 have redefined severe repetitive loss and repetitive loss properties in the following manner:

A severe repetitive loss property is a structure that:

(a) Is covered under a contract for flood insurance made available under NFIP; and
(b) Has incurred flood-related damage –
    (i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claim payments exceeding $20,000; or
    (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

By this definition, Nevada has two severe repetitive loss properties, located in the City of Las Vegas and the other in the City of Reno.

Climate Change:
Increased warming increases the capacity of the atmosphere to hold moisture, which leads to more water vapor in the atmosphere. Individual storms supplied with increased moisture might produce more intense precipitation events. Further warmer conditions between summer thunderstorms can additionally dry and compact the soil, making it more impervious to heavy rain, increasing the rate of the runoff during flash floods.

5.2.7 Hazardous Materials Events

Planning Significance –	White Pine Co. — High
	City of Ely — Medium
	Eureka Co. — High

5.2.7.1 Nature

Hazardous materials are substances that pose a significant risk to life or to the environment. Environment includes surface water, groundwater, drinking water supply, land surface, subsurface strata, ambient air, dry gullies and storm sewers that discharge to surface waters. These substances may be highly toxic, reactive, corrosive, flammable, radioactive, or explosive.

Hazard materials are regulated by numerous Federal, State, and local agencies including the U.S. Environmental Protection Agency (EPA), U.S. Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), National Fire Protection Association, FEMA, Department of Homeland Security, U.S. Army, and International Maritime Organization, Nevada State Fire Marshal's Office, Nevada State Emergency Response Commission (SERC), Nevada Division of Environmental Protection, Nevada Department of Public Safety (DPS), Nevada Public Utilities Commission, and Nevada Counties and Cities.

Hazardous material releases may occur from any of the following:

- Fixed site facilities (such as refineries, chemical plants, storage facilities, manufacturing, warehouses, wastewater treatment plants, swimming pools, dry cleaners, automotive sales/repair, and gas stations)
- Highway and rail transportation (such as tanker trucks, chemical trucks, and railroad tankers)
- Air transportation (such as cargo packages)
- Pipeline transportation (liquid petroleum, natural gas, and other chemicals)

Applicable Federal Laws governing hazardous materials include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, Superfund and Reauthorization Act (SARA) (amendment to CERCLA) of 1986, Resource Conservation and Recovery Act (RCRA) of 1976, Hazardous Materials Transportation Act (HMTA) of 1975, Occupational Safety and Health Act (OSHA) of 1970, Toxic Substances Control Act (TSCA) of 1976, Clean Air Acts of 1955-1990, and the Clean Water Act of 1972.

Unless exempted, facilities that use, manufacture, or store hazardous materials in the United States fall under the regulatory requirements of the Emergency Planning and Community Right to Know Act (EPCRA) of 1986, enacted as Title III SARA (42 USC 11001–11050; 1988). Under EPCRA regulations, hazardous materials that pose the greatest risk for causing catastrophic emergencies are identified as Extremely Hazardous Substances (EHSs). These chemicals are identified by the EPA in the *List of Lists – Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA), CERCLA, and Section 112*

of the Clean Air Act (https://www.epa.gov/epcra/consolidated-list-lists). Releases of EHSs can occur during transport to and from fixed site facilities. Transportation-related releases are generally more troublesome because they may occur anywhere, including close to human populations, critical facilities, or sensitive environmental areas. Transportation-related EHS releases are also more difficult to mitigate due to the variability of locations and distance from response resources.

In addition to accidental human-caused hazardous material events, natural hazards may cause the release of hazardous materials and complicate response activities. The impact of earthquakes on fixed facilities may be particularly serious due to the impairment or failure of the physical integrity of containment facilities. The threat of any hazardous material event may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cut-off of response personnel and equipment. In addition, the risk of terrorism involving hazardous materials is considered a major threat due to the location of hazardous material facilities and transport routes throughout communities and the frequently limited antiterrorism security at these facilities.

On behalf of several Federal agencies including the EPA and the DOT, the National Response Center (NRC) serves as the point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment within the United States.

5.2.7.2 History

The Nevada Division of Environmental Protection reports that since 1994, oil and chemical spills have occurred within White Pine County and Eureka County as shown in the tables below.

Table 5-12: Summary of Hazardous Material Spills in White Pine County

Date	County	Location	Substance
01/18/1994	White Pine	Gale Oil and Tire Bulk Fuel, Ely	TPH (Total Petroleum Hydrocarbon)
05/06/1994	White Pine	Sacramento Pass Microwave Relay Facility	Diesel
05/06/1994	White Pine	Murry Summit Microwave Relay Facility	Diesel
06/20/1994	White Pine	Canyon Construction Company, Mt. Hamilton area	Diesel
09/21/1994	White Pine	Ely Disposal Service	Hydraulic Fluid
10/03/1994	White Pine	Great Basin National Park	Diesel
10/07/1994	White Pine	Fort Ruby Ranch	Unknown
02/24/1995	White Pine	U.S. Postal Service, Ely	Heating Oil
05/02/1995	White Pine	Norcross Service Station	Gasoline
05/09/1995	White Pine	Yankee Mine, Al Park Petroleum	TPH
06/27/1995	White Pine	Cave Lake State Park	Diesel
07/10/1995	White Pine	Former Orr Building Supply, Ely	Heating Oil
09/26/1996	White Pine	Great Basin Laundry Center	Solvents
10/16/1996	White Pine	Forman Ranch	TPH
01/31/1997	White Pine	Cold Creek Trailer Park	Unknown
03/05/1997	White Pine	White Pine County Shop	Unknown

Table 5-12: Summary of Hazardous Material Spills in White Pine County

Date	County	Location	Substance
03/27/1997	White Pine	First Security Warehouse	TPH
04/08/1997	White Pine	Ely Maximum Security Prison	Gasoline
01/05/1998	White Pine	Bald Mountain Mine	Motor Oil, Lube Oil
04/27/1998	White Pine	KOA of Ely	Gasoline
12/15/1998	White Pine	Mount Wheeler Power Company, Ely	Gasoline/Product line leak
12/18/1998	White Pine	Rocky Mountain Company	Gasoline/Diesel
06/10/1999	White Pine	Spring Creek Rearing Station	Gasoline
09/08/1999	White Pine	Alligator Ridge Mine, Bald Mountain	Gasoline
05/31/2001	White Pine	Steptoe Valley Wildlife Management Area	Gasoline
03/19/2002	White Pine	Sierra Pacific Power Company, Gonder Substation	Non-PCB Mineral Oil
04/01/2002	White Pine	Mount Wheeler Power Company, Gonder Substation	Non-PCB Mineral Oil
02/12/2003	White Pine	Keith Stewart	Diesel
10/01/2003	White Pine	NDOT Right-of-Way, Town of McGill	Diesel
11/02/2004	White Pine	Old White Pine County Land Fill, Ely	Unregulated municipal solid waste landfill
03/14/2005	White Pine	1690 South Great Basin Blvd, Ely, J.B. Hunt Transport Services Mobile Source	Diesel
05/27/2005	White Pine	Robinson Mine	Diesel in ground water from AST pipe line and dispenser areas. Diesel on water coming out of hillside below fuel facility. Gas in well DG2.
06/16/2005	White Pine	SR 892 @ Milepost 30, Newark Valley, Goicoechea Ranch	Diesel
08/15/2006	White Pine	Bank Club, alley behind old Bank Club site, Ely	Heating Oil
10/18/2006	White Pine	Harbecke Ranch	TPH/Gasoline, Diesel, Motor Oil
02/07/2011	White Pine	Ruth Elementary School, Ruth	Heating Oil
01/05/2007	White Pine	U.S. Highway 6, Ely, Iron Eagle Express Mobile Source	Diesel
01/18/2007	White Pine	Silver Sage Travel Center, Sinclair Gold Truck Stop	Gasoline, diesel, Motor oil
02/16/2007	White Pine	Robinson Mine	Gasoline; Buried gasoline line was dug up and broken
09/26/2009	White Pine	U.S. Highway 50 @ Mile Marker 28, Al Park Petroleum Mobile Source	Diesel
04/20/2010	White Pine	U.S. Highway 6 @ SR 318, Y & L Transportation Mobile Source	Diesel, fertilizer
07/16/2010	White Pine	U.S. Highway 50 @ Mile Marker 32, Al park Petroleum Mobile Source	Diesel
11/23/2011	White Pine	7 Daly Street, Ruth, James L. Petrovich Property	Diesel
03/08/2012	White Pine	1301 East Aultman Street Ely NV, R Place #7, Ely	Diesel
06/20/2012	White Pine	T16N R57E Section 16, Cal-Nevada Towing Mobile	Diesel
08/24/2012	White Pine	1500 Avenue H Ely NV, William Bee Ririe Hospital	Diesel
11/13/2014	White Pine	U.S. Highway 93 Bound: Mile Marker: Mile Marker 89, Rust & Sons Trucking Mobile	Other

Table 5-12: Summary of Hazardous Material Spills in White Pine County

Date	County	Location	Substance
11/30/2015	White Pine	State Route 318 Bound: Mile Marker: Mile Marker 19.5, MST Trucking Mobile	Diesel
12/10/2015	White Pine	U.S. Highway 6 Bound, Wattrans Mobile	Diesel
01/15/2016	White Pine	U.S. Highway 6 Cross Street: State Route 318, MST Trucking Mobile	Diesel
10/10/2016	White Pine	T14N R69E Section 20, Mt. Wheeler Power, Inc.	Other
2/27/2017	White Pine	U.S. Highway 50 Bound: Mile Marker: Mile Marker 17.1, Pilot Thomas Logistics Mobile	Diesel

Table 5-12: cont'd — Summary of Hazardous Material Spills in Eureka County

Date	County	Location	Substance
12/30/1992	Eureka	Buckhorne Mine	Diesel
07/29/1993	Eureka	17 miles south of Carlin, Darryl B. Taylor Trucking	TPH (crude oil)
04/08/1994	Eureka	Sam's Corner Store, Crescent Valley	Gasoline
03/23/1995	Eureka	9 miles north of Boulder Flat, Herman Brothers, Inc.	Sulfric Acid
09/07/1995	Eureka	Newmont Gold Company	Hydraulic Spill
11/20/1995	Eureka	U.S. Highway 50, Park Blair (Eureka-Austin Spill)	TPH and/or diesel
05/08/1996	Eureka	Eureka County Ambulance Bay	Gasoline
05/10/1996	Eureka	Newmont Gold Company	Sulfuric Acid
5/10/1996	Eureka	Barrick Gold Mines, Inc.	Sulfuric Acid
04/20/1998	Eureka	Interstate 80 @ Mile Marker 253, Chemical Leaman Tank Lines Mobile Source	Petroleum Hydrocarbon Derivative
05/12/1998	Eureka	Eureka County Maintenance Yard	Gasoline
11/02/1998	Eureka	43 miles NW Eureka, Atlas Gold Mining Inc.	Motor Oil
12/08/1998	Eureka	Blue Diamond Ranch, Eureka	Diesel
10/20/1999	Eureka	Dean Ranch	Diesel
05/15/2001	Eureka	North Windfall Mill Site	Heating Oil
04/26/2002	Eureka	Eureka County Road 237, Carlin, Barney Trucking Mobile Source	Diesel
05/03/2004	Eureka	SR 278 @ Mile Marker 25, Foreland Refining Corp. Mobile Source	Crude Oil
06/30/2004	Eureka	SR 766 near Gold Quarry Mine	Ore containing arsenic
07/01/2004	Eureka	SR 766 near Barrack Mine, CTI Mobile Source	Diesel; a component of ANFO (for blasting)
07/29/2004	Eureka	SR 306 @ UPRR Tracks, Beowawe, Barney Trucking Mobile Source	Lime
11/28/2005	Eureka	Beowawe Geothermal Power Plant	Lube Oil

Table 5-12: cont'd — Summary of Hazardous Material Spills in Eureka County

06/04/2007	Eureka	Intestate 80 @ Mile marker 253, E & H Transport Network Mobile Source	Diesel

10/09/2008	Eureka	SR 278 @ Mile Marker 47, Haystock Petroleum Company Mobile Source	Diesel
10/26/2010	Eureka	Interstate 80 @ SR 306, U.S. Foodservice Mobile	Diesel
09/21/2011	Eureka	SR 278 @ Mile Marker 63, Western Nevada Transport Mobile Source	Asphalt emulsion
08/23/2012	Eureka	U.S. Highway 50 Bound: Mile Marker: Mile Marker 16.4, Thomas Petroleum	Diesel
08/30/2012	Eureka	Eureka County Minor Road 237 (Boulder Valley Road), Flyers Energy	Diesel
02/08/2013	Eureka	Interstate 80 Bound: Mile Marker 267, A&S Transportation Mobile Source	Diesel
12/08/2013	Eureka	Interstate 80 Cross Street: State Route 306, Thomas Petroleum	TPH
3/17/2014	Eureka	County Minor Road 237A, Capurro Trucking	Diesel
1/2016	Eureka	Interstate 80 @ Elko County Line	Diesel
09/06/2016	Eureka	Interstate 80 Bound: Mile Marker: Mile Marker 274, YRC Freight Mobile Source	Diesel
04/2018	Eureka	SR 278 at Mile Marker 37	Gear Grease

5.2.7.3 Location, Extent, and Probability of Future Events

Hazardous materials are a part of everyday life in both White Pine County and Eureka County. Residents, businesses, mines and agriculture use and store hazardous materials, and the materials are transported on highways and railroads. As a result, there is a risk that hazardous materials incidents will occur in the Counties.

White Pine County

The Nevada Department of Public Safety shows 85 facilities that are permitted to handle hazardous waste within the County of which 63 are listed in the City of Ely; and none are active and/or archived Superfund sites. The larger fixed facilities that pose a higher risk to the County and City include the Robinson Nevada Mining Company, Bald Mountain Mine, Kennecott Nevada Copper Company, Pan Mine, and Advantage Mine. While several of the small, fixed facilities (e.g., body shops, dry cleaners) have varying uses of hazardous chemicals, in general these facilities do not pose a significant risk to the County or the City.

The County is subject to chemical, biological, and radiological hazards transported throughout the county and perceives its greatest hazardous materials risk to be in the area of transportation accidents. Hazardous material events have the potential to occur along Interstate 50, Interstate 80 and State Route 95. The trucks that use these transportation arteries commonly carry a variety of hazardous materials including gasoline, other crude oil derivatives, and other chemicals known to cause human health problems. Additionally, materials are transported to and from the Nevada Test Site, to the desert incinerator sites in Utah, and to various active mines. According to the historical data above, at least one release has occurred almost every year in the last ten years. Therefore, there is a 90% probability of future releases each year.

Eureka County

Eureka County contains fixed facilities that include, but are not limited to, petroleum storage and retailers, propane storage, mining and minerals facilities, and other businesses and industries that sell and/or use hazardous materials. Some risk exists with any storage, use, manufacture or processing of hazardous materials.

According to the Eureka County Hazardous Materials Response Plan there are 22 facilities that are permitted to handle hazardous waste within the County all but 5 are listed in the town of Eureka; and none are active and/or archived Superfund sites. The larger fixed facilities that pose a higher risk to the County and Towns include Air Liquide, Barrick (all sites), Newmont, Praxair and TS Power Plant. While several of the small, fixed facilities have varying uses of hazardous chemicals, in general these facilities do not pose a significant risk to the County or the Towns. Hazardous materials routinely used and transported in the County include, but are not limited to: petroleum products, propane, sodium cyanide, sodium hydroxide, sulfuric acid, hydrochloric acid, liquefied petroleum gas, nitric acid, calcium hydroxide, oxygen, acetylene, nitrogen, hydrogen peroxide, ammonia nitrate, ammonium nitrate, methanol, and sulfamic acid.
The most likely locations where hazardous materials incidents may occur are listed below.

- Transportation Routes for hazardous and radioactive materials, and routes used by common carriers. These routes include, but are not limited to, Interstate 80, U.S. Highway 50, 6, 93, and 93 Alternative, State Routes 278, 306, 318, 766 and 780 and the Union Pacific railroad.
- Facilities that use, process, manufacture, distribute and/or store hazardous and extremely hazardous substances. These facilities can range from gasoline stations to mines, small businesses to bulk fuel facilities.
- Other facilities, locations, transportation routes and places where hazardous materials are used, stored, or transported. Additionally, any place where an accident could happen involving motorized equipment, including aircraft.

Spills or releases that may endanger the lives and health of persons are of primary concern. The County's population centers and the Interstate 80 corridor are considered the highest hazard areas. This is due to transportation route and fixed facility locations in or near population centers, and the large amount of passenger vehicle traffic on the Interstate 80 freeway.

Comprehensive information on the probability and magnitude of hazardous material events from all types of sources (such as fixed facilities or transport vehicles) is not available. How every due to the historical data above, there is an 90% probability some magnitude of an event will occur each year. Wide variations among the characteristics of hazardous material sources and among the materials themselves make such an evaluation difficult. While it is beyond the scope of this HMP to evaluate the probability and magnitude of hazardous material events in the Counties in detail, it is possible to determine the exposure of population, buildings, and critical facilities should such an event occur. Areas at risk for hazardous material events include any area within a 1-mile radius of transportation routes and EHS fixed facilities, which are within the City and Towns, see Appendix B for Eureka County.

5.2.8 Infestations

Planning Significance –	White Pine Co. — Medium
	City of Ely — Very Low
	Eureka Co. — Low

5.2.8.1 Nature

An "invasive species" is defined as a species that is:

1) Non-native (or alien) to the ecosystem under consideration and

2) Whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Invasive species can be plants, animals (including aquatic species) and other organisms (e.g., microbes). Source: United States Dept. of Agriculture, National Agriculture Library (10/5/2007) Infestations impact Nevada's economy through the destruction of crops and natural resources which also impacts tourism. Some of the plant infestations are highly flammable and assist in the spread of wildfires. Human actions are the primary means of introduction and spread of invasive species.

5.2.8.2 History

The following noxious weeds currently can be found in White Pine County:

African rue
Black henbane
Canada thistle
Dalmatian toadflax
Diffuse knapweed
Eurasion watermilfoil
Hoary cress (white top)
Leafy spurge
Malta starthistle
Medusahead
Musk thistle
Perennial Pepperweed
Poison Hemlock
Russian knapweed
Salt cedar
Scotch thistle
Spotted knapweed
Squarrose knapweed
St. Johnswort
Water hemlock
Yellow starthistle
Yellow toadflax

The following noxious weeds currently can be found in Eureka County:

African rue
Black henbane
Camelthorn
Canada thistle
Eurasion watermilfoil
Hemlock, poison
Hoary cress (white top)
Knapweed, Diffuse
Leafy Spurge
Malta starthistle
Musk thistle
Perennial pepperweed
Poison hemlock
Puncturevine
Russian knapweed
Salt cedar
Scotch thistle
Spotted knapweed

However, since this could change in the near future, all noxious weeds are listed below. This information was found on the Nevada Department of Agriculture's website and in the Enhanced Nevada State Hazard Mitigation Plan.

The Nevada Department of Agriculture monitors the introduction and spread of noxious weeds in the state. They have developed a categorization scheme for control of noxious weeds with Category "C" being the most widespread and subject to active eradication. Below is the Nevada Department of Agriculture's Nevada Noxious Weed List as designated by application of NRS 555.

NEVADA NOXIOUS WEED LIST

NRS 555.130 Designation of noxious weeds. The State Quarantine Officer may declare by regulation the weeds of the state that are noxious weeds, but a weed must not be designated as noxious which is already introduced and established in the State to such an extent as to make its control or eradication impracticable in the judgment of the State Quarantine Officer.

NAC 555.010 Designation and categorization of noxious weeds. (NRS 555.130)

Regardless of category, per statutes, all landowners are responsible to control any noxious weeds found on their property. The plants listed below are designated noxious weeds and categorized as follows:

- **Category A weeds** are generally not found in or limited in distribution throughout the State. Such weeds are subject to active exclusion from the State and active eradication wherever found and active eradication from the premises of a dealer of nursery stock.
- **Category B weeds** are generally established in scattered populations in some counties of the State. Such weeds are subject to active exclusion where possible and active eradication from the premises of a dealer of nursery stock.
- **Category C weeds** are generally established and widespread in many counties of the State and are subject to active eradication from the premises of a dealer of nursery stock.

Table 5-13: Noxious Weeds

Category A Weeds:			
African rue	(*Peganum harmala*)	Iberian starthistle	(*Centaurea iberica*)
Austrian fieldcress	(*Rorippa austriaca*)	Malta starthistle	(*Centaurea melitensis*)
Black henbane	(*Hyoscyamus niger*)	Mayweed chamomile	(*Anthemis cotula*)
Camelthorn	(*Alhagi pseudalhagi*)	Mediterranean sage	(*Salvia aethiopis*)
Common crupina	(*Crupina vulgaris*)	Perennial sowthistle	(*Sonchus arvensis*)
Common St. Johnswort Crimson fountain grass	(*Hypericum perforatum*) (*Pennisetum setaceum*)	Purple loosestrife	(*Lythrum salicaria, L. virgatum* & cultivars)
Dalmatian toadflax	(*Linaria dalmatica*)	Purple starthistle	(*Centaurea calcitrapa*)
Dyer's woad	(*Isatis tinctoria*)	Rush skeletonweed	(*Chondrilla juncea*)
Eurasian watermilfoil	(*Myriophyllum spicatum*)	Spotted knapweed	(*Centaurea maculosa*)

Giant reed	(*Arundo donax*)	Squarrose knapweed	(*Centaurea virgata*)
Giant salvinia	(*Salvinia molesta*)	Sulfur cinquefoil	(*Potentilla recta*)
Goatsrue	(*Galega officinalis*)	Swainsonpea	(*Sphaerophysa salsula*)
Houndstongue	(*Cynoglossum officinale*)	Syrian beancaper	(*Zygophyllum fabago*)
Hydrilla	(*Hydrilla verticillata*)	Yellow starthistle	(*Centaurea solstitialis*)
		Yellow toadflax	(*Linaria vulgaris*)

Category B Weeds:			**Category C Weeds:**	
African mustard	(*Brassica tournefortii*)		Canada thistle	(*Cirsium arvense*)
Diffuse knapweed	(*Centaurea diffusa*)		Hoary cress	(*Cardaria draba*)
Horsenettle	(*Solanum carolinense*)		Johnsongrass	(*Sorghum halepense*)
Leafy spurge	(*Euphorbia esula*)		Perennial pepperweed	(*Lepidium latifolium*)
Medusahead	(*Taeniatherum caput-medusae*)		Poison-hemlock	(*Conium maculatum*)
Musk thistle	(*Carduus nutans*)		Puncturevine	(*Tribulus terrestris*)
Russian knapweed	(*Acroptilon repens*)		Salt cedar (tamarisk)	(*Tamarix* spp.)
Scotch thistle	(*Onopordum acanthium*)		Spotted water hemlock	(*Cicuta maculata*)
Silverleaf nightshade	(*Solanum elaeagnifolium*)			

Other invasive plants that are too widely distributed in Nevada to be included in the noxious weed list but present problems in Nevada are listed below:

- *Bromus tectorum L. or Cheatgrass* is an annual grass that forms tufts up to 2 feet tall. The leaves and sheathes are covered in short soft hairs. The flowers occur as drooping, open, terminal clusters that can have a greenish, red, or purple hue. These annual plants will germinate in fall or spring (fall is more common) and senescence usually occurs in summer. Cheatgrass invades rangelands, pastures, prairies, and other open areas. Cheatgrass has the potential to completely alter the ecosystems it invades. It can completely replace native vegetation and change fire regimes. It occurs throughout the United States and Canada, but is most problematic in areas of the western United States with lower precipitation levels such as Nevada. Cheatgrass is native to Europe and parts of Africa and Asia. It was first introduced into the United States accidentally in the mid 1800s.
- *Bromus* rubens *L. or Red brome*: In the North American region red brome is reported to be invasive because it faces low herbaceous competition. Once established, it has the potential to compete with other grasses. The accumulation of litter and necromass has the potential to increase fire frequency in the desert. Red brome-fueled fires result in the loss

of native perennial species in invaded areas, resulting in disturbed areas that are ideal for increased growth of red brome.

- *Lepidium latifolium or Tall White Top or Pepperweed:* The robust, spreading roots and numerous seeds of this perennial make control difficult to impossible. It is found in waste places, wet areas, roadsides, ditches and croplands, including alfalfa fields. It can be transported in water ways or hay bales.

Animal infestations - Insects

The USDA National Invasive Species Information Center maintains a website with up- to-date information on invasive species affecting each state at the following link: http://www.invasivespeciesinfo.gov/animals/main.shtml

Invertebrate Species

Invertebrate species are animals which lack a spine or backbone. Example species include worms; jellyfish; squids; sponges; and others.

The following is a list of invasive invertebrate species infestations currently affecting or are threats to Nevada:

Africanized Honeybee *(Apis mellifera scutellata)*
Asian Citrus Psyllid *(Diaphorina citri)*
Asian Long-Horned Beetle *(Anoplophora glabripennis)*
Asian Tiger Mosquito *(Aedes albopictus)*
Brown Marmorated Stink Bug *(Halyomorpha halys)*
Cactus Moth *(Cactoblastis cactorum)*
Chilli Thrips *(Scirtothrips dorsalis)*
Citrus Longhorned Beetle *(Anoplophora chinensis)*
Common Pine Shoot Beetle *(Tomicus piniperda)*
Emerald Ash Borer *(Agrilus planipennis)*
European Gypsy Moth *(Lymantria dispar)*
European Spruce Bark Beetle *(Ips typographus)*
Formosan Subterranean Termite *(Coptotermes formosanus)*
Giant African Snail *(Lissachatina fulica)*
Glassy-Winged Sharpshooter *(Homalodisca vitripennis)*
Hemlock Woolly Adelgid *(Adelges tsugae)*
Light Brown Apple Moth *(Epiphyas postvittana)*
Mediterranean Fruit Fly *(Ceratitis capitata)*
Mexican Fruit Fly *(Anastrepha ludens)*
Pink Bollworm *(Pectinophora gossypiella)*
Pink Hibiscus Mealybug *(Maconellicoccus hirsutus)*
Red Imported Fire Ant *(Solenopsis invicta)*
Russian Wheat Aphid *(Diuraphis noxia)*
Silverleaf Whitefly *(Bemisia argentifolii)*
Sirex Woodwasp *(Sirex noctilio)*
Soybean Cyst Nematode (*Heterodera glycines)*

Vertebrate Species

Vertebrate species are animals with backbones or spinal columns. In some cases, closely related species such as the hagfish which lack a spine but have a bony skull or cranium are included in the group. Example species include: bony fish; sharks; rays; amphibians; reptiles; mammals; and birds.

The following is a list of invasive vertebrate species infestations currently affecting Nevada:

Burmese Python *(Python molurus bivittatus)(*new as of Jun 4, 2012)
Brown Tree Snake *(Boiga irregularis)*
Cane Toad *(Rhinella marina)*
European Starling *(Sturnus vulgaris)*
Wild Boar *(Sus scrofa)*

Although not listed as an invasive species, Anabrus simplex or Mormon crickets are flightless, ground- dwelling insects native to the western United States that cause periodic infestations in Nevada. They eat native, herbaceous perennials (forbs), grasses, shrubs, and cultivated forage crops, reducing feed for grazing wildlife and livestock. In large numbers, their feeding can contribute to soil erosion, poor water quality, nutrient depleted soils, and potentially cause damage to range and cropland ecosystems. Drought encourages Mormon cricket outbreaks, which may last several years (historically 5 to 21 years) and cause substantial economic losses to rangeland, cropland, and home gardens. Mormon cricket outbreaks have occurred in Eureka County in 2003-2007. (Please see Appendix B, Figure B-14: Infestation of Mormon Crickets in Eureka County.)

Animal infestations – aquatic species

In June 2011, AB 167 was passed directing the Nevada Department of Wildlife (NDOW) to develop a coordinated statewide aquatic invasive species (AIS) management plan to control and prevent the spread of species such as quagga mussels and many others. The bill makes it illegal to deliberately introduce any aquatic invasive species into Nevada waters. NDOW will has implemented a statewide boat inspection and decontamination program for high risk waters, exclusive of the Lake Tahoe basin where that program is conducted by the Tahoe Regional Planning Agency (TRPA). NDOW also has implemented an early detection monitoring program, and a rapid response plan for new invasions. A comprehensive Nevada AIS Management Plan was completed in 2017. NAC 503.074 identifies certain species as aquatic invasive species:

NAC 503.074 Aquatic invasive species: Mollusks. (NRS 501.105, 501.181, 503.597) For the purposes of NRS 503.597, the following species are classified as aquatic invasive species:

- Golden mussels.....Limnoperna fortunei
- New Zealand mud snails.....Potamopyrgus antipodarum, P. jenkinsi
- Quagga and zebra mussels.....All species in the genus Dreissena

At this time 144 nonindigenous aquatic species are tracked by USGS in Nevada with regular updates reported online on this website:
http://www.invasivespeciesinfo.gov/unitedstates/nv.shtml

These include many fish, several plants, and a few invertebrate aquatic species that have become of particular concern in Nevada in recent years such as zebra mussels, quagga mussels, Asian clams, and New Zealand mud snails.

Aquatic species that have become a particular concern in Nevada in recent years are: zebra mussels, quagga mussels, Asian clams, and New Zealand mud snails.

Quagga mussels, *Dreissena bugensis*, were first found in Lake Mead in 2007. Since that time, the population has exploded, now numbering in the trillions. The closely related **Zebra mussel**, *Driessena plymorpha*, has not been confirmed to occur in Nevada but both mussels are nuisance invasive species that reproducing quickly and in large numbers. They are biofoulers that obstruct pipes in municipal and industrial raw-water systems, requiring millions of dollars annually to maintain. They produce microscopic larvae that float freely in the water column, and thus can pass by screens installed to exclude them. Monitoring and control of these mussels cost millions of dollars annually. As filter feeders, zebra and quagga mussels remove suspended material from the habitat in which they live. This includes the planktonic algae that are the primary base of the food web. Thus, these mussels may completely alter the ecology of water bodies in which they invade. In 2010, New Zealand mudsnails were found at a Lake Tahoe Basin inspection, and University of Nevada, Reno research has determined that Lake Tahoe water can support quagga mussels. Proactive measures are being taken by a number of groups to prevent the spread of these species into Lake Tahoe and other high risk waters statewide.

The **Asian clam**, *Corbicula fluminea*, has been present in the Colorado River basin in Nevada for many years but is becoming established in Lake Tahoe. Asian clams can impact Lake Tahoe's environment by:

- Releasing nitrogen and phosphorus to the lake, resulting in algal blooms.
- Negatively impacting drinking water by clogging intake pipes.
- Littering beaches with their sharp shells, negatively impacting recreation.

There is an ongoing current project initiated in 2010 by the Tahoe Resource Conservation District to physically remove Asian clams from south shore areas of Lake Tahoe and install large plastic bottom barrier sheets to cover and terminate Asian clam populations by reducing oxygen and food availability.

The **New Zealand mudsnail**, *Potamopyrgus antipodarum* is a nuisance aquatic species now reported in a few Nevada streams along the periphery of the state with the addition most recently in 2012 and 2013 of documentation in the Truckee River from Mayberry Park to the East McCarran bridge in Reno and on Maggie Creek, a tributary to the Humboldt River near Carlin in Elko County. It is reported in all western states, except New Mexico and is listed as an invasive species in California. It reproduces rapidly and competes for food with native gastropods and other species and is detrimental to trout populations because of its lack of nutritional value. It is not yet a huge problem but is being monitored in the state and may become more of a problem in the future.

Northern Pike, *Esox Lucius,* can be found in Comins Lake is fed by Steptoe and Cave creeks from the east and Willow Creek from the south. At capacity, the lake covers 410 surface acres with a maximum depth of 14 feet. Average depth is 6 to 8 feet. Mostly northern pike and a few largemouth bass currently inhabit the reservoir. Pike predation has effectively eliminated the

trout. An electrofishing survey in 2011 found high numbers of smaller northern pike and low densities of bass. Pike are currently in the midst of a population crash. According to the Nevada Department of Wildlife, northern pike are highly piscivorous, aggressive, and considered a high threat.

Common Carp, *Cyprinus Carpio,* are present in Bassett Lake which covers 77 surface acres with an average depth of 5 feet. It represents one of two waters in Nevada that has northern pike and one of two waters in the county having largemouth bass. It also contains a large population of nuisance carp. The Nevada Department of Wildlife considers these highly predatory and competitive fish as a medium threat.

5.2.8.3 Location, Extent, and Probability of Future Events

Noxious weed species distribution has a high probability to expand outward from currently known geographic locations as described above and as shown on species distribution maps throughout the state at the following link:

http://www.eddmaps.org/distribution/

The severity of noxious weed infestations is continuously monitored by the State Department of Agriculture's A, B, C categorization of noxious weeds described in the previous section. In order to combat the spread of noxious weed infestations, the Nevada Department of Agriculture continues to work with counties to enforce sections of statute for the abatement of noxious weeds. An increase in the need for regulatory enforcement is expected in future years to address problems associated with expanding noxious weed infestations.

In White Pine County and Eureka County, there are no known insect infestations other than the Mormon cricket. However, in Eureka County there has been a significant increase in the mosquito population. With the threat of West Nile Virus this has required extension insecticide spraying over the last 5 years.

The northern pike and common carp have invaded two of the lakes in White Pine County. There are no known infestations of other aquatic species; however, the ability of these species, such as the zebra mussels, quagga mussels, Asian clams, and New Zealand mud snails, to spread or be transported around the state could affect agricultural production in the counties as well as affects the rivers and lakes located in the counties. The probability for infestations causing damage is low in the counties and very low in the City of Ely.

The Planning Subcommittees agreed that plant, insect, and aquatic organism infestations will continue to occur throughout the state as recreation and commerce continue to move people and property across state lines. Cooperative efforts are necessary among state, federal, agencies and other interested regional groups to implement programs to control and mitigate the effects of infestations on all aspects of the state's environment and economy.

5.2.9 Land Subsidence and Ground Failure

Planning Significance –	White Pine Co. — Low
	City of Ely — Very Low
	Eureka Co. — Medium

5.2.9.1 Nature

In the southwestern United States, agricultural and urban areas that depend on aquifer groundwater pumping are prone to land subsidence. Non-recoverable land subsidence occurs when declining water table levels lead to inelastic compaction of the solid particles in the aquifer (particularly clay minerals). A lesser amount of subsidence occurs with the recoverable compression of coarse-grained sand and gravel deposits. Earth fissures commonly accompany subsidence; these are vertical tension cracks in the sediment above the water table.

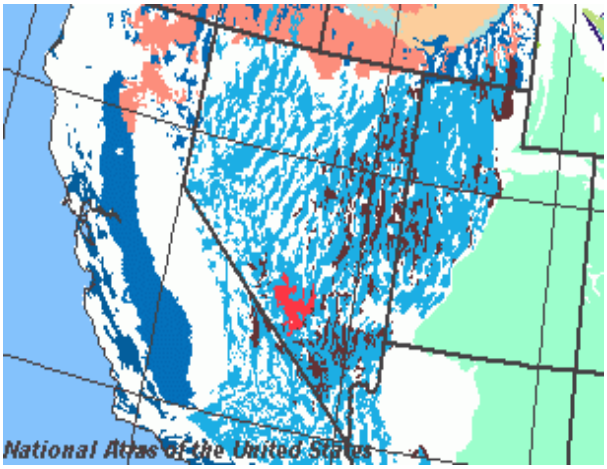


Figure 5-5. Nevada Aquifer Map from USGS and the National Atlas of the United States
Map Key: Turquoise: Alluvial aquifers, Dark Brown: Carbonate aquifers; Red: Igneous and metamorphic-rock aquifer; White: Other rock that is permeable (bedrock).

Aquifers in Nevada are composed primarily of three major hydrogeologic units. One is the alluvial aquifer, which is the material that makes up the valleys between mountain ranges. Alluvial aquifers mostly consist of gravels, sands, silts, and clays. Another aquifer in Nevada is a carbonate aquifer, which is mainly made up of limestone and dolomite. These rocks comprise many mountain ranges in eastern and southern Nevada and underlie the alluvial aquifer in places. The third major aquifer type in Nevada consists of volcanic rocks and makes up many mountain ridges and underlies the alluvial aquifer in much of western and northern Nevada.

The following link from the Nevada Division of Water Resources contains a map of "Designated Groundwater Basins of Nevada":

http://water.nv.gov/programs/planning/stateplan/documents/fig-s3-7.pdf

Evidence of groundwater-withdrawal-related land subsidence and local fissures has been recognized near some of the large open-pit mining areas in White Pine County and Eureka County. Figure 5-6 shows that land subsidence can be caused by actions other than overdrafting

of water. Mining, hydrocompaction, and underground fluid withdrawal (water, oil, or other fluid) can cause this hazard and result in land surface displacements and fissures. Hydrocompaction means that water absorbed on and within clay minerals is removed by withdrawal or drying, and the clays shrink. Shrinkage of clays results in less volume, so the surface will subside as the clays become more tightly compacted.

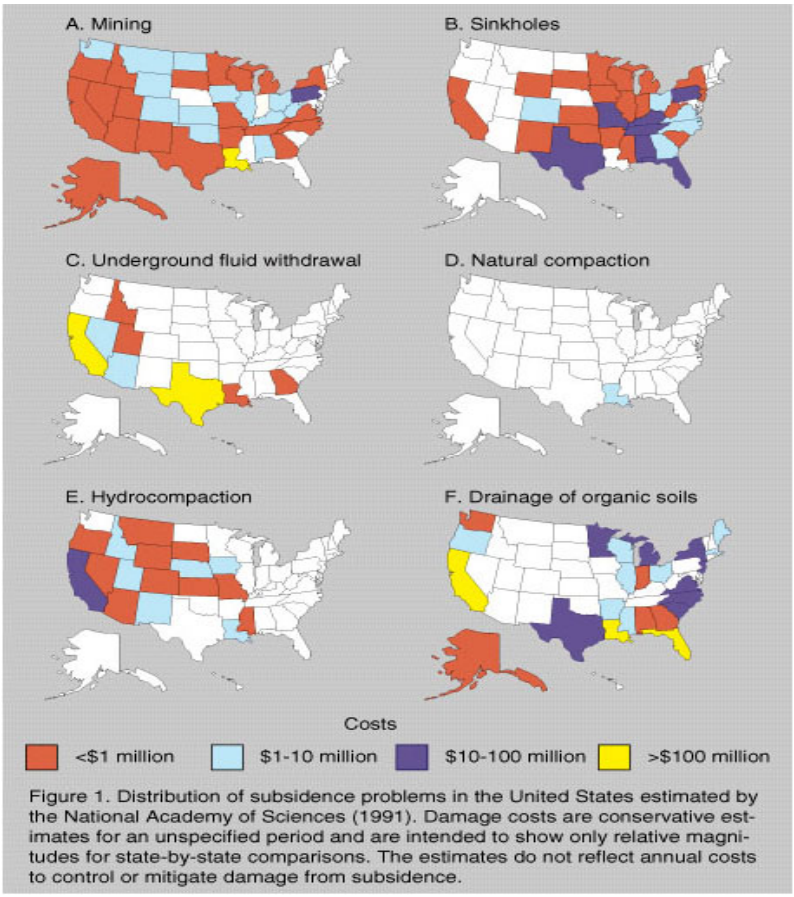


Figure 5-6. Distribution of subsidence problems in the U.S.

5.2.9.2 Location, Extent, and Probability of Future Events

Land subsidence is considered by the Planning Committees to be a "low risk" hazard. Unlike the rapid occurrences of fires, earthquakes, and floods, land subsidence generally occurs slowly. Due to Nevada's history of new development and pressures on water systems, the counties will most likely see more subsidence problems. However, there is a less than 1% probability of future occurrences that would result in injuries or major damages to buildings or infrastructure. Due to Nevada's history of new development, and pressures on water systems related to climate change, the state will most likely see more subsidence problems. However, mitigation may be achievable through education programs, revision of building codes, artificial recharging of ground water, and geotechnical investigation of the land prior to building.

5.2.10 Landslide

Planning Significance –	White Pine Co. — Low City of Ely — Very Low Eureka Co. — Low

5.2.10.1 Nature

A landslide is the movement of rock and soil that may take place either gradually over a small area or more rapidly and involving a huge area, such as the landslides that have been documented on Slide Mountain between Reno and Carson City. Landslides may also be initiated by removal, or absence, of soil-retaining vegetation, from causes such as range fires or changes in agricultural practices. Removal of material at the base of slopes may result in an unstable condition. Heavy building structures, road fill and mine dumps may add enough stress to initiate landslide movement in otherwise stable conditions.

Earthquakes and extreme rainfall events commonly initiate landslides. Debris flows, which are moving masses of rock fragments, soil, and mud, with more than half of the particles being larger than sand size, are considered a type of landslide in this risk assessment. Flash floods can initiate debris flows. In addition, wildfires often burn off vegetation that helps to trap moisture and soil; therefore, wildfires often leave ground vulnerable to debris flows that are initiated by extreme rainfall events (including flash floods).

Landslides in Nevada include rock falls. Some rock falls occur where sedimentary rocks are capped by volcanic rocks (lava flows and other layered volcanic rocks). When the sedimentary rock weathers and erodes, it undermines the lava cap and a rock fall result.

Another type of landslide in Nevada occurs in areas cut by perennial streams. As floodwaters erode channel banks, the river has undercut clay-rich sedimentary rocks along its south bank, thereby destabilizing the ground and causing the ground above it to slide.

5.2.10.2 History

While there have been no major landslides of record in either White Pine County or Eureka County, minor slides have occurred. As recent as September 2012, heavy rainfall preceded several minor landslides which washed debris onto Lackwanna Road just north of the White Pine County Dump Road in Ely, Nevada. Additionally, several minor landslides washed debris across the roadways in the Spring Valley following fires that occurred in the summer of 2012.

5.2.10.3 Location, Extent, and Probability of Future Events

Landslides in White Pine County and Eureka County tend to be localized; therefore, they tend to have less damaging economic impact than hazards of a widespread nature. Landslides can occur with earthquakes, major storms, floods, and melting ice and snow. However, based on historic events in White Pine County and Eureka County, there is a less than 1% probability of future occurrences that will result in injuries or major damages to buildings or infrastructure.

5.2.11 Mining Hazard

Planning Significance –	White Pine Co. — High
	City of Ely — Low
	Eureka Co. — Very Low

5.2.11.1 Nature

The State of Nevada is rich in mining history which dates back to approximately 1867 for White Pine County and 1864 for Eureka County. While there are still several mining operations in place in both counties, there are hundreds of abandoned mines.

The area around abandoned mine openings and open pits can be weak and cave-in without warning. Cave-ins are obviously dangerous. Areas that are likely to cave-in are often hard to detect. A minor disturbance, such as vibrations caused by walking or speaking, may cause a cave-in.

The top of a mine shaft is especially dangerous. The rock at the surface is often decomposed and timbers may be decayed or missing; therefore, walking anywhere near a shaft opening should be avoided. The whole area is often ready and waiting to slide into the shaft, which can be hundreds of feet deep.

Additionally, many abandoned mines and mining areas contain old explosives left by previous workers. This is extremely dangerous. Old dynamite sticks and caps can explode if stepped on or just touched.

5.2.11.2 History

There is no documented history of mine cave-ins or recovered explosives in the Counties. In fact, for 2013 through 2016 there were no reported abandoned min accidents or fatalities statewide making it the third year in a row without incident.

While there have been instances of fires and landslides at working mines, current mining operations are responsible and have safety and response plans in place. These events are isolated to the mining areas and do not affect the community at large.

5.2.11.3 Location, Extent, and Probability of Future Events

Mine-collapse is considered to be “low risk” and less than 1%, because it will likely only affect localized areas and because recent mining in the area has indicated that many of the stopes (large openings) have been filled over the years since mining ceased. Nonetheless, the mine-collapse hazard is a serious consideration for officials, businesses, and residents in the counties.

Current mining operations are reclaiming lands disturbed by past activities through ground preparation and planting, removal of buildings and equipment, and wildlife habitat

improvements. Reclamation activities not only help blend the disturbed areas into the landscape, but also leave the area in a clean, safe condition.

The Nevada Division of Minerals Abandoned Mine Lands (AML) program identifies and ranks dangerous conditions at mines that are no longer operating, and secures dangerous orphaned mine openings. According to the Division as of December 31, 2016, there were 1,901 mining hazards discovered in White Pine County with 1,105 hazards secured and 876 hazards discovered in Eureka County with 739 hazards secured.

The permanent closure of abandoned mine hazards may employ methods such as backfilling with available and suitable fill material, the construction of bat gates (for adits) or bat grates or cupolas (for shafts), and the use of expansive polyurethane foam (PUF), or a combination of these methods.

Additionally, the Nevada Division of Mines has a public awareness campaign called "Stay Out and Stay Alive." According to the Division, despite the growing number of visitors that recreate in Nevada, there has been no significant increase in the number of injuries or fatalities related to abandoned mine hazards. It is the sincere hope of the NDOM staff that the mine backfill efforts, fences, barricades and signs, and the awareness brought to people through the "Stay Out and Stay Alive" message are factors that contribute to keeping the incident rate as low as possible.

5.2.12 Severe Weather

Planning Significance –	White Pine Co. — Very High
	City of Ely — Medium
	Eureka Co. — Very High

5.2.12.1 Nature

Thunderstorms, hailstorms, windstorms, winter storms, and extreme heat were combined into the category of severe weather.

Thunderstorms:

Thunderstorms are formed from a combination of moisture, rapidly rising warm air, and a force capable of lifting the air, such as warm and cold fronts or mountainous terrain. A thunderstorm produces lightning, thunder, and rainfall and can develop in just minutes. Thunderstorms may occur singly, in clusters, or in lines. As a result, it is possible for several thunderstorms to affect one location in the course of a few hours. The main threats from thunderstorms are hail, wildfires, deadly lightning, tornadoes, flash floods, and downburst winds. Flash floods, tornadoes, and wildfires are detailed in this plan.

Hailstorms:
Hail is a form of solid precipitation which consists of balls or irregular lumps of ice, that are individually called hail stones. Hail stones consist mainly of water ice and measure between 0.20" and 3.00" in diameter, with the larger stones coming from severe and dangerous thunderstorms. Hail is possible with most thunderstorms as strong rising air currents in the thundercloud transport moisture laden air well above the freezing level converting super-cooled water vapor into hail stones. The stronger the updraft into the thunderstorm, the longer these initially small hails stones stay suspended in the storm, allowing them to grow to in size to the point where they eventually become too heavy for the updraft to keep them aloft, and they fall to the surface.

Downburst Winds:
A downburst is created by an area of significantly rain-cooled air that, after hitting ground level, spreads out in all directions producing strong winds. Unlike winds in a tornado, winds in a downburst are directed outwards from the point where it hits land or water. Dry downbursts are associated with thunderstorms with very little rain, while wet downbursts are created by thunderstorms with high amounts of rainfall. Downburst winds are often termed microbursts, macrobursts, or outflow thunderstorm winds. Most downburst winds that impact the counties occur as dry downbursts due to the high cloud bases of the associated thunderstorms, which allows for much of the rainfall to evaporate before reaching the ground. They are also usually microbursts compared to macrobursts since the area affected is typically less than 2.5 miles. Macrobursts do occur in the region when individual thunderstorm cells organize into a line or cluster, but are less common. Downburst winds are typically 35 to 75 mph, but can exceed over 115 mph in rare cases.

Downburst winds typically damages fences, roofs, weakened structures, trees, and power lines. Downbursts do pose a significant risk to aviation, especially to aircraft taking off and landing due to strong winds that change direction over very short distances. In addition, small aircraft on

the ground can incur damage if not secured. Downburst winds do pose a significant risk to new lightning induced wildfire starts, allowing small fires to grow quickly. During periods of drought, dust storms result from downburst winds and cause visibilities to drop below ½ mile, creating hazardous driving conditions. Downburst winds from thunderstorms are common in the Counties from late spring through early fall.

Down-slope Wind Storms:

Winds are horizontal flows of air that blow from areas of high pressure to areas of low pressure. Wind strength depends on the difference between the high- and low-pressure systems and the distance between them. Therefore, a strong pressure gradient results from a large pressure difference over short distance between places and causes strong winds.

Strong and/or severe winds often precede or follow frontal activity, including cold fronts, warm fronts, and dry lines. Down-slope wind storms are common during the winter months when winter storms approach the Sierra. Strong winds ahead of a cold front are ducted down to the surface due to mountain waves, enhancing wind speeds that are often stronger than Down-slope wind storms seen in the rest of the United States. During the strongest down slope wind storms, winds can exceed over 100 mph and last numerous hours.

Down-slope wind storms and can overturn mobile homes, tear roofs off of houses, down fences, topple trees, snap power lines, shatter windows, and sandblast paint from cars. Other associated hazards include utility outages, arcing power lines, and dust storms.

In addition to strong and/or severe winds caused by large regional frontal systems, locally strong winds caused from the funneling of winds through mountain peaks or drainages do occur. Areas impacted by these local winds are much smaller in scale, although wind speeds can be equally as strong as those caused by large scale weather systems.

Winter Storms:

Winter storms can bring heavy rain, snow, high winds, extreme cold, and freezing rain to the region. In Nevada, winter storms are massive low-pressure weather systems originating in the North Pacific Ocean that sweep across the western states. Winter storms can also plunge southward from arctic regions and drop heavy amounts of snow and ice. The severity of winter storms is generally minor. However, a heavy accumulation of snow or ice can create hazardous conditions. Additionally, a large winter storm event can also cause exceptionally high rainfall that persists for days, resulting in heavy flooding. Winter storms that are able to tap into subtropical moisture are the ones most likely to lead to flooding due to heavy warm rain. Flooding is exacerbated by warm heavy rains falling on low elevation snowpack.

The predictability of both winter storms and downslope wind events has improved considerably in the last decade. General heads up can often be provided 4-7 days in advance, with more specific wind and snow predictions 1-3 days in advance. This improvement in predictability can help mitigate the impacts of these storms by ensuring public safety agencies and the public are better prepared and can consider alternate plans.

Extreme Heat:

Extreme heat is defined as temperatures which hover over 10 degrees or more above the average high temperature for a region and last for several weeks.

5.2.12.2 History

The following damage-causing storm events data is a summary of information from 1995-2016 provided in the *2018 Nevada Enhanced Hazard Mitigation Plan* as prepared by Chris Smallcomb of the National Weather Service office in Reno.

Important Notes: *These numbers may include events from nearby areas not in the Counties due to how NWS groups some hazards such as winter storms and river floods into zones. The Number of Incidents is simply the raw tally of reports taken by the National Weather Service, not necessarily the number of storms. Deaths and damages are limited to what is reported to the NWS or what NWS can glean from media or emergency response reports.

White Pine County Severe Weather Data

Hazard	Number of Incidents (1995 -2016)	Reported Deaths/Damages
Dust Storm*	0	0
Excessive Heat*	0	0
Exteme Cold*	0	0
Flash Flood	19	0/16K
River Flood*	3	0
Hail – Large	5	0
Heavy Rainfall	0	0
Heavy Snowfall*	117	0/10K
High Wind – Winter*	38	0/37K
Ice Storm*	0	0
Lightning – Reported	0	0
Thunderstorm Winds	18	0
Tornado	2	0
Winter Storm*	18	0

Eureka County Severe Weather Data

Hazard	Number of Incidents (1995 -2016)	Reported Deaths/Damages
Dust Storm*	1	0/25K
Excessive Heat*	0	0
Extreme Cold*	0	0
Flash Flood	17	0/145K
River Flood*	0	0
Hail – Large	0	0
Heavy Rainfall	0	0
Heavy Snowfall*	16	0
High Wind – Winter*	87	0/386K
Ice Storm*	0	0
Lightning – Reported	4	0/86K
Thunderstorm Winds	0	0/5K
Tornado	0	0
Winter Storm*	2	1/0K

The following information was provided in the *2010 Nevada State Hazard Mitigation Plan* as prepared by the Nevada Climate Office under the direction of Dr. Jeff Underwood, derived from the National Climatic Data Centers Website (1959-2009) and a search of the National Climatic Data Center's Storm Events Database for 2007-2012. (http://ncdc.noaa.gov/stormevents/)

Thunderstorms/Hailstorms: Within White Pine County there is one weather station available that reported thunderstorm events during the time frame of 1953 - 2006; Ely Yelland Field. These events were recorded hourly, so some days could have several readings for thunderstorm activity. A summary of the four stations events by type break down as follows:

- Dry Thunderstorms - 2035
- Normal Thunderstorms - 98
- Thunderstorms w/o Hail - 885
- Thunderstorms w/ Hail - 2
- Heavy Thunderstorms w/o Hail - 5
- Heavy Thunderstorms w/ Hail - 1
- Total Hourly recordings - 3026

Within Eureka County there was one weather station available that reported thunderstorm events during the time frame of 1992 - 2005. The reporting station was at Eureka. No thunderstorms were reported at this station during this time span.

Severe Wind: In the *2010 Nevada State Hazard Mitigation Plan*, and 2010, a total of 478 severe windstorms were reported in White Pine County with 10 in or near the City of Ely. A total of 366 severe windstorms were reported in Eureka County with 9 in or near the Town of Eureka.

The National Climate Data Center reports the following events from October 1, 2006 to August 31, 2012:

White Pine County

- On July 26, 2008, a thunderstorm produced a microburst in Ely with a wind gust of 61 mph at the Ely airport.
- On June 15, 2010, thunderstorms across White Pine County produced wind gusts to 64 mph.
- On July 11, 2012, a thunderstorm wind gust of 60 mph was reported at the Long Now Sagebrush West DRI mesonet site.
- On August 10, 2012, a thunderstorm produced a wind gust to 59 mph at the North Spring Valley DRI mesonet site.

Eureka County

- July 21, 2008, thunderstorm winds blew down a large tree onto a fence and pickup truck in Crescent Valley. A shed was also blown over and some minor roof damage was reported. Damages totaled approximately $2,000.
- July 26, 2008, a thunderstorm produced a wind gust of 59 mph at the Eureka airport.
- July 29, 2011, thunderstorm winds gusted to 58 mph at the Eureka airport.
- August 26, 2011, a thunderstorm wind gust to 60 mph was recorded at the bean Flat Monitor NDOT mesonet site.

Winter Storms: The State Climatologist prepared the following data about extreme snow fall in each county for the 2010 Nevada State Hazard Mitigation Plan.

Snow occurs more frequently in White Pine County than high temperatures. The six stations used as representatives within the county were; Ruth, Shoshone 5N, McGill, Lund, Great Basin NP, and Ely, Yelland. To qualify as an 'extreme' event the snowfall had to be above the 15th percentile of overall snowfall at that particular station. The average value at the 15th percentile was 1.58 inches in one day. The summary of the snowfall events above the 15th percentile follow:

- Ruth - Days > 15th = 90; Freq = 2.38 days/year
- Shoshone 5N - Days > 15th = 55; Freq = 3.01 days/year
- McGill - Days > 15th = 208; Freq = 2.36 days/year
- Lund - Days > 15th = 120; Freq = 2.56 days/year
- Great Basin NP - Days > 15th = 45; Freq = 2.45 days/year

- Ely, Yelland - Days > 15th = 154; Freq = 2.13 days/year

In Eureka County, three stations were used as representatives within the county; Eureka, Beowawe, and Emigrant Pass. Eureka had the longest and highest records but most of the other stations had similar frequencies of snow events. To qualify as an 'extreme' event the snowfall had to be above the 15th percentile of overall snowfall at that particular station. The average value at the 15th percentile was 1.63 inches in one day. The summary of the snowfall events above the 15th percentile follow:

- Eureka - Days > 15th = 133; Freq = 1.77 days/year
- Beowawe - Days > 15th = 42; Freq = 2.76 days/year
- Emigrant Pass - Days > 15th = 98; Freq = 2.27 days/year

Between 2000-2012, the National Climatic Data Center identified eight winter storms in White Pine County and four in Eureka County.

- In December of 2003, a winter storm brought heavy snow to most of northern and central Nevada including, 12 inches in Eureka and 17 inches in Ely.
- On January 6 through 10, 2005, a storm which dropped heavy snow, shutting down roads and requiring snow removal, resulted in the declaration from FEMA of a Snow Emergency for both Counties. FEMA 3204.

Extreme Heat: The State Climatologist data on extreme temperatures compiled in 2007 for representative sites within each county are presented below.

In White Pine County, daytime maximum temperatures were analyzed to determine the threat heat can pose. The number of days that reached or exceeded 100° were also calculated. Within White Pine County three representative stations were selected; Ely Yelland Field, Lund, and McGill. The average in White Pine County was one day in five years (0.20) would be at or above 100°. A summary of the three stations follows:

- Ely, Yelland Field - Days of 100° or higher = 3, frequency = 0.04 days/year
- Lund - Days of 100° or higher = 17, frequency = 0.35 days/year
- McGill - Days of 100° or higher = 19, frequency = 0.20 days/year

Within Eureka County, two representative stations were selected; Eureka and Beowawe. The longest period of record was from the Eureka station. At Eureka, 30 days were observed to have a temperature of 100° or higher within the time span from 1888 to 2006. This equates to a frequency of less than one day per year. The other station had higher numbers, but nothing out of the ordinary. A summary of the two stations follows:

- Eureka- Days of 100° or higher = 30, frequency = 0.35 days/year
- Beowawe - Days of 100° or higher = 468, frequency = 5.06 days/year

5.2.12.3 Location, Extent, and Probability of Future Events

Thunderstorms that produce hail and downburst winds occur in White Pine County and Eureka County every year. An active thunderstorm pattern, resulting from monsoon moisture over the Southwestern United States being transported into Nevada can lead to a prolonged period of thunderstorms and severe weather. In addition, weak weather systems moving over Nevada after a period of hot weather often leads to dry thunderstorms with strong downburst winds. The frequency of tornado occurrence is 1 in 25 years with most being categorized as weak tornadoes (EF0 or EF1 on the Fujita Scale).

Hailstorms are a common occurrence in White Pine and Eureka County, especially during the late spring through early fall months when thunderstorms are most frequent. Hail sizes are typically between pea and marble size, but can get larger than golf balls during the strongest storms that impact the area. A Severe Thunderstorm for hail, as defined by the National Weather Service, is a thunderstorm capable of producing hail stones greater than 1" in diameter, which usually occurs once every decade.

Severe wind events in White Pine and Eureka County occur every year and are the result of two weather events known as the "Nevada Low" and the Southwest Monsoon Flow. The Nevada Low is a local name given to a low or deep trough that develops over California and Nevada between February and April in advance of an associated cold front moving down from the north. A well-developed Nevada Low system can sustain 17-23 mph winds with 34-46 mph gusts through the County. However, the White Pine County has recorded high wind gust of up to 82 mph in Baker. The high winds partially blew off a roof from the Baker Elementary School and caused a power outage in the town of Baker.

Winter storms that generate heavy snow fall or rain that leads to flooding in the Counties generally occur once every several years. Snowfall accumulation in the Counties from the bigger snowstorms can often be between 5-19 inches over a 24-hour period. Heavy snowfall events are generally associated with a strong low-pressure system dropping out of the Gulf of Alaska with the higher elevations receiving the greatest amount of snow.

Extreme Heat may not be as notable as other hazards which affect White Pine County and Eureka County. There were minimal days in White Pine County and Eureka County that had a temperature of 100° or higher.

Climate Change:

Climate change could result in a higher probability of wetter winter storms. The effect of a warming climate on hailstorm frequency and intensity is largely unknown. Lightning occurrence might increase with climate variability due to increased water vapor in the atmosphere related to warming. For the Sierra Front, it is not clear that windstorms will change in magnitude or frequency resulting from climate variability.

5.2.13 Terrorism/Weapons of Mass Destruction (WMD)

Planning Significance –	White Pine Co. — Low
	City of Ely — Low
	Eureka Co. — Low

5.2.13.1 Nature

The Department of Justice (DOJ) Federal Bureau of Investigation (FBI) defines terrorism as the unlawful use of force or violence against persons or property to intimidate or coerce a government and/or the civilian population in furtherance of political or social objectives. Weapons of Mass Destruction (WMD) associated with terrorism are defined as nuclear, biological and chemical in origin. Technological terrorism is defined as the intentional disruption in the nation's data control systems. Attacks on financial, business, and governmental computer networks are being considered as technological terrorist-related acts.

The FBI is the primary investigatory agency for domestic terrorism. The Central Intelligence Agency (CIA) monitors potential security threats from foreign sources. The DOJ through the FBI will coordinate the domestic preparedness programs and activities of this nation to address the threat posed by terrorists and the use of weapons of mass destruction.

Acts of terrorism may originate from a single person, special interest groups, or acts sponsored by a foreign government. Terrorist acts include the use of arson, hostile takeovers, shootings, biological agents (such as anthrax, plague, botulism and others), chemical agents (such as hydrogen cyanide, sulfur mustard, sarin and chlorine), and hostage taking. The most popular method used in recent events in the United States has been terrorism by bombing.

Conventional Explosive Devices

The easiest to obtain and use of all weapons is still a conventional explosive device, or improvised bomb, which may be used to cause massive local destruction or to disperse chemical, biological, or radiological agents. The components are readily available, as are detailed instructions to construct such a device. Improvised explosive devices are categorized as being explosive or incendiary, employing high or low filler explosive materials to explode and/or cause fires.

Bombs and firebombs are cheap and easily constructed, involve low technology, and are the terrorist weapon most likely to be encountered. Large, powerful devices can be outfitted with timed or remotely triggered detonators and can be designed to be activated by light, pressure, movement, or radio transmission. The potential exists for single or multiple bombing incidents in single or multiple municipalities. Historically, less than five percent of actual or attempted bombings were preceded by a threat. Explosive materials can be employed covertly with little signature, and are not readily detectable. Secondary devices may be targeted against responders.

Nuclear Weapon/Radiological Agent Use

The difficulty of responding to a nuclear or radiological incident is compounded by the nature of radiation itself. In an explosion, the fact that radioactive material was involved may or may not be obvious, depending upon the nature of the explosive device used. Unless confirmed by radiological

detection equipment, the presence of a radiation hazard is difficult to ascertain. Although many detection devices exist, most are designed to detect specific types and levels of radiation and may not be appropriate for measuring or ruling out the presence of radiological hazards. The table below lists some indicators of a radiological release.

General indicators of possible nuclear weapon/radiological agent use are as follows.

• A stated threat to deploy a nuclear or radiological device
• The presence of nuclear or radiological equipment (e.g., spent fuel canisters or nuclear transport vehicles)
• Nuclear placards or warning materials along with otherwise unexplained casualties

The scenarios constituting an intentional nuclear/radiological emergency include the following:

1. Use of an **Improvised Nuclear Device (IND)** includes any explosive device designed to cause a nuclear yield. Depending on the type of trigger device used, either uranium or plutonium isotopes can fuel these devices. While "weapons-grade" material increases the efficiency of a given device, materials of less than weapons grade can still be used.

2. Use of a **Radiological Dispersal Device (RDD)** includes any explosive device utilized to spread radioactive material upon detonation. Any improvised explosive device could be used by placing it in close proximity to radioactive material.

3. Use of a **Simple RDD** that spreads radiological material without the use of an explosive. Any nuclear material (including medical isotopes or waste) can be used in this manner.

Biological Agents

An identified terrorist tactic or weapon is the use of toxic biological agents in an attempt to harm or intimidate the public. Anthrax, Yersinia pestis, and small pox are examples of this type of threat. Anthrax is found naturally in the soil in some of the old ranch areas in Nevada. UNR and the Nevada State Agriculture Labs maintain a vigilant watch of these threats.

According to information from the Nevada State Health Division, most biological agents are naturally occurring in various parts of the world. They can be weaponized to enhance their virulence in humans and make them resistant to vaccines and antibiotics. Weaponization of biological agents usually involves using selective reproduction pressure or recombinant engineering to mutate or modify the genetic composition of the agent. Terrorist may choose to use biological weapons to achieve their goals because a very small amount can harm many people. It is reported that many of these agents would be relatively easy to prepare and easy to hide. The actual or threatened use of bio-weapons can have tremendous psychological impact on the population.

The CIA currently lists 15 animal pathogens as having potential Biological Weapons application that could potentially be used in a terrorist act:

- African swine fever
- Avian influenza
- Bluetongue
- Foot and Mouth Disease
- Goat Pox
- Monkey Pox
- Pseudo-rabies
- Hog cholera
- Lyssa virus
- Newcastle disease
- Pest des petits
- Swine vesicular disease
- Rinderpest
- Sheep pox
- Porcine enteroviral encephalomyelitis
- Vesicular stomatitis

Yersinia pestis is used an aerosol attack can cause cases a pneumonic form of plague. One to six days after becoming infected with the bacteria, people would develop pneumonic plague. Once people have the disease, the bacteria can spread to others who have close contact with them. Because of the delay between being exposed to the bacteria and becoming sick, people could travel over a large area before becoming contagious and possibly infecting others. Controlling the disease would then be more difficult. A biological weapon carrying Y. pestis is possible because the bacterium occurs in nature and could be isolated and grown in quantity in a laboratory. Even so, manufacturing an effective weapon using Y. pestis would require advanced knowledge and technology.

Smallpox is caused by the variola virus that emerged in human populations thousands of years ago. Except for laboratory stockpiles, the variola virus has been eliminated. However, in the aftermath of the events of September and October 2001, there is heightened concern that the variola virus might be used as an agent of bioterrorism. For this reason, the US government is taking precautions for dealing with a small pox outbreak.

Unless the agent is disseminated in an airborne or other mass contaminate methodology, the exposures will be limited in nature. Mass distributed biologic agents could require mass contamination and isolation. Medical responders and facilities would be stressed. Infrastructure such as drinking water could be affected. Some critical buildings could be closed and sealed pending decontamination if possible. Economic losses could be incurred due to lack of tourism or if major gaming establishments were affected.

According to USDA-ARS Arthropod-Borne Animal Diseases Research Laboratory (ABADRL) at the present time, the most economically important arthropod-borne disease of US livestock is Bluetongue Disease (BLU). As articulated in the Journal of American Veterinary Medical

Association article, *Biological Terrorism and Veterinary Medicine in the United States*, "Although recent reports have emphasized the need for improving the ability to detect a biological terrorist attack on human populations, the use of veterinary services in this effort and the potential for the targeting of livestock (e.g., horses, cattle, sheep, goats, swine, and poultry) have been addressed only briefly. Improving surveillance for biological terrorist attacks that target livestock and improving detection and reporting of livestock, pet, and wild animal morbidity and mortality are important components of preparedness for a covert biological terrorist attack."

Chemical Agents

The table below lists those chemical agents that might be used in a terrorist attack and categorizes them by effect.

Table. 5-12. Hazardous Chemical Agents Potentially Used in Terrorist Act

Effects	Chemical Agent
Blood (Blister/Vesicants)	Arsine (SA)
	Cyanogen Chloride (CK)
	Hydrogen Chloride
	Hydrogen Cyanide (AC)
Choking/Lung/Pulmonary Damaging	
	Chlorine (CL)
	Diphosgene (DP)
	Cyanide
	Nitrogen Oxide (NO)
	Perfluroisobutylene (PHIB)
	Phosgene (CG)
	Red Phosphorous (RP)
	Sulfur Trioxide-Chlorosulfonic Acid (FS)
	Teflon and Perfluroisobutylene (PHIB)
	Titanium Tetrachloride (FM)
	Zinc Oxide (HC)
Incapacitating (Nerve, Riot Control/Tear Gas)	Bromobenzylcyanide (CA)
	Chloroacetophenone (CN)
	Chloropicrin (PS)
	CNB – (CN in Benzene and Carbon Tetrachloride)
	CNS – (CN and Chloropicrin in Chloroform)
	CR
	CS
Vomiting	
	Adamsite (DM)
	Diphenylchloroarsine(DA)
	Diphenylcyanoarsine (DC)

The State of Nevada is comprised of diverse populations that include members of nation-wide militia organizations. The Federal government has continually released terrorism warnings since 1998 that state most communities in the United States are vulnerable to terrorist attack. The State of Nevada Enhanced Multi-Hazard Mitigation Plan 2010, currently lists nine domestic terrorism groups with representatives and offices in Nevada. Those groups are included in this plan to give local governments information of their existence and their geographical location. See the table below.

Table 5-13. Identified Hate Groups and Patriot Groups, Nevada

Type	Group	Location
Domestic Terrorism Groups		
	World Church of the Creator	Carson City
	Hammerskin Nation	Las Vegas
	Nation of Islam	Las Vegas
	National Alliance	Las Vegas
	National Socialist Movement	Las Vegas
	Aryan Nations/Aryan National Alliance	Reno
	National Alliance	Reno
	Aryan Nations/Aryan National Alliance	Wellington
Patriot Groups		
	Center for Action	Sandy Valley

5.2.13.2 History

Terrorism activity is not new. The attention given to terrorist activities in the United States has grown as a result of the terrorist attacks on September 11, 2001.

While there are no known terrorist attacks whether successful or unsuccessful which have occurred in White Pine County or Eureka County, there is one known incident of an attempt to transport an explosive device through Eureka County. In August of 1993, a 21-year-old American River College chemistry student stole a van in Sacramento and used it to transport an explosive device that was discovered when the van crashed on Interstate 80 near Carlin, Nevada. The wreck shut down a 50-mile stretch of the highway for 14 hours and sent motorists on a 250-mile detour as a five-person military explosives crew worked to disarm the dangerous package. The driver was a suspected white supremacist sympathizer headed for Salt Lake City, Utah.

Additionally, there was a recent situation in Panaca, Nevada, on July 14, 2016, where a suspected bomber seeking revenge on his employer who recently terminated him died in a pair of explosions at his residence.

5.2.13.3 Location, Extent, and Probability of Future Events

It is difficult to predict the location, extent and probability of future terrorist activity because they are not naturally-occurring disasters but human-planned ones. Terrorists historically choose targets that maximize civilian casualties, infrastructure damage, first responder victims and economic disruption as was the case with the World Trade Center attack in 2001. Thus, the more populated areas of Nevada are potentially susceptible to the impacts of terrorism, with risk comparatively higher for Las Vegas, Reno, Carson City, and state and federal military facilities, than for White Pine County or Eureka County. However, susceptible are special events drawing 5,000 to 40,000 individuals per day; above-ground fuel tank farms, high-profile dams, above-ground gas utility pipes, and sewage plants. Sewage plants use chlorine to disinfect treated wastewater before discharge into an adjacent waterway. The chlorine is housed in chlorine tankers located in on-site buildings for this purpose. Due to the mining economy in both White Pine and Eureka County, other hazardous and explosive materials are used, stored, manufactured and transported in the counties daily.

A second factor in the probability of future occurrences of major terrorist events in the state is the presence of terrorists capable of carrying out such attacks. The probability of future attacks may be linked to presence of foreign or domestic terrorist groups within the state or may be the result of lone gunmen or bombers. Terrorist groups fall into two general categories: foreign (international) or domestic. Acts of terrorism may originate from acts sponsored by foreign governments, special interest groups, or single persons. The Federal government has continually released terrorism warnings since 1998 that most communities in the United States are vulnerable to terrorist attack. The *2010 Nevada State Hazard Mitigation Plan* currently lists nine domestic terrorism groups with representatives and offices in Nevada; however, none of these are locates in White Pine County or Eureka County.

5.2.14 Tornados

Planning Significance –	White Pine Co. — Low
	City of Ely — Very Low
	Eureka Co. — Low

5.2.14.1 Nature

Tornadoes are one of nature's most violent storms. A tornado is defined as a rapidly rotating column of air extending from the base of a thunderstorm to the ground. In an average year, approximately 1,000 tornadoes are reported across the United States, resulting in an average of 80 deaths and over 1,500 injuries. The most violent tornadoes, with wind speeds of 250 mph or more, are capable of tremendous destruction. Damage paths can be more than 1 mile wide and 50 miles long. Tornadoes can occur anywhere in the United States, but they are most common in the Great Plains region that includes parts of Texas, Oklahoma, Kansas, and Nebraska. Tornadoes are responsible for the greatest number of wind-related deaths each year in the United States. Tornadoes come in all shapes and sizes. In the southern states, peak tornado season is March through May; peak months in the northern states are during the summer. Tornadoes can also occur in thunderstorms that develop in warm, moist air masses in advance of eastward-moving cold fronts. These thunderstorms often produce large hail and strong winds, in addition to tornadoes. Tornadoes are extremely rare in Nevada since thunderstorm cloud bases are typically several thousand feet off the ground and the plethora of mountain ranges make it difficult for the circulations that spawn tornadoes to sufficiently develop.

5.2.14.2 History

Although tornadoes are rare in Nevada, they do occur. Nevada ranks 44th out of 50 states with only one touchdown incident recorded in an average year. It is believed there are more tornadoes that occur in Nevada per year, but they are rarely witnessed due to lack of population in rural areas. Texas ranks first with an average of 123 confirmed tornadoes every year. Between 1947 and 1973 in Nevada and the Sierra, thirteen confirmed touchdowns were recorded with thirty-three confirmed funnel clouds.

The tornado project online http://www.tornadoproject.com/alltorns/worstts.htm has a list of the worst tornadoes in every state. The following is a list of tornadoes in reported for Eureka County and neighboring Elko County, Nevada. There were no tornadoes reported in White Pine County. All were ranked at F0 to F2 on a scale of F0 to F5. It should be noted the F-Scale has been redeveloped and was renamed the Enhanced Fujita Scale (ranging from EF0 to EF5). In the original scale, F0 stood for winds estimated at less than 73 miles per hour with typically light damage (some damage to chimneys, branches broken off trees, shallowly rooted trees pushed over, and sign boards damaged) in the Enhanced F Scale, which was implemented in the U.S. In 2007, three-second wind gusts estimated based on damage on a tornado severity of EF0 are in the 65 to 85 mile-per-hour range.

Table 5-16: Nevada Tornado History		
Date	*Location*	*Description /injuries/damage*
June 24, 2004 4:00 p.m.	*5 miles north of Lamoille, Elko County*	*0 dead, 0 injured.*
June 9, 2006, 11:05 a.m	*About 1 mile west of the Eureka Airport, Eureka County.*	*A rope-like tornado was observed and photographed over open country. 0 dead, 0 injured, no damage.*
June 20, 2009, 2-3 p.m.	*Near Wild Horse Reservoir, Elko County*	*Two EF0 tornadoes were observed, one by NHP and the other by a trained NWS weather spotter. 0 dead, 0 injured, no damage.*

While several of the Planning Committee members recollect a tornado siting in Newark in 2012, this could not be confirmed through NOAA or BLM.

5.2.14.3 Location, Extent, and Probability of Future Events

According to the *2010 Nevada State Hazard Mitigation*, there was only one tornado reported in Eureka County and three in the neighboring County of Elko between the years 1959 and 2017. Therefore, there is a very low probability of future occurrences. However, as new developments continue to be built, this hazard may become more evident.

Tornadoes are considered a "low risk" hazard in White Pine County and Eureka County because only one has been witnessed and when it did occur it was low in intensity. Emergency response is likely to be handled without federal or state assistance. Structures built to modern building codes should be able to withstand the gusts of an F0 tornado.

Climate Change:
Climate change is expected to have little effect on the frequency or intensity of Nevada tornadoes, since they are rare and typically weak with a low severity ranking on the EF Scale.

Figure 5-7: June 9th Tornado in Diamond Valley near Eureka, NV. Photo courtesy of Cheryl Morrison from Sheriff's office in Eureka.

5.2.15 Utility Loss/Power Loss

Planning Significance –	White Pine Co. — Medium
	City of Ely — Medium
	Eureka Co. — Medium

5.2.15.1 Nature

Power loss is defined as any interruption or loss of electrical service due to disruption of power transmission caused by accident, sabotage, natural hazards or equipment failure. A significant power failure is defined as any incident of a long duration which would require the involvement of the local and/or state emergency management organizations to coordinate provision of food, water, heating, and shelter. Electrical distribution systems can be interrupted for a number of reasons, but those that have historically been the main cause are high winds, severe thunderstorms and winter storms. A prolonged major electrical distribution system failure during the middle of winter, accompanied by very cold temperatures, can have dramatic effects on a population.

5.2.15.2 History

The State of Nevada Energy Conservation Plan (NECP) for State government is designed to provide for the prevention of delays and interruptions in providing energy and establish guidance for State agencies in planning for energy conservation and future energy requirements.

The NECP describes the methods by which the State of Nevada will assist in the statewide mitigation efforts to prevent energy emergencies through conservation measures and reducing energy usage when demand is highest. Utilities play a vital role in the quality of life enjoyed by communities in White Pine County and Eureka County. Services provided by utilities include electrical, gas, water and waste-water management.

Mt. Wheeler Power is the electric utility for White Pine County including Ely, McGill, and Baker and southern Eureka County including the Town of Eureka and Diamond Valley. Power outages are both costly and disruptive. Weather disruptions account for a large amount of outages and cost significant amounts of money to repair. Since 2009 there have been 9 large weather outages in the Counties resulting in power loss ranging from 8 to 31 days. Due to the rural nature of the Counties, in most instances these outages affected less than 20 customers.

Mt. Wheeler Power was contacted to request update outage information for the update of this plan. At the time of completion of the plan, this information had not been received. However, it will be pursued in order to be included in future plan updates.

The table below provides historical power outages in and near White Pine County, City of Ely, and Eureka County.

Table 5-17: Power Outages in White Pine County and Eureka County

Date	Location	Customers	Length of Time in Hours
4/15/2009	Newark Valley	50	12
12/21/2010	Baker	10	10
12/25/2010	Baker	5	8
03/06/2011	Ely	1	11
03/07/2011	Newark Valley	53	8
05/29/2011	Spring Valley	20	9
06/29/2011	Ely	1	9
06/25/2012	Newark Valley	15	31
07/02/2012	Ely	318	20

Wells Rural Electric Company and NV Energy also services electricity in the northern portion of Eureka County. Planning Committee members recall an out lasting several days that occurred in 2006 north of Carlin when a severe winter storm took out highway power lines. NV Energy was contacted to request confirmation of this event as well as any additional outage history. At the time of completion of the plan, this information had not been received. However, it will be pursued in order to be included in the plan update.

5.2.15.3 Location, Extent, and Probability of Future Events

The likelihood of damages to the electrical transmission and distribution systems are high across the counties. Due to weather extremes which occur in all parts of the counties, these occurrences are unpredictable and can cause significant damages. All areas are affected as electrical power is used for residential and commercial purposes as well as agricultural land needs. Severe weather events cause outages on a regular basis during all seasons. However, since this is outside of the Planning Committees' areas of expertise, the probability of future occurrences cannot be determined.

Any disruption in the supply of energy, water or utility causes human suffering and economic loss. The causes of most of shortages are beyond control of local governments. Responses to these emergencies may include rationing, and emergency supply distribution. Within White Pine County, sewer treatment plants in Ely, Ruth and McGill would be affected by a power outage. Very few of these types of facilities in White Pine County have back-up generators. A large power outage affecting mining operations in either White Pine County or Eureka County could shut down their processing for several days.

5.2.16 Wildland Fire

Planning Significance –	White Pine Co. — High
	City of Ely — Medium
	Eureka Co. — Very High

5.2.16.1 Nature

A wildland fire is a type of wildfire that spreads through consumption of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. In addition to wildland fires, wildfires can be classified as urban fires, interface or intermix fires, and prescribed fires.

The following three factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas.

- **Topography:** As slope increases, the rate of wildland fire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridge tops may mark the end of wildland fire spread, since fire spreads more slowly or may even be unable to spread downhill.
- **Fuel:** The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the "fuel load"). The ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought, as the moisture content of both living and dead plant matter decreases. The fuel's continuity, both horizontally and vertically, is also an important factor.
- **Weather:** The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

The frequency and severity of wildland fires also depends upon other hazards, such as lightning, drought, and infestations. If not promptly controlled, wildland fires may grow into an emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. In addition to affecting people, wildland fires may severely affect livestock and pets. Such events may require emergency watering/feeding, evacuation, and shelter.

The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby increasing

flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards, as described above.

5.2.16.2 History

White Pine County
Fires in White Pine County and the City of Ely are managed by the White Pine County Fire Department, City of Ely Fire Department, Lackawanna Volunteer Fire Department, McGill Volunteer Fire Department, and the Ruth Volunteer Fire Department. The Bureau of Land Management Ely Field Office, the Humboldt-Toiyabe Ely Ranger District, and the Great Basin National Park (GBNP) fire department also provide mutual aid for wildland fires.

White Pine County from 1994 to 2004 has had 87 wildland fires with extensive acreage burned. Between 1980 and 2003, approximately 3 percent of White Pine County, 154,109 acres, burned in wildland fires. The largest fires recorded in the county occurred in 1995 and burned approximately 46,175 acres. Please see the table below for historical fire data. Data from 1980-2003 includes all fires. For 2004 to 2017, only large fires over 100 acres for timber or 300 acres for grass/brush are listed in this report.

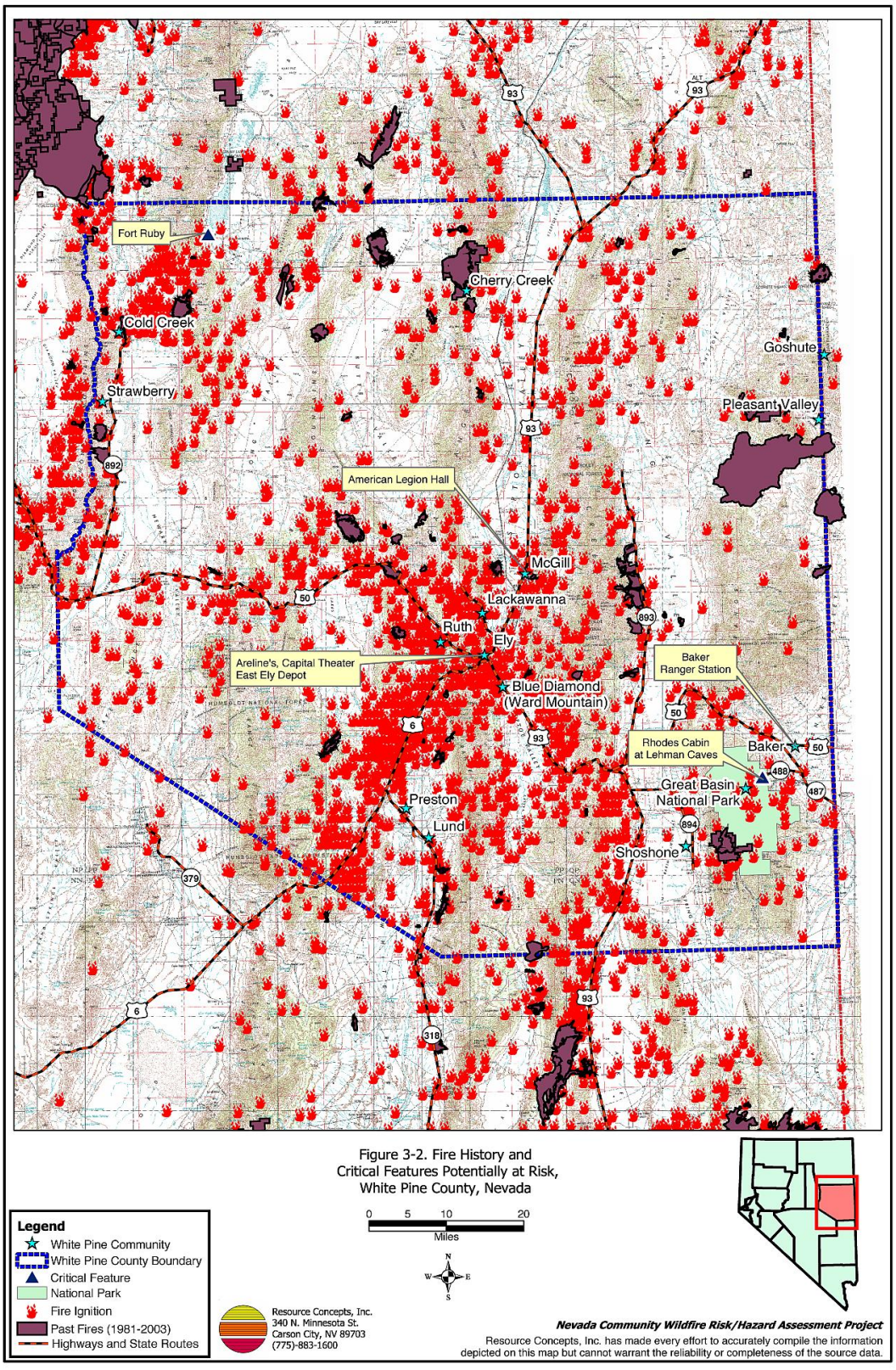
Table 5-18: White Pine County Summary of Fire History Data, 1980-2017

Year	Number of Fire Ignitions	Total Fire Acreage
1980	51	10
1981	71	1,442
1982	31	916
1983	27	2,542
1984	33	4,228
1985	107	4,387
1986	88	4,971
1987	76	11,724
1988	98	1,875
1989	63	244
1990	53	529
1991	68	271
1992	94	147
1993	41	423
1994	48	4,562
1995	26	50,277
1996	74	624
1997	27	474
1998	66	1,627
1999	83	2,204
2000	92	40,274
2001	210	18,736
2002	54	171
2003	102	541
2004	3	5,336

2005	1	750
2006	8	13,542
2007	4	9,548
2008	0	0
2009	0	0
2010	1	305
2011	0	0
2012	4	27,885
2013	4	5,122
2014	5	22,471
2015	5	7,878
2016	3	13,140
2017	3	1,699
TOTAL	1724	260,875
Sources: RCI, Nevada Community Wildfire Risk/Hazard Assessment Project; White Pine County Fire Department; City of Ely Fire Department; Nevada Division of Forestry, http://forestry.nv.gov/fire-program/; Western Great Basin Coordination Center, http://gacc.nifc.gov/wgbc/predictive/intelligence/ytd_historical/paststatistics/Past_Season_Statistcs.html		

Please see the figure below for historical fire locations map.

Figure 5-8: White Pine County Fire History Map



Eureka County

Fires in Eureka County are managed by six local, volunteer fire departments located in Beowawe, Crescent Valley, Diamond Valley, Dunphy, Eureka, and Pine Valley, and organized as part of the Nevada Division of Forestry Eureka County Fire Protection District. The Bureau of Land Management is the biggest land administrator in Eureka County and provides wildfire protection with resources dispatched from the Central Nevada Dispatch Center in Winnemucca and the Elko Interagency Dispatch Center in Elko. There is a consistent and active record of wildland fire occurrences in Eureka County (Nevada BLM State Office 2004). From 1980 to 2003, the recorded data shows that almost 22 percent of the County has burned. Many additional small fires that are caused by lightning go unreported. Please see the table below for historical fire data. Data from 1980-2003 includes all fires. For 2004 to 2017, only large fires over 100 acres for timber or 300 acres for grass/brush are listed in this report.

Table 5-19: Eureka County Summary of Fire History Data, 1980-2017

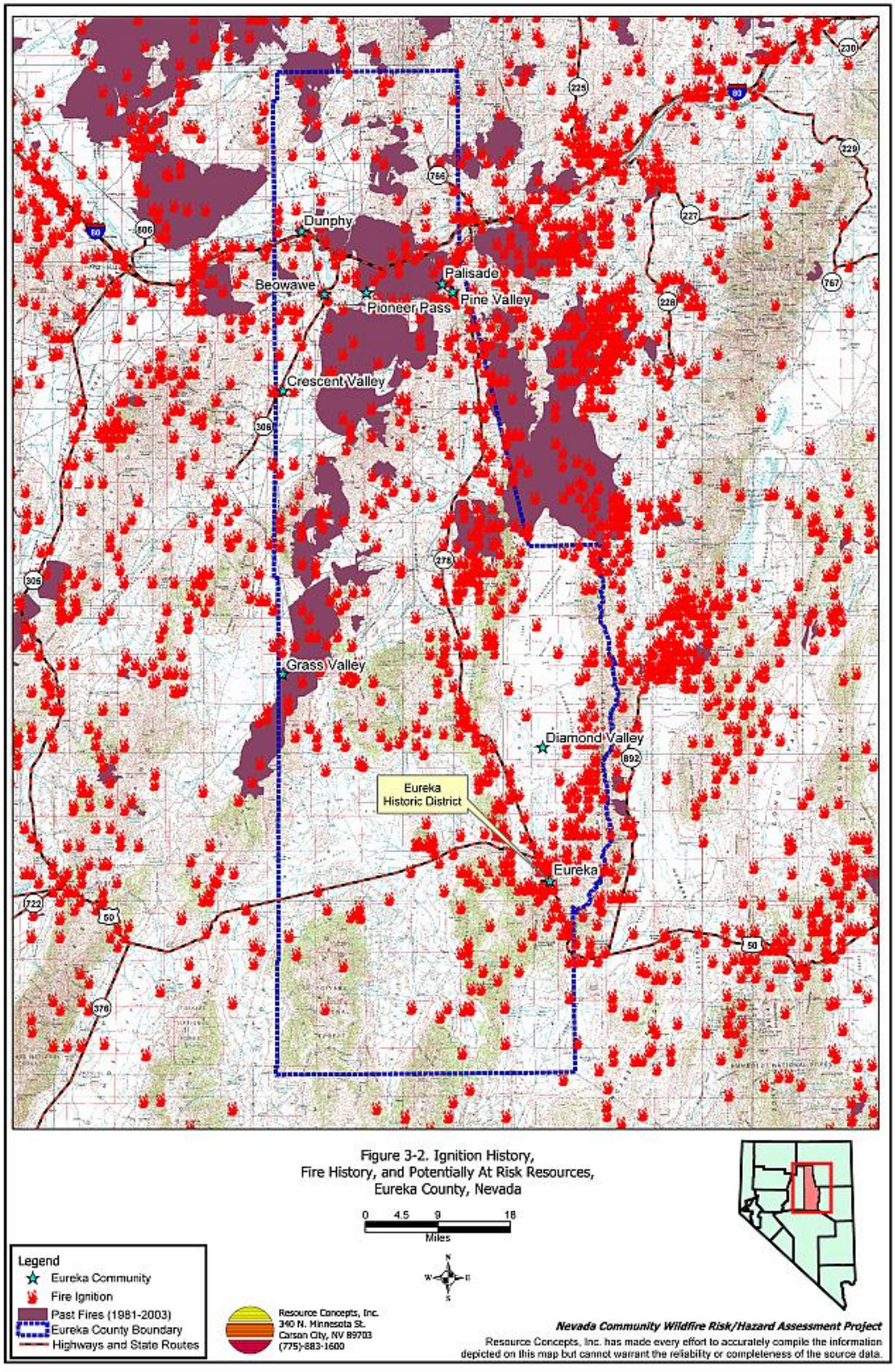
Year	Number of Fire Ignitions	Total Fire Acreage
1980	16	303
1981	28	5,268
1982	22	3
1983	9	9,721
1984	14	12,693
1985	44	71,171
1986	31	4,915
1987	10	2,118
1988	16	1,663
1989	21	3,129
1990	13	30
1991	18	26
1992	19	6,005
1993	16	1,595
1994	28	1,557
1995	30	29,226
1996	50	66,956
1997	16	44
1998	18	4,011
1999	146	271,571
2000	30	26,828
2001	41	59,947
2002	29	280
2003	33	77
2004	0	0
2005	5	6,102
2006	0	0
2007	3	32,502
2008	1	185
2009	0	0
2010	1	1,300

2011	0	0
2012	2	13,126
2013	1	556
2014	0	0
2015	2	7,323
2016	2	2,787
2017	12	57,781
TOTAL	727	700,799

Sources: RCI, Nevada Community Wildfire Risk/Hazard Assessment Project; Eureka County; Nevada Division of Forestry, http://forestry.nv.gov/fire-program/; Western Great Basin Coordination Center, http://gacc.nifc.gov/wgbc/predictive/intelligence/ytd_historical/paststatistics/Past_Season_Statistcs.html

Please see the figure below for historical fire locations map.

Figure 5-9: Eureka County Fire History Map



5.2.16.3 Location, Extent, Probability of Future Events

White Pine County

Communities in White Pine County have a moderate to high risk for a catastrophic wildland fire event. Cherry Creek is considered at high risk due to inadequate defensible space and limited firefighting capabilities and water supply. Additionally, this is exacerbated by the topography and high and extreme hazard fuels. The remaining communities have a slightly lesser potential for a catastrophic wildland fire primarily due to low or moderate hazard vegetation and adequate implementation of defensible space. Great Basin National Park, Shoshone and Strawberry were not given a hazard rating due to their rural interface condition.

The Nevada Community Wildfire Risk/Hazard Assessment Project for White Pine County, completed in April 2005, identified the need for the community and its residents to focus on fuel reduction efforts. The assessment generally speaks to protecting the built environment from the threats of wildland fire. The assessment results are as follows.

Table 5-20: White Pine Wildfire Assessment Summary by Community

Community	Hazard Rating
Baker	Moderate
Blue Diamond	Moderate
Cherry Creek	High
Cold Creek	Moderate
Ely	Moderate
Goshute	Moderate
Great Basin National Park	N/A*
Lackawanna	Moderate
Lund	Moderate
McGill	Moderate
Pleasant Valley	Moderate
Preston	Moderate
Ruth	Moderate
Shoshone	N/A*
Strawberry	N/A*
Source: RCI County Wide Assessment Results, www.rci-nv.com/reports/whitepine/section04.html	

*The Community Hazard Assessment procedures are not applicable to rural communities.

Based on historical records, White Pine County can anticipate nearly 29 wildland fire starts per year. While a very small percentage (less than 1%) of the fires will exceed 20 acres. See Appendix B, Figure B-9 for White Pine County Wildfire Exhibit.

Eureka County

Communities in Eureka County have a low to high risk for a catastrophic wildland fire event. The Town of Eureka is considered at high risk due to poor signage, high potential for hazardous fire behavior, limited fire suppression capability, and high-density housing. Other communities with high fuel hazard conditions in the interface include Beowawe, Palisade, and Pine Valley.

However, Beowawe and Palisades were rated as a moderate risk for a catastrophic wildland fire event.

The Nevada Community Wildfire Risk/Hazard Assessment Project for Eureka County, completed in May 2005, identified need for the community and its residents to focus on fuel reduction efforts and creating defensible space. The assessment generally speaks to protecting the built environment from the threats of wildland fire. The assessment results are as follows.

Table 5-21: Eureka Wildfire Assessment Summary by Community

Community	Hazard Rating
Beowawe	Moderate
Crescent Valley	Low
Diamond Valley	Moderate
Dunphy	Low
Eureka	High
Grass Valley	N/A*
Palisade	Moderate
Pine Valley	N/A*
Pioneer Pass	Moderate
Source: RCI County Wide Assessment Results, www.rci-nv.com/reports/Eureka/section04.html	

*The Community Hazard Assessment procedures are not applicable to rural communities.

Based on historical records, Eureka County can anticipate nearly 76 wildland fire starts per year. While a very small percentage (less than 1%) of the fires will exceed 20 acres. See Appendix B, Figure B-9 for White Pine County Wildfire Exhibit.

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A vulnerability analysis predicts the extent of exposure that may result from a hazard event of a given intensity in a given area. The analysis provides quantitative data that may be used to identify and prioritize potential mitigation measures by allowing communities to focus attention on areas with the greatest risk of damage. A vulnerability analysis consists of the following six steps: assets inventory, methodology, data limitations, exposure analysis, and summary of impacts.

6.1 ASSET INVENTORY

Asset inventory is the first step of a vulnerability analysis. Assets within each community that may be affected by hazard events include population, residential and non-residential buildings, and critical facilities and infrastructure. Assets and insured values throughout the Counties are identified and discussed in detail below.

6.1.1 Population and Building Stock

Population data for the Counties was obtained from the NV State Demographer estimate of 2017 and shown in Table 6-1. The Nevada State Demographer's Office maintains annual population estimates by county. Estimated numbers and replacement values for both residential and nonresidential buildings, as shown in Table 6-1, were obtained from the HAZUS-MH 2014 run for earthquake by the Bureau of Mines & Geology, UNR.

The residential buildings considered in this analysis include single-family dwellings, mobile homes, multi-family dwellings, temporary lodgings, and nursing homes. Nonresidential buildings were also analyzed including commercial, industrial, agricultural, government, educational, and religious centers.

The HAZUS-MH 2014 run for earthquake by the Bureau of Mines & Geology, UNR, was reviewed the HAZUS-MH software presents a data limitation by which this software identifies nonresidential buildings by square footage resulting in some nonresidential buildings not being counted. Additionally, through discussion with the Planning Committees, it was determined that residential building values were low. Therefore, residential buildings throughout the analysis were multiplied by an average replacement value of $177,600 which represents a 1,200 sq. ft. home at $148/sq. ft. building cost. The cost per square footage for residences was obtained from the International Code Council Building Valuation Data dated August 2017. Un-reinforced masonry (URM) building information was obtained from the HAZUS-MH 2014 run for earthquake by the Bureau of Mines & Geology, UNR.

Although the building count or value may not be precise, whether residential or nonresidential, this analysis will meet the intention of DMA 2000 by providing County and City residents with an accurate visual representation of their community's risk by hazard. This data is the most complete dataset available at the time and will be updated in future version of the HMP.

Table 6-1: Estimated Population and Building Inventory

Population	Residential Buildings		Nonresidential Buildings	
NV Demographer Projected 2017 Population	Total Building Count	Total Value of Buildings (in millions)	Total Building Count	Total Value of Buildings (in millions)
White Pine County				
10,705	3,776	671	104	153
City of Ely				
4,267				
Eureka County				
1,932	723	128	18	46

Source: State of Nevada Demographer, Data acquired from Nevada Bureau of Mines and Geology Open-file Report 14-5, HAZUS-MH

Figures for White Pine County include those located within the City of Ely.

6.1.2 Critical Facilities and Infrastructure

A critical facility is defined as a public or private facility that provides essential products and services to the general public, such as preserving the quality of life in the County and City and fulfilling important public safety, emergency response, and disaster recovery functions. They are identified in Table 6-2.

Similar to critical facilities, critical infrastructure is defined as infrastructure that is essential to preserve the quality of life and safety in the County. Existing County and City roads were not critical to evacuation or response. Critical infrastructure is identified in Table 6-2.

Table 6-2: White Pine County Critical Facilities and Infrastructure

Category	Type	Number	Estimated Total Value of Structure or Roadway (millions of $)
White Pine County			
Critical Facilities	Sheriff Stations/Jail	2	6.3
	Fire Stations	8	13.14
	EOC & County Admin	6	30
	Public Primary and Secondary Schools	11	200
	Hospital/Emergency Room & Urgent Care/Ambulance	5	65
	Lifeflight Air Ambulance & Hangar	1	$700,000
	Communication Facilities (County Owned)	14	.53
Critical Infrastructure	State and Federal Highways (miles)	410	2747.10*
	Local Roads Including Storm Drainage Systems	1,000	6700.24
	Airport Facilities	1	113.50
	Bridges	3*	Included in Highway*
	Utilities (Water, Waste Water)	3	535.50

City of Ely			
Critical Facilities	Fire Stations & City Admin	4	6
Critical Infrastructure	State and Federal Highways (miles)	4	26.8
	Local Roads Including Storm Drainage Systems	53	355.11
	Railroad Facilities	1	117.80
	Utilities (Water, Waste Water, Gas, Land Fill, Water Tanks, Pump Houses)	15	20

Source: FEMA HAZUS-MH, White Pine County Emergency Management, City of Ely Fire Department, NV Division of Emergency Management, William B. Ririe Hospital, White Pine County School District, NV Dept. of Transportation.

Table 6-2: Eureka County Critical Facilities and Infrastructure

Category	Type	Number	Estimated Value Per Structure/Mile (millions of $)
Eureka County			
Critical Facilities	Sheriff Stations/Jail	2	6.0
	Fire Stations	6	7.0
	EOC & County Admin	11	40.0
	Public Primary and Secondary Schools	3	37.0
	Hospital/Emergency Room & Urgent Care/Ambulance	4	4.0
	Communication Facilities (County Owned)	3 (3 on each mountain)	1.5
Critical Infrastructure	State and Federal Highways (miles)	195	1,330.10
	Airport Facilities	2	79.6
	Railways (Segments)	20	89.30
	Bridges	22	Included in Highway
	Utilities (Water, Waste Water, Landfill)	5	382.70

Source: FEMA HAZUS-MH, Eureka Emergency Management, Eureka County Public Works, NV Division of Emergency Management, Eureka County School District, NV Dept. of Transportation.

6.2 METHODOLOGY

A conservative exposure-level analysis was conducted to assess the risks of the identified hazards. Hazard areas were determined using information provided by the U.S. Seasonal Drought Monitor, HAZUS, Nevada Bureau of Mines and Geology, and NWS. This analysis is a simplified assessment of the potential effects of the hazard on values at risk without consideration of probability or level of damage.

Using GIS, the building locations of critical facilities were compared to locations where hazards are likely to occur. If any portion of the property where the critical facility was located fell within a hazard area, it was counted as impacted. Using census block level information, a spatial proportion was used to determine the percentage of the population and residential and nonresidential structures located where hazards are likely to occur. Census blocks that are completely within the boundary of the hazard area were determined to be vulnerable and were totaled by count. A spatial proportion was also used to determine the amount of linear assets, such as highways and pipelines, within a hazard area. The exposure analysis for linear assets was

measured in miles. For drought, population was the only asset analyzed, as drought mainly affects people and agricultural lands.

Replacement values or insurance coverage were developed for physical assets. These values were obtained from the County's Assessor's Office, School District, Planning, Public Works, and HAZUS-MH 2014 run. For facilities that did not have specific values per building in a multi-building scenario (e.g., schools), the buildings were grouped together and assigned one value. For each physical asset located within a hazard area, exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced). Finally, the aggregate exposure, in terms of replacement value or insurance coverage, for each category of structure or facility was calculated. A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared except for earthquake (HAZUS-MH 2014).

6.3 DATA LIMITATIONS & FUTURE DEVELOPMENT

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in an approximation of risk. These estimates may be used to understand relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

The resulting analysis was compiled to the highest degree possible with the hardware, software and data availability limitations discovered during plan preparation. HAZUS was able to determine the population and critical facilities within a given hazard area and from there a limited assessment was derived. In the situation of Drought & Epidemic, where structures would not usually be affected the term N/A (not applicable) is used.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people, buildings, and critical facilities and infrastructure to a hazard. It was beyond the scope of this HMP to develop a more detailed or comprehensive assessment of risk (including annualized losses, people injured or killed, shelter requirements, loss of facility/system function, and economic losses). Such impacts may be addressed with future updates of the HMP.

6.3.1 Future Development

Both White Pine County and Eureka County have fluctuating population rates due to the "boom or bust" nature of the mining industry. The State Demographer estimates that White Pine County will have an average -1.78% growth in population over the next five years. Eureka County is estimated to have a 1.4% growth rate over the next five years. This is a decrease from previous years for both counties and considerably different than the overall State population increase of 1.12% for the same time period. This is attributable to current mining activity.

White Pine County has a definite need for housing, particularly affordable housing. Many existing homes while vacant are dilapidated beyond repair. Since the last update, a truck stop was constructed in White Pine County and a new mine. However, plans of two new power plants, which also included construction of housing units needed for employment, did not come to fruition. In its place a small wind farm was constructed that only resulted in 10 new jobs.

In Eureka County, a new grocery and hardware store was constructed, however, future development trends remain flat.

While there may be a significant amount of land in these Counties that have potential to be developed for residential and commercial growth, there are development constraints which include water availability, remoteness, and shopping. As discussed in Section 3 – Community Description, directly and indirectly, mining activity will be the primary cause for increased or decreased growth within the Counties.

Nevada's economy has seen a substantial improvement in the last year; however, it remains in recovery mode with the majority of the metrics remaining below their peaks in 2006 and 2007 before the great recession. Population growth for the overall state is low while unemployment rates have decreased. However, it is expected that the State can expect steady, incremental growth in the economy in the next few years. For the purposes of this plan, significant growth over the next five years is not expected; growth from 2018 to 2036 is expected to be a total of approximately 7%.

During this plan update, the numbers and values of the figures in the Table 6-3 and 6-4 below were updated to reflect these changes. During future plan maintenance activities this should be reviewed and during the next plan update process growth can be revisited.

6.4 EXPOSURE ANALYSIS

The requirements for a risk assessment, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment, Assessing Vulnerability, Overview

Assessing Vulnerability: Overview

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.

Element

- Does the new or updated plan include an overall summary description of the jurisdiction's vulnerability to each hazard?
- Does the new or updated plan address the impact of each hazard on the jurisdiction?

Source: FEMA 2008.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Identifying Structures

Assessing Vulnerability: Identifying Structures

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 area.

Element

- Does the new or updated plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located in the identified hazard areas?
- Does the new or updated plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?

Source: FEMA 2008.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Estimating Potential Losses

Assessing Vulnerability: Estimating Potential Losses
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.

Element

- Does the new or updated plan estimate potential dollar losses to vulnerable structures?
- Does the new or updated plan reflect changes in development in loss estimates?
- Does the new or updated plan describe the methodology used to prepare the estimate?

Source: FEMA 2008.

The results of the exposure analysis are summarized in Tables 6-3 and 6-4 and in the discussion below. The results in this exposure analysis were greatly affected by the hardware, software and data availability limitations described above. The significant hazards designated as high and moderate are included in the exposure analysis below.

Table 6-3: Potential Hazard Vulnerability Assessment – Population and Buildings

Hazard	Population[4]	Buildings			
		Residential		Nonresidential	
	Number	Number[2,3]	Value ($)[1,3]	Number[2,3]	Value ($)[1,3]
Total for White Pine County	10,705	3,776	671	104	153
Drought	10,705	3,776	N/A	104	N/A
Earthquake –Magnitude 6.0[2] (30-40% chance in 50 years)	10,705	101	17.9	23	33.8
Epidemic	10,705	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	[6]	[6]	[6]	[6]	[6]
Severe Weather – High – 30% of population & 10% buildings	3212	378	67.1	10	14.7
Utilities	10,705	N/A	N/A	N/A	N/A
Wildland Fires – High[5]	72	34	6	0	0
Total for Eureka County	1,932	723	128	18	46
Drought	1,932	723	N/A	18	N/A
Earthquake –Magnitude 6.0[2] (30-40% chance in 50 years)	1,932	195	34.6	17	43.4
Epidemic	1,932	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	552	75	13.3	64	94.15
Hazardous Materials Event – 1-mile radius hazardous facilities & 1-mile transport corridors	1,384	572	101.6	105	268
Severe Weather – High –35% of population & 1% buildings	676	8	1.4	1	2.5
Utilities	1,932	N/A	N/A	N/A	N/A
Wildland Fires –High[5]	446	220	42.6	0	0

[1] Value = Estimated Market value Million Data acquired from HAZUS N/A = Not Applicable
[2] Data acquired from Nevada Bureau of Mines and Geology HAZUS-MH 2014
[3] Data acquired from White Pine County Assessor's Office
[4] Data source Nevada State Demographer
[5] Data source Resource Concepts Report, http://www.rci-nv.com/home/rci-reports/
[6] A level 1 HAZUS was performed for the flood vulnerability assessment. However, the amounts derived were inconsistent with this area. This information will need to be refined in the next update of the plan.

Table 6-4: Potential Hazard Vulnerability Assessment – Critical Facilities

	EOC & Admin Offices (?)		Sheriff Stations Jail (5)		Fire Station (4)		Hospital/ Ambulance Urgent Care Facilities (3)		Schools (7)		Communication Facilities (6)		Water / Sewer Facilities (2)	
Hazard	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]
White Pine County														
Drought	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake - Magnitude 6.0[2]	2	10	0	0	0	0	0	0	3	55	0	0	0	0
Epidemic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	0	0	0	0	0	0	0	0	1	18.2	0	0	0	0
Flood – 500 – Year Flood Zone	0	0	0	0	1	1.64	0	0	0	0	0	0	0	0
Severe Weather	0	0	0	0	0	0	0	0	0	0	11	.53	0	0
Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildland Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$ Value in Millions

*Various Sewage Lift Station.

Table 6-4: Potential Hazard Vulnerability Assessment – Critical Facilities

	EOC & Admin Offices (11)		Sheriff Stations Jail (5)		Fire Station (4)		Hospital/ Ambulance Urgent Care Facilities (3)		Schools (7)		Communication Facilities (6)		Water / Sewer Facilities (2)	
Hazard	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]
City of Ely														
Drought	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake - Magnitude 6.0[2]	1	6	0	0	0	0	0	0	0	0	0	0	0	0
Epidemic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Severe Weather	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildland Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$ Value in Millions

*Included in EOC & Admin Offices Value

**Various Sewage Lift Station.

Table 6-4: Potential Hazard Vulnerability Assessment – Critical Facilities

	EOC & Admin Offices (11)		Sheriff Stations Jail (2)		Fire Station (6)		Hospital/ Ambulance Urgent Care Facilities (4)		Schools (3)		Communication Facilities (3)		Water / Sewer Facilities (5)	
Hazard	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]	Number	Value ($)[1]
Eureka County														
Drought	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake - Magnitude 6.0[2]	0	0	0	0	0	0	0	0	0	0	0	0	1	2.2
Epidemic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials Event – 1-mile radius hazardous facilities & 1-mile buffer transport corridors	11	40	1	3	4	4.7	2	2	3	37	0	0	5	382.7
Severe Weather	0	0	0	0	0	0	0	0	0	0	9	1.5	0	0
Utilities														
Wildland Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$ Value in Millions

*Various Sewage Lift Station.

6.4.1 Drought

According to the U.S. Seasonal Drought Monitor, the entire area of the County is at equal risk to a drought event. The entire population of White County, 10,705, City of Ely, 4,267, and Eureka County, 1,932, may be affected by the drought; however, buildings and critical facilities would just be limited in their use but would not be damaged.

In addition to building inventory drought would affect agriculture, recreation, and wetlands all which rely on water. The Counties agriculture yields a wide variety of crops and livestock. The Nevada Agricultural Statistics Bulletin 2016 reports that Eureka County sold $36,020,000 in agricultural products (crops and livestock) and White Pine County sold $20,651,000.

6.4.2 Earthquakes

White Pine County

Using HAZUS-MH earthquake perimeters of a 6.0 magnitude event which has a 30-40% chance of happening in the next 50 years according to NBMG, 3% of the buildings will be at least moderately damaged. This includes the addition of all structures including sheds, carports, detached garages and other auxiliary buildings. The estimated damages sustained from moderate to severe could be up to 101 residential buildings (worth $17.9 million), and 23 non-residential buildings (worth $33.8 million) all within close proximity to fault lines.

The HAZUS run indicated that the hospital will have minor damage limiting its bed availability to up 72% for one week after the event. Eight schools, 1 police station and the 1 fire station would be affected by more than 50% functionality. The communication facilities for the County and City would have an estimated damage of $20K and the water/sewer facilities had estimated damages of $110M. The Planning Committee determined that due to the proximity of the faults that numerous critical facilities are at risk to perceived severe shaking; they include:

White Pine County:

Cherry Creek School/Museum, Middle School, and Murray Street School ($55 million)
Courthouse Complex and Senior Center ($10 million)

City of Ely:

City Complex ($6 million)

The entire population of the County and City (10,705) is considered impacted by an earthquake due to potential road and utility damage, critical infrastructure damage leading to reduced services, in addition to building damage. The HAZUS-MH estimates that no deaths, hospitalizations, or injuries requiring medical attention will occur.

The percentage of building damage (3%), total building numbers, affected population, were obtained from the HAZUS-MH run dated July 31, 2014 from the Bureau of Mines and Geology. Non-residential building values were calculated from the HAZUS-MH run, while residential buildings were valued by an average replacement value of $177,600. The affected critical infrastructure building and values were calculated from the County's Assessors Office and the Planning Committee.

Eureka County

Using HAZUS-MH earthquake perimeters of a 6.0 magnitude event which has a 30-40% chance of happening in the next 50 years according to NBMG, 21% of the buildings will be at least moderately damaged. This includes the addition of all structures including sheds, carports, detached garages and other auxiliary buildings. The 9% estimated damages sustained from moderate to severe could be up to 195 residential buildings (worth $34.6 million), and 17 non-residential buildings (worth $43.4 million) all within close proximity to fault lines.

The HAZUS run all 3 schools and 1 fire station would be affected by more than 50% functionality. There were no damages estimated for communication facilities or for water and sewer facilities. The Planning Committee determined that due to the proximity of the faults that only one critical facility was at risk to perceived severe shaking which is a water storage tank estimated at $2.2 million.

The entire population of the County (1,932) is considered impacted by an earthquake due to potential road and utility damage, critical infrastructure damage leading to reduced services, in addition to building damage. The HAZUS-MH estimates that no deaths, hospitalizations, or injuries requiring medical attention will occur.

The percentage of building damage (21%), total building numbers, affected population, were obtained from the HAZUS-MH run dated July 30, 2014 from the Bureau of Mines and Geology. Non-residential building values were calculated from the HAZUS-MH run, while residential buildings were valued by an average replacement value of $177,600. The affected critical infrastructure building and values were calculated from the County's Assessors Office and the planning committee.

Un-reinforced Masonry Buildings

Nevada Bureau of Mines and Geology has a contract with Advanced Data Solutions to inventory the un-reinforced masonry buildings within the State. In White Pine County, the report showed that 139 commercial buildings and 93 residential buildings were constructed of un-reinforced masonry. In Eureka County, the report showed and unknown number of Commercial Buildings and 35 residential buildings (totaling 50,598 square foot). These buildings would have significantly more damage during an earthquake than other buildings. In White Pine County, unreinforced masonry buildings accounted for $16.5M in residential buildings and $85.3M in commercial buildings. In Eureka County, unreinforced masonry buildings accounted for $6.2M in residential buildings based on $148/square foot. The data from the report can be used by the Counties and City to identify and target structures for reinforcement. UNR will be using the data to up-grade information for future HAZUS runs.

6.4.3 Epidemics

Epidemic was included as a possible hazard to the citizens of both Counties. The entire populations of White County, 10,705, including the City of Ely, and Eureka County, 1,932, may be affected by the illness however building and critical facilities would just be limited in their use but would not be damaged.

6.4.4 Floods

A level 1 HAZUS was performed for the flood vulnerability assessment. However, the amounts derived were inconsistent with this area. For this update, only values were updated. This information will need to be refined in the next update of the plan. Based on the Digital FIRMs were used for to determine exposure to critical facilities, which identified the Murray Street School ($18.2 million). There are no repetitive loss or severe repetitive loss structures (as defined by NFIP) within the 100-year flood plain.

Digital FIRMs were used for Eureka County to estimate at risk population and buildings. Within Eureka County, the population at risk within the 100-year floodplain area is 552 or 28% of the population. The risk posed by the 100-year flood is moderate with 75 homes within or immediately adjacent to the 100-year floodplain. The exposure to the 75 residential buildings is $13.3 million, exposure to the 64 nonresidential buildings is $94.15 million, which includes exposure to one critical facility – a fire station, ($1.64 million). The affected population, building inventories, and values were calculated from the State Demographer and Eureka County Assessor's office. There are no repetitive loss or severe repetitive loss structures (as defined by NFIP) within the 100-year flood plain.

6.4.5 Hazardous Materials Events

White Pine County

White Pine County did not have GIS mapping readily available to calculate the potential exposure to residents and buildings located within a one-mile radius of hazardous facilities and a one-mile radius from Highway 50 and Highway 93 intersections (a central transportation corridor), see Figure B-3. However, this information will be pursued in order to be included in the plan update.

Eureka County

Using GIS mapping of a one-mile radius of hazardous facilities and a one-mile radius from Interstate 80, Highway 50, State Routes 278, 306, 766, 780, and the Union Pacific Railroad, see Figure B-8, Eureka County estimated that 1,384 people are within the 1-mile buffer for both. Building exposure includes 572 or $101.6 million residential buildings and 105 or $268 million non-residential for a hazardous materials event. The affected population, building inventories, and values were calculated from the County's Assessors Office information using GIS mapping for the percentage affected.

The critical facilities exposure to a hazardous materials spill is high since most of the facilities reside within the one-mile radius. They include the following:

County:

EOC & Administration Offices ($40 million)
Sheriff Stations/Jail ($6 million)
Fire Stations ($7 million)
Medical Clinics & Ambulance Services ($4 million)
Eureka County School District (3 Schools $37 million)
Various Utilities ($382.7 million)

6.4.6 Severe Weather

Using winter storm data provided by the National Weather Service (NWS), risk posed by winter storms were calculated for the Counties.

White Pine County

All population and buildings are within the severe winter storm hazard area; however, homes and buildings within the area are built to withstand a degree of severe weather. The White Pine County Planning Committee determined that a severe winter storm or wind event may affect 30% of population (due to road closures) and 10% of the buildings which are 3,212 County residents and 1280 City residents, 378 County residential buildings (worth $67.1 million), 10 nonresidential buildings (worth $14.7M) and fourteen critical facilities (worth $.53 million). The affected population, building inventories, and values were calculated from the Nevada State Demographer, the County's Assessors office, and HAZUS MH.

Eureka County

All population and buildings are within the severe winter storm hazard area; however, homes and buildings within the area are built to withstand a degree of severe weather. The Eureka County Planning Committee determined that a severe winter storm or wind event may affect 35% of population (due to road closures) and 1% of the buildings which are 676 residents, 8 residential buildings (worth $1.4 million), 1 nonresidential building (worth $2.5M), and nine critical communication facilities (worth $1.5 million). The affected population, building inventories, and values were calculated from the Nevada State Demographer, the County's Assessors office, and HAZUS MH.

6.4.7 Utility Loss/Power Loss

Utility loss was included as a possible hazard to the citizens of the Counties. The entire population of White County, 10,705 persons, including the City of Ely, and Eureka County, 1,932 persons, would be affected by the loss however buildings and critical facilities would just be limited in their use, not damaged. The hospital in White Pine County has back-up generators along with some of the county buildings including the Public Safety building and the Emergency Services building. In Eureka County, back-up generators are available for the Eureka Fire Station, Eureka Health Clinic, Eureka Sheriff's Office, Eureka Courthouse, Eureka Town water wells and booster station, Diamond Valley Fire Station, Crescent Valley EMS building, Crescent Valley Sheriff's Substation, Crescent Valley Health Clinic, Crescent Valley Town water wells, and Crescent Valley Senior Center.

6.4.8 Wildland Fires

White Pine County

According to the Nevada Community Wildfire Risk/Hazard Assessment Project, by Resource Concepts Inc. (RCI), dated April 2005, for White Pine County, the risk posed by wildland fire is rated moderate to high. The Hazard Mitigation Planning Committee determined the risk to be high. The Cherry Creek area is categorized as high hazard if evaluated separately. Exposed within this high wildland fire hazard area, are 72 people, 34 residential buildings (worth $6 million). There is no extreme wildfire risk in the County according to the RCI report. The affected population, building inventories, and values were calculated from the RCI report.

Eureka County

According to the Nevada Community Wildfire Risk/Hazard Assessment Project, by Resource Concepts Inc. (RCI), dated May 2005, for Eureka County, the risk posed by wildland fire is rated low to high. The Hazard Mitigation Planning Committee LEPC determined the risk to be very high. The town of Eureka is categorized as high hazard if evaluated separately. Exposed within this high wildland fire hazard area, are 446 people, 240 residential buildings (worth $42.6 million). There is no extreme wildfire risk in the County according to the RCI report. The affected population, building inventories, and values were calculated from the RCI report.

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While not required by the DMA 2000, an important component of a hazard mitigation plan is a review of the Counties' and City's resources to identify, evaluate, and enhance the capacity of those resources to mitigate the effects of hazards. This section evaluates the Counties' & City's resources in three areas—legal and regulatory, administrative and technical, and financial—and assesses capabilities to implement current and future hazard mitigation actions.

The Planning Committees reviewed the capabilities as listed in the 2014 plan. Since the last plan update, there have been several changes in the County's capabilities. For legal and regulatory capabilities, White Pine County and the City of Ely has implemented IBC 2012. In Eureka County, building codes for commercial and community facilities are regulated by the State Fire Marshall and therefore incorporate disaster resistant regulations for construction. White Pine County and the City of Ely have updated their Emergency Response Plans and Eureka County is currently in the process of updating them. Eureka County completed the Eureka County Water Resources Master Plan in 2016 and the Joint Water Conservation Plan for the Town of Eureka Water System, Devil's Gate GID District #1 and District #2 Crescent Valley Town Water System. Due to changes in staff and positions, the Administrative and Technical Capabilities and Section 7.4 was also updated.

7.1 LEGAL AND REGULATORY CAPABILITIES

The Counties and City currently support hazard mitigation through their regulations, plans, and programs. The White Pine County's and City of Ely's Building Codes outline hazard mitigation-related ordinances. Additionally, the Eureka County Master Plan identifies goals, objectives, and actions for natural hazards, including floods and drought. In addition to policies and regulations, the Counties carry out hazard mitigation activities by participating in the National Flood Insurance Program (NFIP) see section 7.4.1.

The following table, Table 7-1, summarizes the Counties' and City's hazard mitigation legal and regulatory capabilities.

Table 7-1: Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Title	Effect on Hazard Mitigation
Plans	Eureka County Master Plan	Updated 2010. Lists goals for coordination, neighborhood design, public awareness, floodplain & hazard area development to guide land use planning.
	White Pine County Comprehensive Economic Development Strategy	Updated 2012. Business Development.
	White Pine County Public Lands Policy Plan	Updated 2009. The plan was developed to promote planning, effective communication, and coordination between federal and state governments, in concert with its citizens, in order to establish a set of policies for the proper use of public lands.
	White Pine County School Emergency Response Plan	2016. Standardized "All Hazards" school emergency operations plan addressing the four phases of emergency management, (Prevention/Mitigation, Preparedness, Response, and Recovery).

Table 7-1: Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Title	Effect on Hazard Mitigation
	Nevada Community Wildfire Risk/Hazard Assessment Project: Eureka County	2005. Provides Wildfire hazards. Enables the County to mitigate fuel loads.
	Nevada Community Wildfire Risk/Hazard Assessment Project: White Pine County	2005. Provides Wildfire hazards. Enables the County to mitigate fuel loads.
	White Pine Hazardous Materials Contingencies	2016. Provides emergency response to reduce impact of HAZMAT spill.
	Eureka County Hazardous Materials Response Plan	2012. Provides emergency response to reduce impact of HAZMAT spill.
	Eureka County School District School Emergency Response Plan	2017. Provides emergency response procedures for natural disasters and other emergencies. Was recently updated to include active shooter prevention and single point of entry.
	Eureka County Emergency Operations Plan	2009. Provide directives to reduce future hazard impact. Currently being updated.
	Eureka County Water Resources Master Plan	2016. Promotes the development and protection of water resources and raises awareness of the potential threat of flooding.
	Joint Water Conservation Plan for the Town of Eureka Water System, Devil's Gate GID District #1 and District #2 Crescent Valley Town Water System	2014. Promotes water conservation through public outreach, customer education and responsible stewardship.
	Lessons Learned: Summary of Findings and Recommendations for the Blue Ribbon Commission on America's Nuclear Future.	2011. Provide concerns related to the potential public health, safety and economic impacts of transporting spent reactor fuel and other high level radioactive waste along transportation corridor, and associated emergency response requirements.
Programs	National Flood Insurance Program	White Pine County, Eureka County & City of Ely adopts and enforces a floodplain management ordinance to reduce future flood damage. In exchange, the NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners.
Ordinances and Policies	Building Code (IBC 2012) County & City	Master Plan, Land Use Plan Element, Building, Fire, and Zoning codes and ordinances. Provides regulations to reduce hazard impact.
	Fire Code County & City	
	Zoning Ordinances (County & City)	
	Special purpose ordinances	Floodplain management, storm water management, wildfire ordinances, hazard set back requirements

7.2 ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capability assessment identifies the staff and personnel resources available within the Counties & City to engage in mitigation planning and carry out mitigation projects. The administrative and technical capabilities of the Counties and City are listed in Table 7-2.

Table 7-2: Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department / Agency
Counties	
Planner(s) or engineer(s) with knowledge of land development and land management practices	Building, Planning & County Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Building & County Engineer
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Building, Planning, Fire Dept.
Staff with education or expertise to assess the community's vulnerability to hazards	Building, Fire, County Engineer, Emergency Manager
Floodplain manager	Building & County Engineer
Personnel skilled in GIS and/or HAZUS-MH	Building & County Engineer
Scientist familiar with the hazards of the community	UNR, Bureau of Mines & Geology for Earthquakes
Emergency Services	Fire Department, Emergency Management, Sherriff
Finance (purchasing) – Fiscal Management	Finance Director
Public Information Officers, Planner(s)	Sheriff's Office, Fire Department, Executive Staff
City of Ely	
Planner(s) or engineer(s) with knowledge of land development and land management practices	Building, Planning & Public Works
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Building & Public Works
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Building, Planning, Fire Dept., Emergency Mgmt., Police Dept.
Staff with education or expertise to assess the community's vulnerability to hazards	Building, Emergency Management, Public Works
Floodplain manager	City Building
Personnel skilled in GIS and/or HAZUS-MH	Building/Planning
Scientist familiar with the hazards of the community	UNR, Bureau of Mines & Geology for Earthquakes
Emergency Services	Fire Department, Emergency Management, Police
Finance (purchasing) – Fiscal Management	City Clerk
Public Information Officers, Planner(s)	White Pine County Sheriff's Office, Mayor's Office

7.3 FINANCIAL CAPABILITIES

The fiscal capability assessment lists the specific financial and budgetary tools that are available to the Counties and City for hazard mitigation activities. These capabilities, which are listed below include both local and Federal entitlements.

Table 7-3: Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
Local (County & City)	
Authority to levy taxes for specific purposes	Yes. Upon approval of the County Board of Commissioners or City of Ely City Council, staying within the stipulations set forth in the Nevada Revised Statues. While there is the authority in White Pine County, there is not the ability because the County

Table 7-3: Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
	is already at the State Cap.
Capital Improvement Plans and Impact Fees	Not in White Pine County. Assigns impact development fees to finance fire and flood control capital improvement programs.
Community Development Block Grants	Yes. Subject to grant from Fed/State.
Incur debt through general obligation bonds	Yes. Staying within the stipulations set forth in the Nevada Revised Statues. However, White Pine County cannot because there is no tax base to support it.
Incur debt through special tax and revenue bonds	Yes. Upon voter approval, staying within the stipulations set forth in the Nevada Revised Statues. However, White Pine County cannot because there is no tax base to support it.
Incur debt through private activity bonds	Yes. Upon voter approval, staying within the stipulations set forth in the Nevada Revised Statues. However, White Pine County cannot because there is no tax base to support it.
Withhold spending in hazard-prone areas	Yes.
State	
Question #1 State Bond	Funding for Parks which can include re-vegetation.
Federal	
FEMA Hazard Mitigation Project Grants (HMPG) and Pre-Disaster Mitigation (PDM) grants	Provides technical and financial assistance for cost-effective pre-disaster and post-disaster mitigation activities that reduce injuries, loss of life, and damage and destruction of property.
FEMA Flood Mitigation Grant Program (FMA)	Mitigate repetitively flooded structures and infrastructure.
USFA Assistance to Firefighters Grant (AFG) Program	Provide equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire.
FEMA/DHA Homeland Security Preparedness Technical Assistance Program (HSPTAP)	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.
US HUD Community Block Grant Program	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.
EPA Community Action for a Renewed Environment (CARE)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., storm water) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.
EPA Clean Water State Revolving Fund (CWSRF)	A loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.

Table 7-3: Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
CDC Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.

7.4 CURRENT MITIGATION CAPABILITIES & ANALYSIS

7.4.1 White Pine County's Current Mitigation Capabilities & Analysis

The White Pine County's current mitigation programs, projects, and plans, as shown in Table 7-4, are listed as follows.

Table 7-4: White Pine County Local Mitigation Capability Assessment

Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Building	Code Enforcement, Permitting, Flood Plain Mgmt.	Brad Christiansen 775-289-6500	✓	✓		Engineering and Flood Management
City Planning Dept.	Economic Development	Brad Christiansen 775-289-6500	✓	✓		Planning & economic development support
Roads Dept./Public Works	Roads, water, sewer, capital projects, building maintenance, parks	Bill Calderwood 775-293-1241	✓	✓		Construction and culverts; engineering, detailed knowledge of infrastructure
Emergency Management	Emergency Management, Mitigation Plan	TBD 775-293-6500	✓	✓		Familiar w/mitigation grants, knowledge of vulnerability
County Battalion Fire Chief - Wildland Fire	Fuels mitigation, public education	TBD 775-293-6503	✓	✓		Detailed knowledge of vulnerability
School District	Identify and implement mitigation actions for school property	Paul Johnson 775-289-4851 ext. 107	✓	✓		Familiar w/school district infrastructure
Sheriff's Office	Public Safety	Scott Henriod 775-289-8808	✓	✓		Familiar w/terrorist mitigation
Health/Human Services	Social Services	Desiree Barnson 775-293-6528	✓	✓		Familiar w/ epidemic and CDC grants, health capability

The programs, plan, policies and regulations listed above provide a basic framework for mitigation projects. These programs cover the County's infrastructure and program needs and are effective. However, the funding for mitigation projects may not always be available.

The County being small in population has individuals wearing multiple hats; however, they do have strong legal, administrative and financial capabilities in relation to smaller rural counties within Nevada. The County is able to enforce the International Building Code & International Fire Code, Building Code Title 12.09 and 15.05 which restrict building within a floodway, and is a member of the NFIP, in addition to programs for public safety, health and human services, public works and the school district. These programs are run by trained County staff, who are provided the resources to implement and promote the programs. Future implementation may be constrained by budget reduction in the next few years due to the recession.

7.4.2 Eureka County's Current Mitigation Capabilities & Analysis

The Eureka County's current mitigation programs, projects, and plans, as shown in Table 7-4, are listed as follows.

Table 7-5: Eureka County Local Mitigation Capability Assessment

Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	**Facilitate**	**Hinder**	
Public Works/ Emergency Manager	Code Enforcement, permitting, flood plain management, roads, water, sewer, capital projects, building maintenance, parks, emergency management and mitigation plan.	Ron Damele 775-237-5372	✓	✓		Engineering, flood management, construction and culverts, engineering, detailed knowledge of infrastructure; detailed knowledge of vulnerability
Emergency Medical Services	Emergency medical services, emergency management, fuels mitigation, public education.	Kenny Sanders 775-237-7036	✓	✓		Detailed knowledge of vulnerability
Eureka County Battalion Chief - Countywide Fire	Fuels mitigation, public education.	Marcus Lesbo 775-340-6048	✓	✓		Detailed knowledge of vulnerability
Eureka Volunteer Fire Department	Fuels mitigation, public education.	Michael Mears	✓	✓		Detailed knowledge of vulnerability
School District	Identify and implement mitigation actions for school property.	Dan Wold	✓	✓		Familiar w/school district infrastructure
Sheriff's Office	Public Safety	Jesse Watts 775.237.5330	✓	✓		Familiar w/terrorist mitigation
Eureka Clinic	Health Care	Matt Walker775-237-5642	✓	✓		Familiar w/ epidemic and CDC grants, health capability

The programs, plan, policies and regulations listed above provide a basic framework for mitigation projects. These programs cover the County's infrastructure and program needs and are effective. However, the funding for mitigation projects may not always be available.

The County being small in population has individuals wearing multiple hats; however, they do have strong legal, administrative and financial capabilities in relation to smaller rural counties within Nevada. The County is able to enforce the International Building Code & International Fire Code, Building Code Title 12.09 and 15.05 which restrict building within a floodway, and is a member of the NFIP, in addition to programs for public safety, health and human services, public works and the school district. These programs are run by trained County staff, who are provided the resources to implement and promote the programs. Future implementation may be constrained by budget reduction in the next few years due to the recession.

7.4.3 City of Ely's Current Mitigation Capabilities & Analysis

The City's current mitigation programs, projects, and plans, as shown in Table 7-5, are listed as follows.

Table 7-6: City of Ely Local Mitigation Capability Assessment

Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	**Facilitate**	**Hinder**	
Building Dept.	Code Enforcement, Economic Development, Flood Plain Management	Brad Christiansen 775-289-6500 ext. 215	✓	✓		Engineering support; detailed knowledge of public utilities and critical infrastructure
Road Department and Landfill	Roads and landfill, building maintenance	Thomas Lawrence 775-289-1572	✓	✓		Engineering, detailed knowledge of infrastructure
Wastewater Treatment Plant	Wastewater treatment	Bruce Ashby 775-289-2150	✓	✓		Engineering, detailed knowledge of infrastructure
Fire Department	Fuels mitigation, public education,	Ross Rivera 775-289-6633	✓	✓		Detailed knowledge of vulnerability

The City, being small in population, has individuals wearing multiple hats however it does have a strong legal, administrative and financial capability in relation to smaller rural cities within Nevada. The City is able to enforce the International Building Code & International Fire Code, Building Code Title 12.09 and 15.05 which restrict building within a floodway, and is a member of the NFIP, in addition to programs for public safety, health and human services, and public works. These programs are run by trained City staff, who are provided the resources to implement and promote the programs. Future implementation may be constrained by budget reduction in the next few years due to the recession.

7.4.1 National Flood Insurance Program

DMA 2000 Requirements: Mitigation Strategy – National Flood Insurance Program

National Flood Insurance Program (NFIP) Compliance)
Requirement: §201.6(c)(3)(iii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.
Element

- Does the updated plan document how the planning team reviewed and analyzed this section of the plan and whether this section was revised as part of the update process?
- Does the new or updated plan describe the jurisdiction(s) participation in the NFIP?)
- Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?

Source: FEMA, March 2008.

The Counties and City have identified special flood-hazard areas. White Pine County and Eureka County participate in the NFIP; however, neither county participate in the Community Rating System (CRS). The CRS is a voluntary program for the NFIP-participating communities. The goals of the CRS are to reduce flood losses, to facilitate accurate insurance rating, and to promote the awareness of flood insurance.

The Counties and City are a CRS Class 10 community. The Counties and City outlined mitigation actions listed under goals for flood detailed below in Table 8-3, Mitigation Goals and Potential Actions. Neither White Pine County nor Eureka County has any repetitive loss properties. The Building Departments work closely with the public to ensure that construction standards are met and there is a good understanding of impacts from flooding and measures to minimize impacts.

The following provides an overview of the four-step process for preparing a mitigation strategy: developing mitigation goals, identifying and analyzing potential actions, prioritizing mitigation actions, and implementing an action plan.

8.1 MITIGATION GOALS AND OBJECTIVES

The requirements for the local hazard mitigation goals, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy – Local Hazard Mitigation Goals

Local Hazard Mitigation Goals

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Element

- Does the new or updated plan include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards?

Source: FEMA, March 2008.

The Planning Committee reviewed the hazard profiles in Section 5 as a basis for developing mitigation goals. Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. The Planning Committees developed 9 goals to reduce or avoid long-term vulnerabilities to the identified hazards (Table 8-1). All high risk and medium risk hazards identified by the Counties and City have a specific goal except for Utility Loss/Power Loss and Terrorism/WMD. These two hazards will be addressed under Goal One and Two, as well as the hazards rated as low hazards for the Counties and City.

Table 8-1: Mitigation Goals

Goal Number	Goal Description
1	Promote increased and ongoing County and City involvement in hazard-mitigation planning and projects.
2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters
3	Reduce the possibility of damage and losses due to drought
4	Reduce the possibility of damage and losses due to earthquakes
5	Reduce the possibility of threat to life and losses due to epidemic
6	Reduce the possibility of damage and losses due to floods
7	Reduce the possibility of damage and losses due to severe weather
8	Reduce the possibility of damage and losses due to wildland fires
9	Reduce the possibility of damage and losses due to hazardous materials release

8.2 IDENTIFYING MITIGATION ACTIONS

The requirements for the identification and analysis of mitigation actions, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy

Identification and Analysis of Mitigation Actions

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.

Element

- Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each hazard?
- Do the identified actions and projects address reducing the effects of hazards on new buildings and infrastructure?
- Do the identified actions and projects address reducing the effects of hazards on existing buildings and infrastructure?
- Does the mitigation strategy identify actions related to the participation in and continued compliance with the NFIP?

Source: FEMA, March 2008.

Mitigation actions are usually grouped into six broad categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. The Planning Committees worked together as a group to provide mitigation actions. As such, Table 8-3 lists the goals and potential actions selected for this HMP. As stated above the Planning Committees felt that actions under Goals One and Two were sufficient to address Utility Loss/Power Loss and Terrorism/WMD, as well as the low ranking hazards, specifically 1.A, 1.C, 1.D, 1.E, 1.F, 2.A, and 2.C.

Table 8-2: Mitigation Goals and Potential Actions

Goals	County/ City	Action	New or Existing Bldgs.	Description
Goal 1: ***Promote increased and ongoing involvement in hazard-mitigation planning and projects.***	White Pine County & City of Ely	1.A	N	Update the Master Plan to be consistent with the hazard area maps and implementation strategies developed in the HMP every 10 years. Update Ordinances every 3 years.
	Eureka County	1.B	N	Engage the Planning Commission to update the Master Plan to be consistent with the hazard area maps and implementation strategies developed in the HMP every 10 years.
	White Pine County	1.C	N/E	Annually review the County's EOP & update & integrate w/local Hazard Mitigation Plan.
	Eureka County	1.D	N/E	Review the County's EOP & update & integrate w/local Hazard Mitigation Plan as needed.
	White Pine County & City of Ely	1.E	N/E	Increase GIS and mapping capability to assess the risks in the County & City including equipment, software, servers, internet service, and staffing.
	Eureka County	1.F	N/E	Incorporate GIS and mapping as new information is received to assess the risk in the County.
	White Pine County & City of Ely	1.G	N/E	Collect and integrate new information (i.e. USA Digs, data for infrastructure, LIDAR) into County & City GIS and planning documents.
	All	1.H	N/E	Continue planning and coordination with multi-agency/regional planning for multi-hazards (applies to Goals 3-9).
Goal 2: ***Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.***	All	2.A	N/E	Utilize social media and/or county website as a communication tool, as well as an education tool for hazard loss prevention.
	White Pine County	2.B	N/E	Work with NOAA to reach a storm-ready community status.
	All	2.C	E	Conduct a minimum of one hazard mitigation exercise each year.
	All	2.D	N/E	Prepare, develop, & distribute appropriate public information about hazard mitigation programs and projects at County and City-sponsored events.

Table 8-2: Mitigation Goals and Potential Actions

Goals	County/ City	Action	New or Existing Bldgs.	Description
Goal 3 ***Reduce the possibility of damage and losses due to drought.***	White Pine County	3.A	N/E	Pursue studies and formalized agreements to minimize impacts of drought conditions, including aquifer water quality and quantity, ground stabilization, economic impacts, wellhead protection areas, and municipal/private well water supply
	Eureka County	3.B	N/E	Pursue studies and formalized agreements to minimize impacts of drought conditions, including aquifer water quantity, ground stabilization, economic impacts and municipal/private well water supply
	White Pine County	3.C	N/E	Encourage public participation in drought strategies through public information programs on water conservation and drought resistant landscaping and through building code ordinances and Nevada Cooperative Extension
	Eureka County	3.D	N/E	Encourage public participation in drought strategies through public information programs on water conservation and drought resistant landscaping and through the Nevada Cooperative Extension
Goal 4: ***Reduce the possibility of damage and losses due to earthquakes.***	White Pine County & City of Ely	4.A	N	Continue to enforce the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards. Update County & City Codes to current IBC.
	Eureka County	4.B	N	Recommend the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards.
	White Pine County & City of Ely	4.C	E	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of critical facility and infrastructure, and retrofit buildings, if necessary.
	Eureka County	4.D	E	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of existing public buildings, and retrofit buildings, if necessary.
	White Pine County & City of Ely	4.E	E	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of existing building inventory, and retrofit buildings, if necessary
	White Pine County & City of Ely	4.F	E	Implement/plan for non-structural retrofit for private and public buildings.

Table 8-2: Mitigation Goals and Potential Actions

Goals	County/ City	Action	New or Existing Bldgs.	Description
	Eureka County	4.G	E	Discuss and evaluate non-structural retrofit for public buildings
	White Pine County	4.H	E	Work with UNR Seismology Lab to obtain a seismograph to track earthquake occurrence and data.
Goal 5: ***Reduce the possibility of threat to life and losses due to epidemic.***	White Pine County & Eureka County	5.A	NA	Improve communication, collaboration and integration among stakeholders and promote awareness of epidemic threats.
	White Pine County & Eureka County	5.B	N/A	Create & implement a training and exercise program relative to epidemics.
Goal 6: ***Reduce the possibility of damage and losses due to floods.***	White Pine County & Eureka County	6.A	N/E	Review & update flood plans in order to educate public regarding flood hazards and damage potential
	White Pine County & City of Ely	6.B	E	Partner with NDOT to enhance storm drainage capacity through the City of Ely.
	White Pine County & City of Ely	6.C	E	Join Community Rating System (CRS) to increase flood insurance savings to County and City residents
	White Pine County & City of Ely	6.D	E	Survey homes and businesses in special flood hazard areas (SFHA) near drainages for possible elevation or acquisition.
Goal 7: ***Reduce the possibility of damage and losses due to Severe***	White Pine County & Eureka County	7.A	E	In areas at risk to severe weather, retrofit public buildings to withstand snow loads and sever winds to prevent roof collapse/damage.
	White Pine	7.B	E	Enhance shelter facilities to withstand severe weather events

Table 8-2: Mitigation Goals and Potential Actions

Goals	County/ City	Action	New or Existing Bldgs.	Description
Weather.	County & Eureka County			(electrical, structural, etc.).
Goal 8: ***Reduce the possibility of damage and losses due to wildland fires.***	White Pine County & Eureka County	8.A	E	Develop partnerships/continue programs for a community based vegetation management program including chipping programs and disposal of green waste for defensible space
	White Pine County & Eureka County	8.B	E	Develop and implement public education program regarding the requirements of the International Wildland Urban Interface Code (IWUI) and defensible space best practices
Goal 9: ***Reduce the possibility of damage and losses due to hazardous materials release.***	White Pine County & City of Ely	9.A	N/E	Enforce zoning ordinances to reduce public health risks from hazardous materials releases.
	White Pine County & Eureka County	9.B	N/E	Update Hazardous Materials Plan.

8.3 EVALUATING AND PRIORITIZING MITIGATION ACTION

The requirements for the evaluation and implementation of mitigation actions, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy - Implementation of Mitigation Actions

Implementation of Mitigation Actions

Requirement: §201.6(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(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 benefit review of the proposed projects and their associated costs.

Element

- Does the mitigation strategy include how the actions are prioritized? (For example, is there a discussion of the process and criteria used?)
- Does the mitigation strategy address how the actions will be implemented and administered? (For example, does it identify the responsible department, existing and potential resources, and timeframe?)
- Does the prioritization process include an emphasis on the use of a cost-benefit review (see page 3-36 of *Multi-Hazard Mitigation Planning Guidance*) to maximize benefits?

Source: FEMA, March 2008.

The mitigation actions were reviewed and finalized following the Planning Committees' meetings in August of 2018. During the review, Eureka County determined that Mitigation Action 7.A was no longer applicable for their County. At this time, the Planning Committees evaluated and prioritized each of the actions. To complete this task, the Planning Committees reviewed the previous rankings of the mitigation actions and discussed how each mitigation action met the STAPLE+E evaluation criteria using a "+" if the criteria was met, a "-" if it was not and "0" if it was neutral. The rankings for each action were totaled and the actions were prioritized by the highest number of points. Following the meeting, approximate costs for completion of the mitigation actions were determined and reviewed by the Committees. See Table 8-4 for the evaluation criteria.

Table 8-3: STAPLE+E Evaluation Criteria for Mitigation Actions

Evaluation Category	Discussion "It is important to consider..."	Considerations
Social	The public Support for the overall mitigation strategy and specific mitigation actions	Community acceptance; adversely affects population
Technical	If the mitigation action is technically feasible and if it is the whole or partial solution	Technical feasibility; Long-term solutions; Secondary impacts
Administrative	If the community has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary	Staffing: Funding allocation; Maintenance/operations
Political	What the community and its members feel about issues related to the environment, economic development, safety, and emergency management	Political support; Local champion; Public support

Legal	Whether the community has the legal authority to implement the action, or whether the community must pass new regulations	Local, State, and Federal authority; Potential legal challenge
Economic	If the action can be funded with current or future internal and external sources, if the costs seem reasonable for the size of the project, and if enough information is available to complete a FEMA Benefit Cost Analysis	Benefit/cost of action; Contributes to other economic goals; Outside funding required; FEMA Benefit Cost Analysis
Environmental	The impact on the environment because of public desire for a sustainable and environmentally healthy community	Effect on local flora and fauna; Consistent with community environmental goals; Consistent with local, State and Federal laws

Upon review by the Planning Committees, mitigation actions were selected for the Counties and City that best fulfill the goals of the HMP and were appropriate and feasible to implement during the 5-year lifespan of this version of the HMP. In reviewing the actions, the Planning Committees considered the following:

- Actions that strengthen, elevate, relocate, or otherwise improve buildings, infrastructure, or other facilities to enhance their ability to withstand the damaging impacts of future disasters
- Actions in which the benefits (which are the reduction in expected future damages and losses) are greater than the costs considered as necessary to implement the specific action
- Actions that either address multi-hazard scenarios or address a hazard that present the greatest risk to the jurisdiction

The actions are shown in Table 8-4.

8.4 IMPLEMENTING A MITIGATION ACTION PLAN

A Mitigation Action Plan Matrix was prepared for the Counties and City detailing the priority of the mitigation actions, how the overall benefit-cost were taken into consideration, and how each mitigation action will be implemented and administered. The Counties and City only ranked the actions that were applicable to them since not all actions were the same for both Counties and the City. This matrix is Table 8-4.

Table 8-4: Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
1.A	Update the Master Plan to be consistent with the hazard area maps and implementation strategies developed in the HMP every 10 years. Update Ordinances every 3 years.*	White Pine County Economic Development City of Ely	Local Gen. Fund, HUD	36-48 months Staff Time	Protection of lives due to pre-planning.	High
1.B	Engage the Planning Commission to update the Master Plan to be consistent with the hazard area maps and implementation strategies developed in the HMP every 10 years.*	Eureka County Public Works/ Emergency Mgmt.	Local Gen. Fund, HUD	36-48 months Staff Time	Protection of lives due to pre-planning.	Medium
1.C	Annually review the County's EOP & update & integrate w/local Hazard Mitigation Plan.	White Pine Emergency Mgmt.	HMGP, PDM, SERC, EMPG, USEPA, NDEP, NDCNR; DHS, Local Gen. Fund	Ongoing Staff Time	Protection of lives and property due to pre-planning.	High
1.D	Review the County's EOP & update & integrate w/local Hazard Mitigation Plan as needed.	Eureka County Emergency Mgmt./ LEPC	HMGP, PDM, SERC, EMPG, USEPA, NDEP, NDCNR; DHS, Local Gen. Fund	Ongoing Staff Time & $30,000	Protection of lives and property due to pre-planning.	Medium
1.E	Increase GIS and mapping capability to assess the risks in the County & City including equipment, software, servers, internet service, and staffing.*	White Pine County Building Department City of Ely	Local Gen. Fund	Ongoing Staff Time & $50,000 per year	Protection of lives and property due to pre-planning.	High
1.F	Incorporate GIS and mapping as new information is received to assess the risk in the County.*	Eureka County GIS	Local Gen. Fund	Ongoing Staff Time	Protection of lives and property due to pre-planning.	High
1.G	Collect and integrate new information (i.e. USA Digs, data for infrastructure, LIDAR) into County & City GIS and planning documents.	White Pine County Building Department & City of Ely	USACE, PDM, HMGP, Local Gen. Fund	Ongoing Staff Time	Protection of lives and property due to pre-planning.	High

Table 8-4: Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
1.H	Continue planning and coordination with multi-agency/regional planning for multi-hazards (applies to Goals 3-9).	White Pine County Emergency Mgmt. & City of Ely Eureka County Emergency Mgmt./ LEPC	HMGP, PDM, SERC, EMPG, USEPA, NDEP, NDCNR; DHS, Local Gen. Fund	Ongoing Staff Time	Protection of lives and property due to pre-planning.	High
2.A	Utilize social media and/or county website as a communication tool, as well as an education tool for hazard loss prevention.*	White Pine County Emergency Mgmt., City of Ely, Fire Dept., Sheriff, School District, Health Dept. Eureka County Emergency Mgmt., Fire Dept., Sheriff, School District, Health Dept.	Local Gen Fund	Ongoing Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	Medium
2.B	Work with NOAA to reach a storm-ready community status.*	White Pine County Emergency Mgmt.	Local Gen Fund, NOAA	Ongoing Staff Time	Protection of lives and property due to pre-planning.	High
2.C	Conduct minimum of one hazard mitigation exercise per year.	White Pine County Emergency Mgmt., City of Ely, Fire Dept. Eureka County Emergency Mgmt., Fire Dept.	EMPG, HMGP, SERC, USEPA, NDEP, NDCNR, Local Gen Fund	Ongoing Staff Time	Protection of lives and property due to pre-planning.	High
2.D	Prepare, develop, & distribute appropriate public information about hazard mitigation programs and projects at County & City sponsored events.	White Pine County Emergency Mgmt., City of Ely, Fire Dept. Eureka County Emergency Mgmt. Fire Dept.	Local Gen. Fund, EMPG, HMPG, NV Health & Humans Services, CDC, USFS	Ongoing Staff Time & $10,000	Protection of homes, businesses, infrastructure, and critical facilities.	High

Table 8-4: Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
3.A	Pursue studies and formalized agreements to minimize impacts of drought conditions, including aquifer water quality and quantity, ground stabilization, economic impacts, wellhead protection areas, and municipal/private well water supply.	White Pine County & City Water Utilities, Emergency Mgmt.	Local Utility Charge, Local Gen. Fund, HMGP, PDM, NDEP, USACE	24-36 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	High
3.B	Pursue studies and formalized agreements to minimize impacts of drought conditions, including aquifer water quantity, ground stabilization, economic impacts and municipal/private well water supply.	Eureka County Water Utilities, Emergency Mgmt.	Local Utility Charge, Local Gen. Fund, HMGP, PDM, NDEP, USACE	24-36 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	High
3.C	Encourage public participation in drought strategies through public information programs on water conservation and drought resistant landscaping and through building code ordinances and Nevada Cooperative Extension.*	White Pine County & City Water Utilities, Emergency Mgmt.	Local Utility Charge, Local Gen. Fund, NDEP	12 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	High
3.D	Encourage public participation in drought strategies through public information programs on water conservation and drought resistant landscaping and through the Nevada Cooperative Extension.*	Eureka County Water Utilities, Emergency Mgmt.	Local Utility Charge, Local Gen. Fund, NDEP	12 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	Medium
4.A	Continue to enforce the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards. Update County & City Codes to current IBC.*	White Pine County & City of Ely Bldg. Dept.	Local Gen Fund	Ongoing Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities.	High

Table 8-4: Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
4.B	Recommend the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards.*	Eureka County	Local Gen Fund	Ongoing Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Low
4.C	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of critical facility and infrastructure, and retrofit buildings, if necessary.	White Pine County & City of Ely Building, Fire Dept., School District	HMGP, PDM, US HUD, Local Gen. Fund	24-48 months Staff Time & $10,000	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Medium
4.D	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of existing public buildings, and retrofit buildings, if necessary.	Eureka County Public Works, Fire Dept., School District	HMGP, PDM, US HUD, Local Gen. Fund	24-48 months Staff Time & $10,000	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Low
4.E	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of existing building inventory, and retrofit buildings, if necessary.	White Pine County & City of Ely Building, Fire Dept.	HMGP, PDM, US HUD, Local Gen. Fund	24-48 months Staff Time & $10,000	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Medium
4.F	Implement/plan for non-structural retrofit for private and public buildings.	White Pine County & City of Ely Building, Fire Dept.	HMGP, PDM, US HUD, Local Gen. Fund	24-48 months Staff Time & $10,000	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Medium
4.G	Discuss and evaluate non-structural retrofit for public buildings.	Eureka County Public Works, Fire Dept., School District	HMGP, PDM, US HUD, Local Gen. Fund	24-48 months Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Low
4.H	Work with UNR Seismology Lab to obtain a seismograph to track earthquake occurrence and data.*	White Pine County Emergency Mgmt., Building	Bureau of Mines and Geology	24-48 months Staff Time & $20,000	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Low
5.A	Improve communication, collaboration and integration among	White Pine County Health Dept. and	NV Health & Human Services, CDC	6-12 months	Protection of lives due to pre-planning.	Medium

Table 8-4: Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
	stakeholders and promote awareness of epidemic threats.*	Eureka County Clinic		Staff Time		
5.B	Create & implement a training and exercise program relative to epidemics.*	White Pine County Health Dept. and Eureka County Clinic	NV Health & Human Services, CDC, Banner Hospital	6-12 months Staff Time	Protection of lives due to pre-planning.	Medium
6.A	Review & update flood plans in order to educate public regarding flood hazards and damage potential.	White Pine County Emergency Mgmt, Building Eureka County Emergency Mgmt, Public Works	PDM, HMGP, FMA, RFC, USDA, NDEP, USEPA, NDRCS, FEMA, 319(h) grants (Clean Water Act), USGS, Local Gen. Fund, USACE	24-36 months Staff Time & $30,000	Protection of homes, businesses, infrastructure, and critical facilities while strengthening regional coordination.	Medium
6.B	Partner with NDOT to enhance storm drainage capacity through the City of Ely.	White Pine County Emergency Mgmt, City of Ely	PDM, HMGP, FMA, RFC, USDA, NDEP, USEPA, NRCS, FEMA, 319(h) grants (Clean Water Act), USGS, Local Gen. Fund, USACE	24-36 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	High
6.C	Join Community Rating System (CRS) to increase flood insurance savings to County and City residents.	White Pine County Emergency Mgmt, Building, City of Ely	FEMA, Local Gen. Fund	24-36 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	Medium
6.D	Survey homes and businesses in special flood hazard areas (SFHA) near drainages for possible elevation or acquisition.	White Pine County Emergency Mgmt, Building, City of Ely	PDM, HMGP, FMA, RFC, NDEP, USEPA, NRCS	24-36 months Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	Medium
7.A	In areas at risk to severe weather, retrofit public buildings to withstand snow loads and severe winds to prevent roof collapse/damage.	White Pine County Public Works & City of Ely	PDM, HMGP, Local Gen. Fund	12-14 months Staff Time & $50,000 – 100,000	Protection of infrastructure, and critical facilities.	Medium
7.B	Enhance shelter facilities to withstand severe weather events	White Pine County Public Works &	PDM, HMGP, Local Gen. Fund, School	12-14 months Staff Time &	Protection of infrastructure, and critical facilities.	Low

Table 8-4: Action Plan Matrix

Action Number	Action Item	Department / Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
	(electrical, structural, etc.).	City of Ely Eureka County Public Works	Bond	$50,000 – 100,000		
8.A	Develop partnerships/continue programs for a community based vegetation management program including chipping programs and disposal of green waste for defensible space.*	NV Div. of Forestry White Pine County Fire Dept. Eureka County Fire Department	NDF, BLM, National Fire Monies, USFS, Local General Fund	6-12 Months Staff Time	Mitigation Project will ensure a greater number of residential structures and critical facilities and infrastructure benefit from actions to protect lives and property from wildfire.	High
8.B	Develop and implement public education program regarding the requirements of the International Wildland Urban Interface Code (IWUI) and defensible space best practices.	NV Div. of Forestry White Pine County Fire Dept. Eureka County Fire Department	HMGP, PDM, NDF, BLM, National Fire Plan, USFS, Fire Districts SNPLMA	Ongoing Staff Time	Mitigation Project will ensure a greater number of residential structures and critical facilities and infrastructure benefit from actions to protect lives and property from wildfire.	High
9.A	Enforce zoning ordinances and building codes to reduce public health risks from hazardous materials release.*	White Pine County Building, Fire Dept., City of Ely Bldg. Dept., Fire Dept.	Local General Fund, NDEP, USEPA	12-24 Months Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities.	Medium
9.B	Update Hazardous Materials Plan.*	White Pine County Emergency Mgmt. Eureka County Emergency Mgmt.	Local General Fund, NDEP, USEPA	Ongoing Staff Time & $10,000	Protection of lives, homes, businesses, infrastructure, and critical facilities.	High

BLM= Bureau of Land Management
PW = Public Works
DHS= Dept. of Homeland Security
EMPG = Emergency Management Performance Grant
FMA=Flood Management Assistance
HMGP = Hazard Mitigation Grant Program
HUD=Housing & Urban Development
NDEP = Nevada Division of Environmental Protection
NDF = Nevada Department of Forestry
NDRCS=Nevada Dept. Resource Conservation Services
PDM = Pre-Disaster Mitigation
RFC=Resource Finance Corporation
SERC = State Emergency Response Commission
USDA = U.S. Department of Agriculture
USEPA = U.S. Environmental Protection Agency
USFS = U.S. Fire Service
USGS = US Geological Survey

*Mitigation action does not meet the 2013 HMA Guidance requirements for FEMA mitigation funding.

This section describes a formal plan maintenance process to ensure that the HMP remains an active and applicable document. It includes an explanation of how the Counties, City and the Planning Committees intend to organize its efforts to ensure that improvements and revisions to the HMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail below:

- Monitoring, evaluating, and updating the HMP
- Implementation through existing planning mechanisms
- Continued public involvement

9.1 MONITORING, EVALUATING, AND UPDATING THE HMP

The requirements for monitoring, evaluating, and updating the HMP, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Monitoring, Evaluating, and Updating the Plan

Monitoring, Evaluating and Updating the Plan
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.
Element

- Does the new or updated plan describe the method and schedule for monitoring the plan? (For example, does it identify the party responsible for monitoring and include a schedule for reports, site visits, phone calls, and meetings?)
- Does the new or updated plan describe the method and schedule for evaluating the plan? (For example, does it identify the party responsible for evaluating the plan and include the criteria used to evaluate the plan?)
- Does the new or updated plan describe the method and schedule for updating the plan within the five-year cycle?

Source: FEMA 2008.

The Counties Emergency Managers recognize the need for plan maintenance and wanted to include tools into the plan for maintenance. The HMP was prepared as a collaborative effort between the Counties and City Emergency Management, the Local Emergency Management Committee (LEPC) and the Nevada Division of Emergency Management. To maintain momentum and build upon this hazard mitigation planning effort, the Planning Committees will monitor, evaluate, and update the HMP. The Planning Committees will be responsible for implementing the Mitigation Action Plan. The Counties Emergency Managers will serve as the primary points of contact and will coordinate all local efforts to monitor, evaluate, and revise the HMP.

During the last 5 years, Eureka County reviewed portions of the plan at their LEPC's annual table top exercise; however, White Pine County did not have any formal plan maintenance activities. Therefore, the Nevada Division of Emergency Management held a table top exercise in August 2018 to discuss the status of the plan and mitigation strategies. During the table top exercise, it was noted that substantial progress had been made on mitigations actions for both Counties. Because this review was successful, the Planning Committees will continue to conduct an annual review of the progress in implementing the HMP, particularly the Mitigation Action Plan.

As shown in Appendix E, the Annual Review Questionnaire and Mitigation Action Progress Report will provide the basis for possible changes in the overall Mitigation Action Plan by refocusing on new or more threatening hazards, adjusting to changes to or increases in resource allocations, and engaging additional support for the HMP implementation. The Counties Emergency Managers will initiate the annual review one month prior to the month of date of adoption. The findings from this review will be presented annually to the County and City Manager. The review will include an evaluation of the following:

- Participation of Counties and City agencies and others in the HMP implementation.
- Notable changes in the Counties and City's risk of natural or human-caused hazards.
- Impacts of land development activities and related programs on hazard mitigation.
- Progress made implementing the Mitigation Action Plan (identify problems and suggest improvements as necessary).
- The adequacy of resources for implementation of the HMP.

The process of reviewing the progress on achieving the mitigation goals and implementing the Mitigation Action Plan activities and projects will also be accomplished during the annual review process. During each annual review, a Mitigation Action Progress Report will be submitted to the Planning Committees and provide a brief overview of mitigation projects completed or in progress since the last review. As shown in Appendix E, the report will include the current status of the mitigation project, including any changes made to the project, the identification of implementation problems and appropriate strategies to overcome them, and whether or not the project has helped achieve the appropriate goals identified in the plan.

In addition to the annual review, the Planning Committees will update the HMP every five years. To ensure that this occurs, in the third year following adoption of the HMP, the Planning Committee will undertake the following activities:

- Thoroughly analyze and update the Counties' and City's risk of natural and man-made hazards.
- Provide a new annual review (as noted above), plus a review of the three previous annual reports.
- Provide a detailed review and revision of the mitigation strategy.
- Prepare a new action plan with prioritized actions, responsible parties, and resources.
- Prepare a new draft HMP and submit it to the Counties and City Board for adoption.
- Submit an updated HMP to the Nevada State Hazard Mitigation Officer and FEMA for approval.

9.2 IMPLEMENTATION THROUGH EXISTING PLANNING MECHANISMS

The requirements for implementation through existing planning mechanisms, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Incorporation into Existing Planning Mechanisms

Incorporation into Existing Planning Mechanisms

Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Element

- Does the new or updated plan identify other local planning mechanisms available for incorporating the requirements of the mitigation plan?
- Does the new or updated plan include a process by which the local government will incorporate the requirements in other plans, when appropriate?

Source: FEMA 2008.

Since the adoption of the 2014 plan, the Counties and the City have successfully utilized and integrated hazard profiles, vulnerability and mitigation actions into other planning mechanisms and documents, as well as the regulations and ordinances as mentioned in Table 7-1 and the following:

- White Pine County School Emergency Response Plan (2016)
- Eureka County Water Resources Master Plan (2016)
- Joint Water Conservation Plan for the Town of Eureka Water System, Devil's Gate GID District #1 and District #2 Crescent Valley Town Water System (2014)
- Eureka County School District School Emergency Response Plan (2017)

After the adoption of the HMP, the Committees will continue to ensure that the HMP, in particular the Mitigation Action Plan, is incorporated into existing planning mechanisms. Each member of the Planning Committees will achieve this incorporation by undertaking the following activities.

- Conduct a review of the community-specific regulatory tools to assess the integration of the mitigation strategy. These regulatory tools are identified in Table 7-1.

- Work with pertinent divisions and departments to increase awareness of the HMP and provide assistance in integrating the mitigation strategy (including the action plan) into relevant planning mechanisms. Implementation of these requirements may require updating or amending specific planning mechanisms.

9.3 CONTINUED PUBLIC INVOLVEMENT

The requirements for continued public involvement, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Continued Public Involvement

Continued Public Involvement

Requirement §201.6(c)(4)(iii): [The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.

Element

- Does the new or updated plan explain how **continued public participation** will be obtained? (For example, will there be public notices, an ongoing mitigation plan committee, or annual review meetings with stakeholders?)

Source: FEMA 2008.

The Counties and City are dedicated to involving the public directly in the continual reshaping and updating of the HMP. Hard copies of the HMP will be provided to each department. In addition, a downloadable copy of the plan and any proposed changes will be posted on the Counties' Web site. The sites will also contain an e-mail address and phone number to which interested parties may direct their comments or concerns.

SERC requires that LEPC's meet at least once per quarter. The Counties meetings by committee bylaws are public meetings. These meetings are advertised by posting agendas at County buildings as well as email notifications to all interested parties according to Nevada open meeting law. One meeting per year will be devoted to the LHMP review. With the assistance of the State Hazard Mitigation Officer, the table top exercise developed by the NDEM can be used as the review tool. The public will be encouraged to provide comments on the plan's content and provide feedback on what they feel the plan is accomplishing or not. Any public comments received regarding the HMP will be collected and included in the annual report and considered during future HMP updates.

The Planning Committees will also identify opportunities to raise community awareness about the HMP and the Counties' and City's hazards. This could include attendance and provision of materials at sponsored events. Any public comments received regarding the HMP will be collected by the Counties' Emergency Managers, included in the annual report to the Counties and City Manager, and considered during future HMP updates. A press release and public notice by the Counties and City will be issued each year before the annual maintenance meeting inviting the public to participate.

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Western Great Basin Coordination Center, End of Year Incident Reports, 2004-2012, http://gacc.nifc.gov/wgbc/predictive/intelligence/ytd_historical/paststatistics/Past_Season_Statistcs.html

White Pine County Commission, April 4, 2012. *Comprehensive Economic Development Strategy.*

White Pine County Community and Economic Development Office. January 2009. *White Pine County Land Use Plan.*

White Pine County Office of Emergency Management. December 2011. *Hazardous Materials Contingencies.*

White Pine County Public Land Users Advisory Committee. 2007. *White Pine County Public Lands Policy Plan.* http://lands.nv.gov/docs/SLUPA/WhitePinePlan.pdf

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Appendix A
Adoption Resolution

Sample Adoption Resolution #_____

WHEREAS _____ has historically experienced severe damage from natural and human-caused hazards such as flooding, wildfire, drought, thunderstorms/high winds, and hazardous materials incidents on many occasions in the past century, resulting in loss of property and life, economic hardship, and threats to public health and safety;

WHEREAS the _____ Hazard Mitigation Plan (the Plan) has been developed after more than one year of research and work by the *County's* Office of Emergency Management in association and cooperation with the County Planning Team for the reduction of hazard risk to the community;

WHEREAS the Plan specifically addresses hazard mitigation strategies and plan maintenance procedures for _____;

WHEREAS the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural and human caused hazards that impact _____ with the effect of protecting people and property from loss associated with those hazards;

WHEREAS a public meeting was held to present the Plan for comment and review as required by law;

NOW THEREFORE BE IT RESOLVED
by the *Board of Supervisors or County Commission,* that:

1. The Plan is hereby Adopted as an official plan of _____

2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them.

3. Future revisions and Plan maintenance required by the Disaster Mitigation Act of 2000 and FEMA, are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution.

4. An annual report on the progress of the implementation elements of the Plan shall be presented to the*, County Commission* by October 31st of each calendar year.

PASSED by *the County Commission, this __th day of _____, 2019.*

_____ _____
Commission Chair, *insert name* Date

_____ _____
Commissioner, *insert name* Date

_____ _____
Commissioner, *insert name* Date

Appendix B
Figures

Figure B-1a: Location

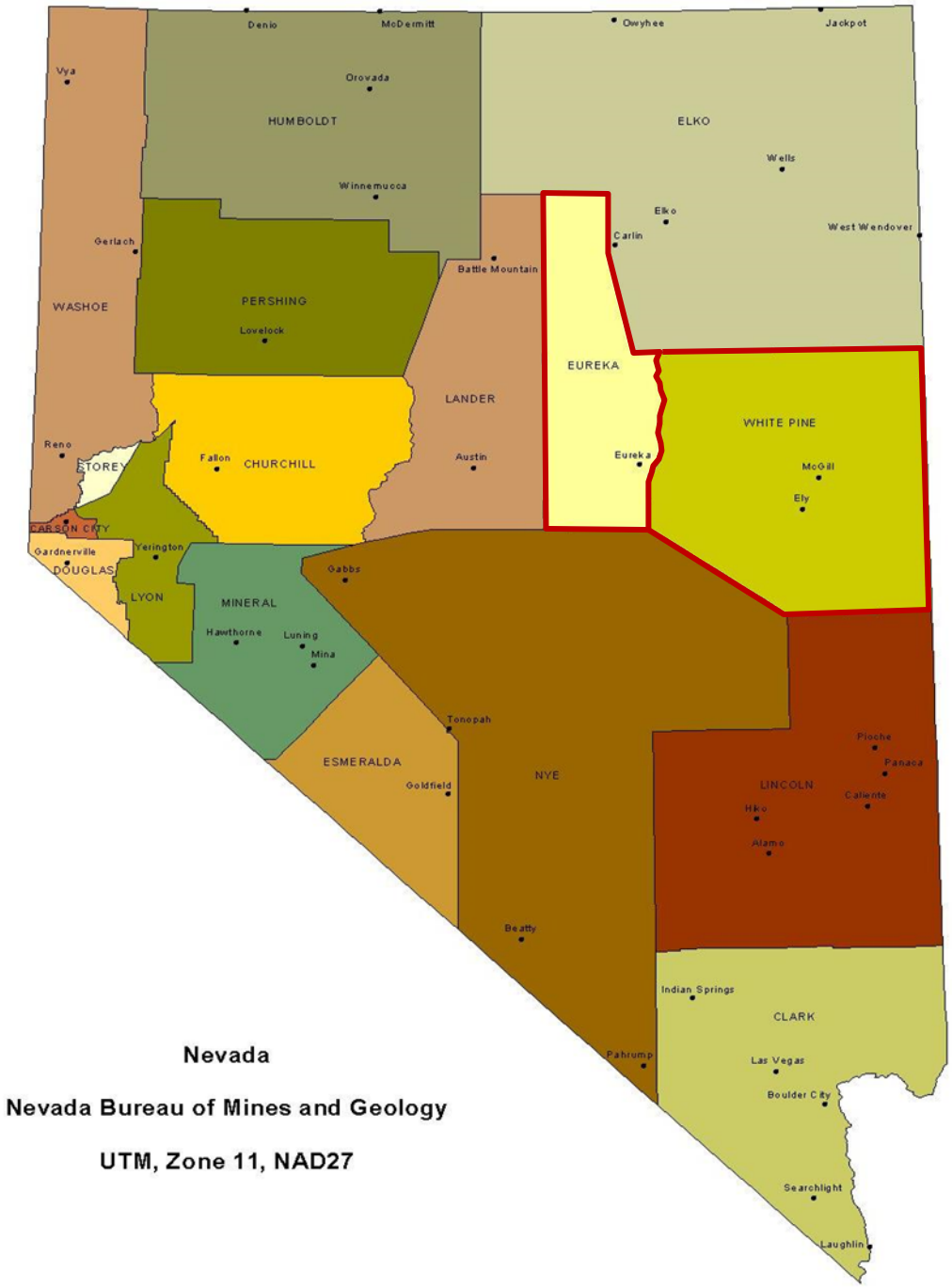
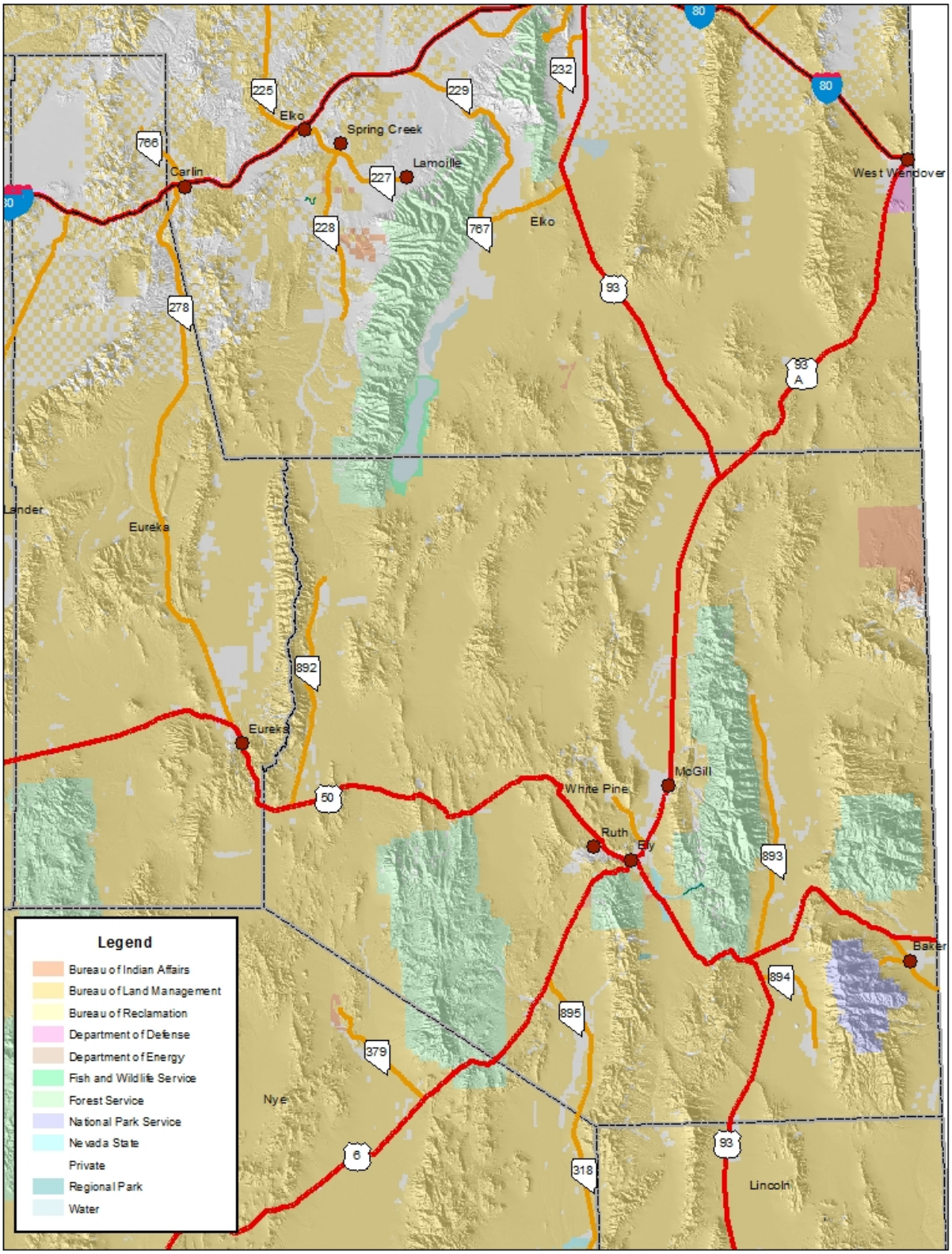
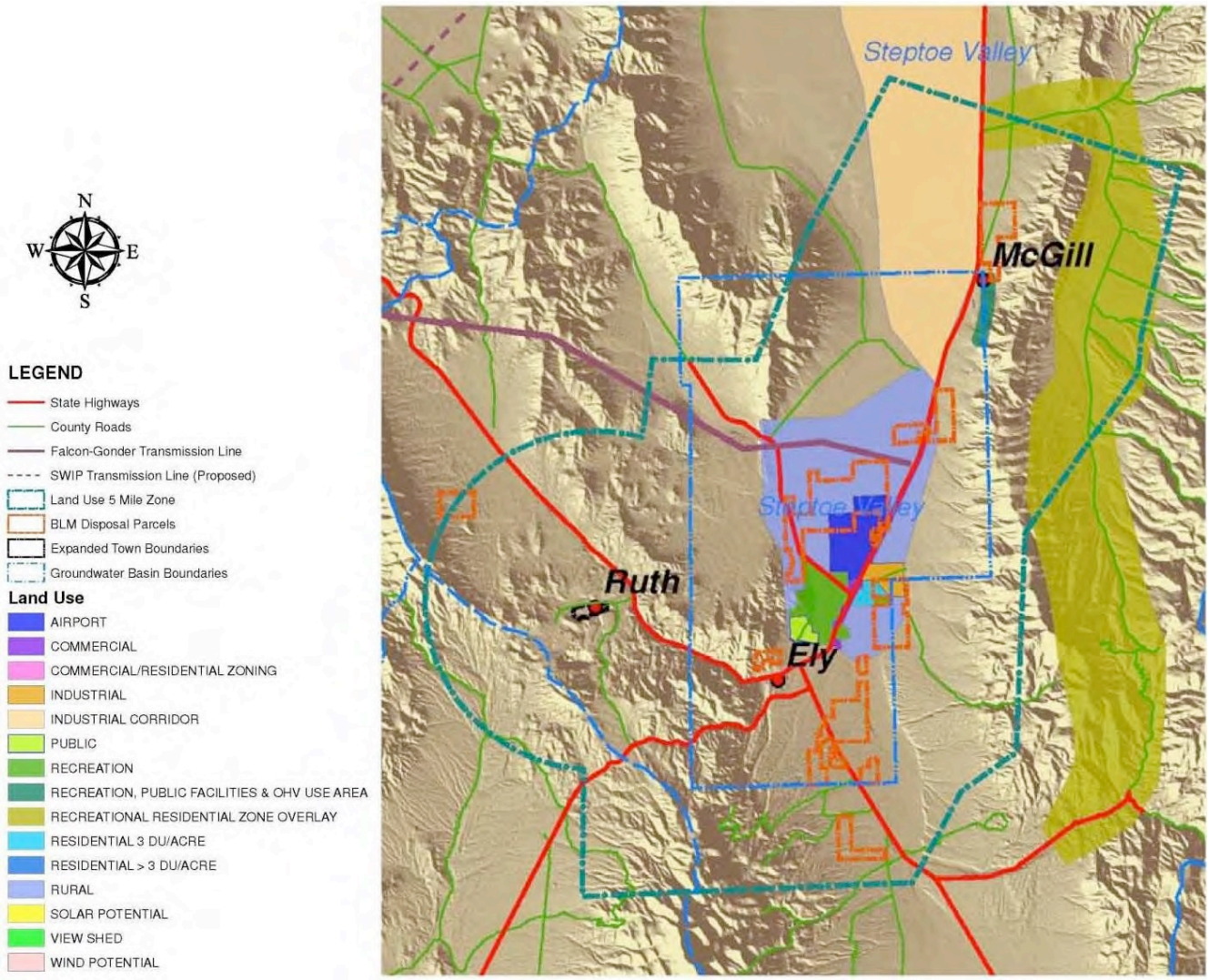


Figure B-1b: White Pine County and Eureka County Land Ownership



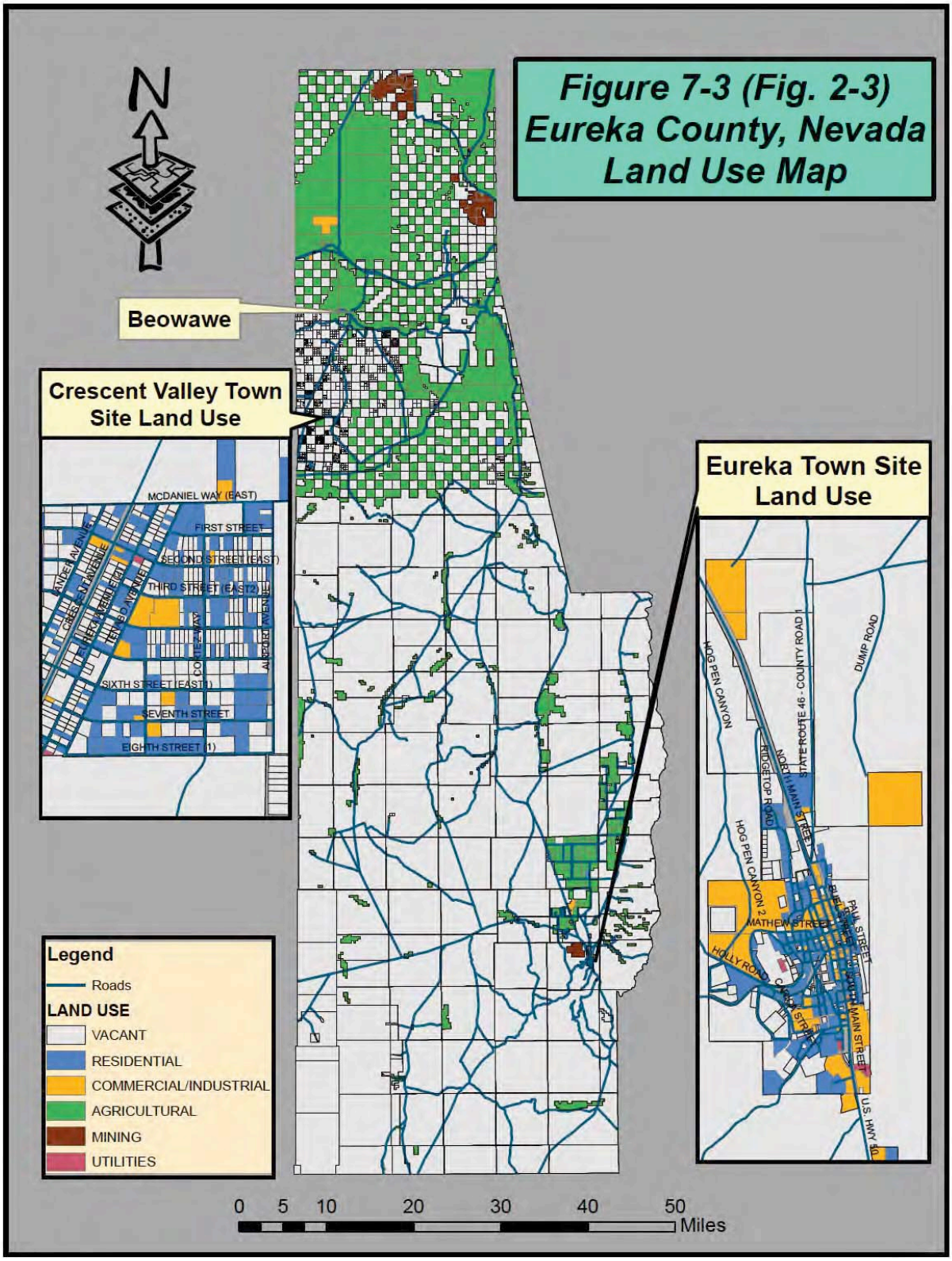
Source: Nevada Division of Forestry.

Figure B-1c: White Pine County Land Use



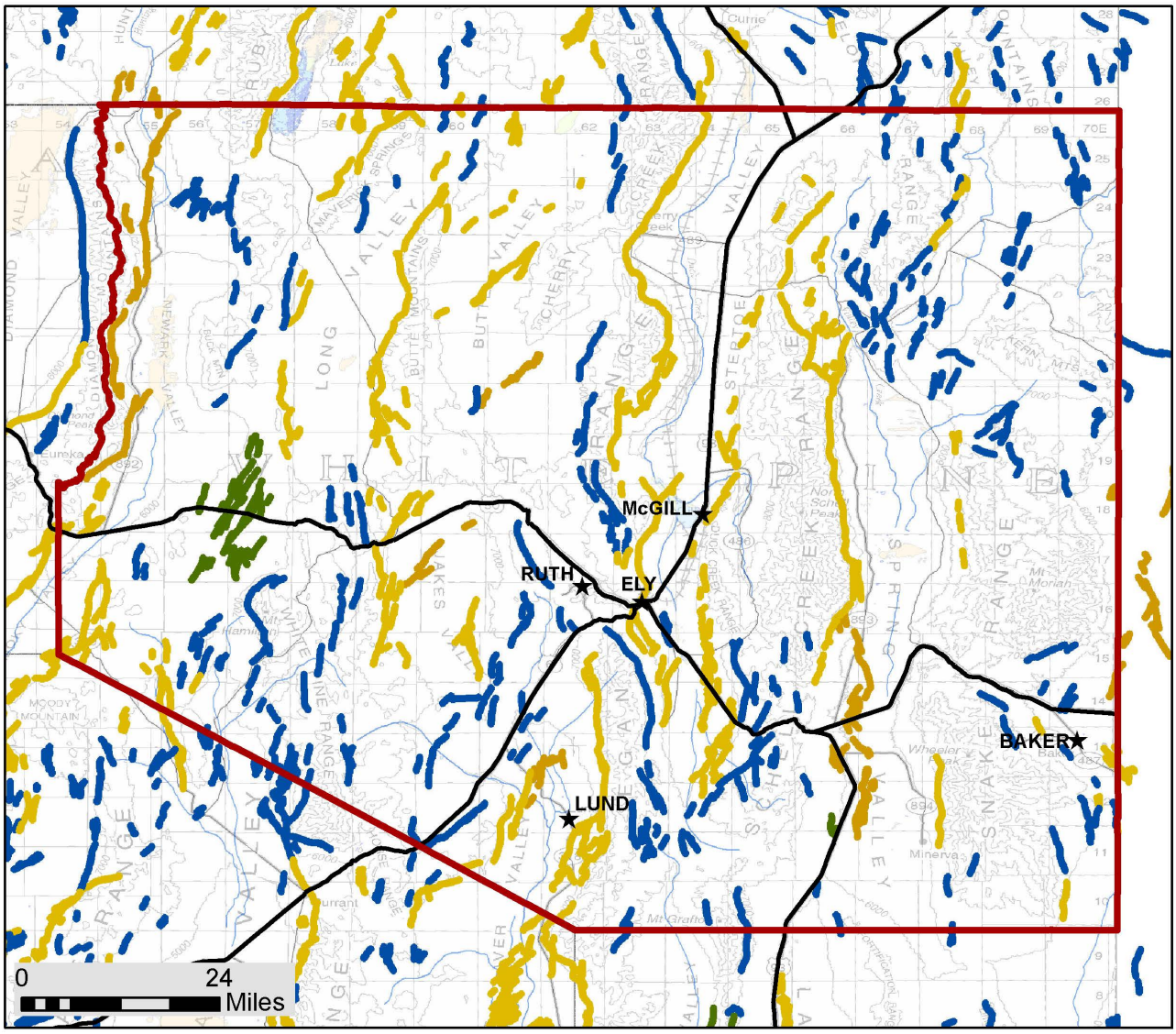
Source: Modified from "White Pine County Land Use" Map prepared by Summit Engineering Corporation.

Figure B-1d: Eureka County Land Use



Source: Eureka County Master Plan 2010.

Figure B-2: White Pine County Earthquake Faults



White Pine County Earthquake Faults

N

White Pine County
Major Roads

Quaternary Fault Age

<150
<15,000
<130,000
<750,000
<1,800,000

WHITE PINE COUNTY
NEVADA

R|O|Anderson
ENGINEERING • SURVEYING • PLANNING

Figure B-3: Eureka County Earthquake Faults

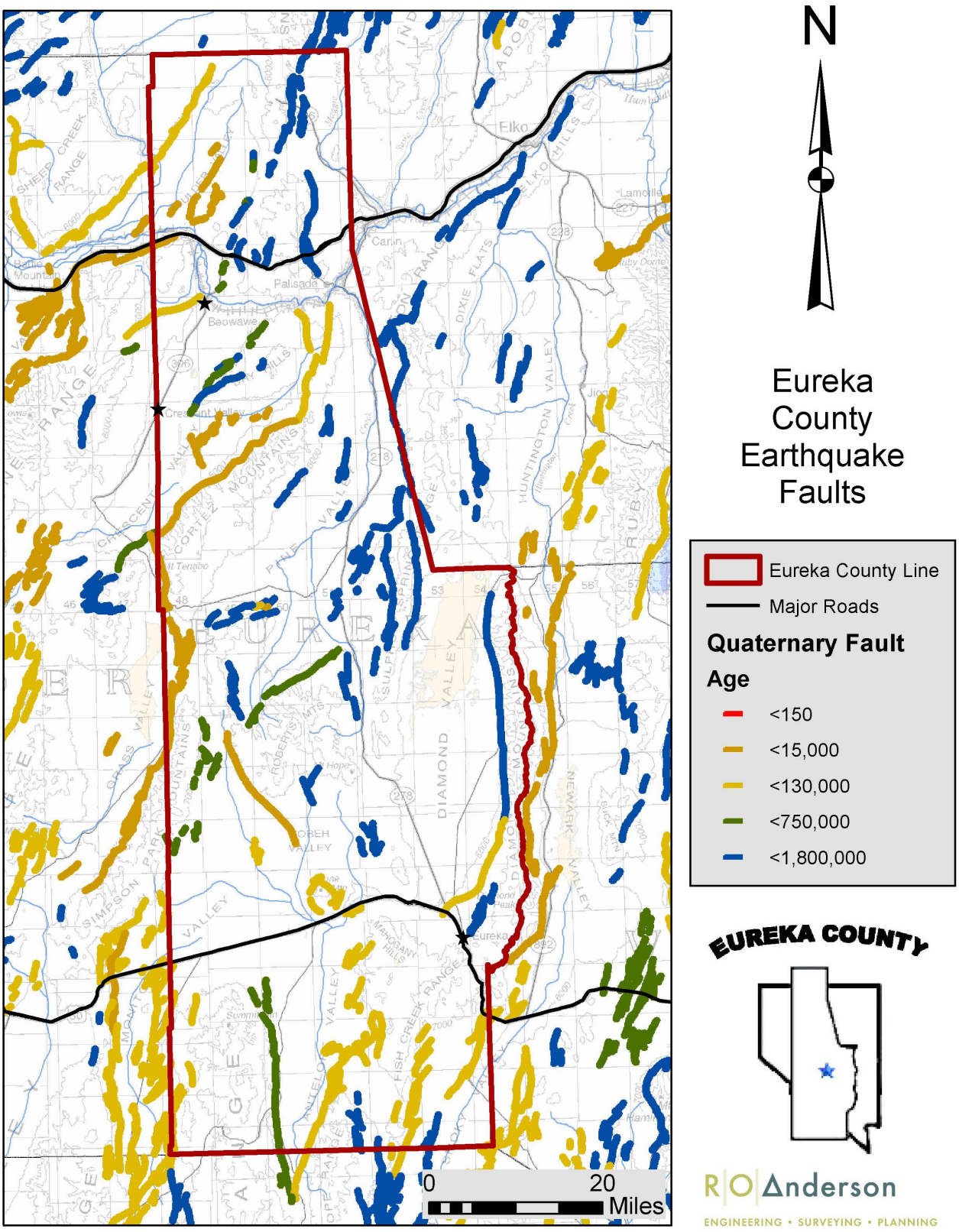
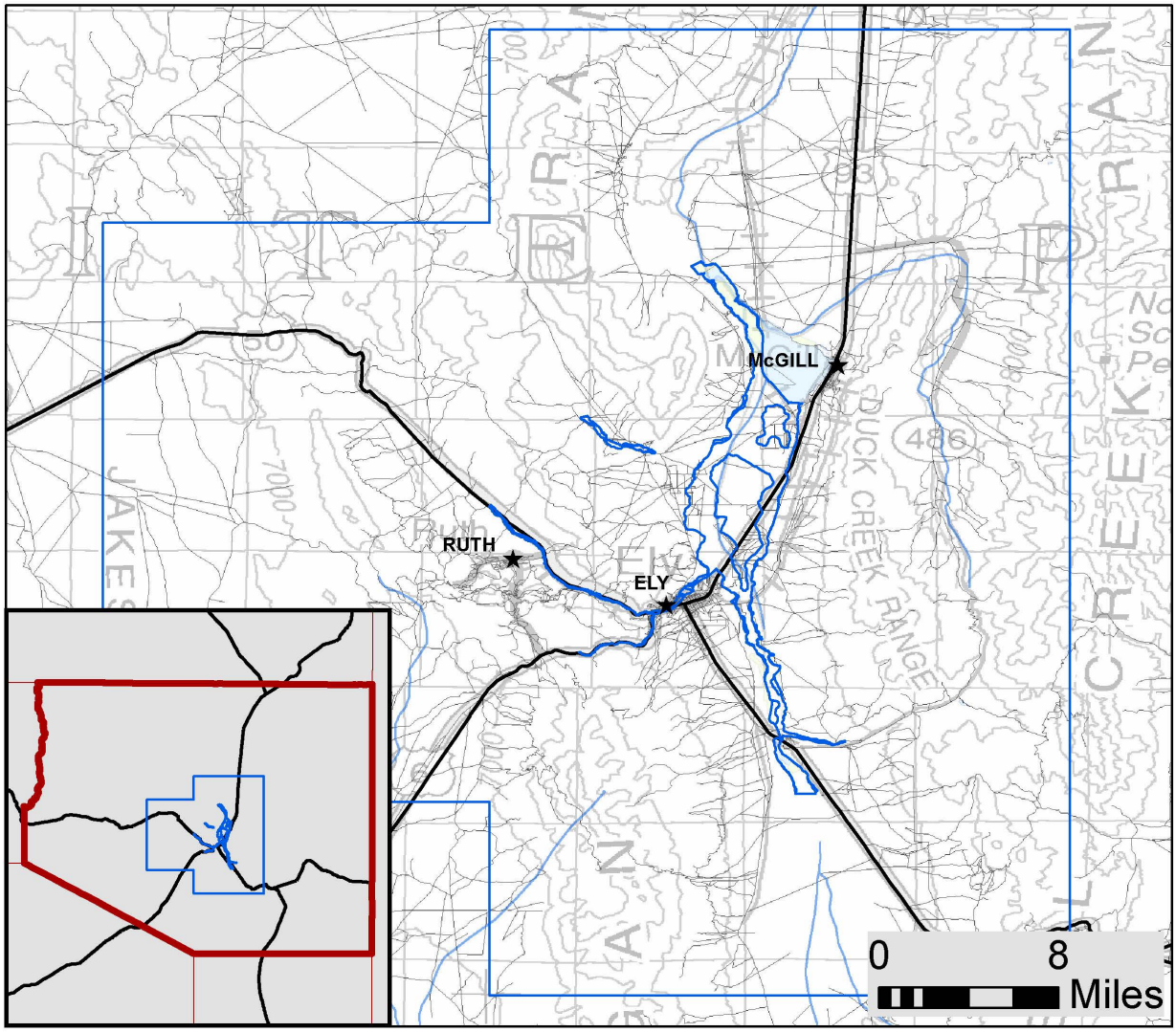


Figure B-4: White Pine County
FEMA-FIRM Flood Zones



N

White Pine County
FEMA-FIRM Flood Zones

White Pine County
Major Roads
0.2% & 1% Annual Chance Flood Zones

WHITE PINE COUNTY
NEVADA

R O Anderson
ENGINEERING • SURVEYING • PLANNING

Figure B-5: Eureka County
FEMA-FIRM Flood Zones

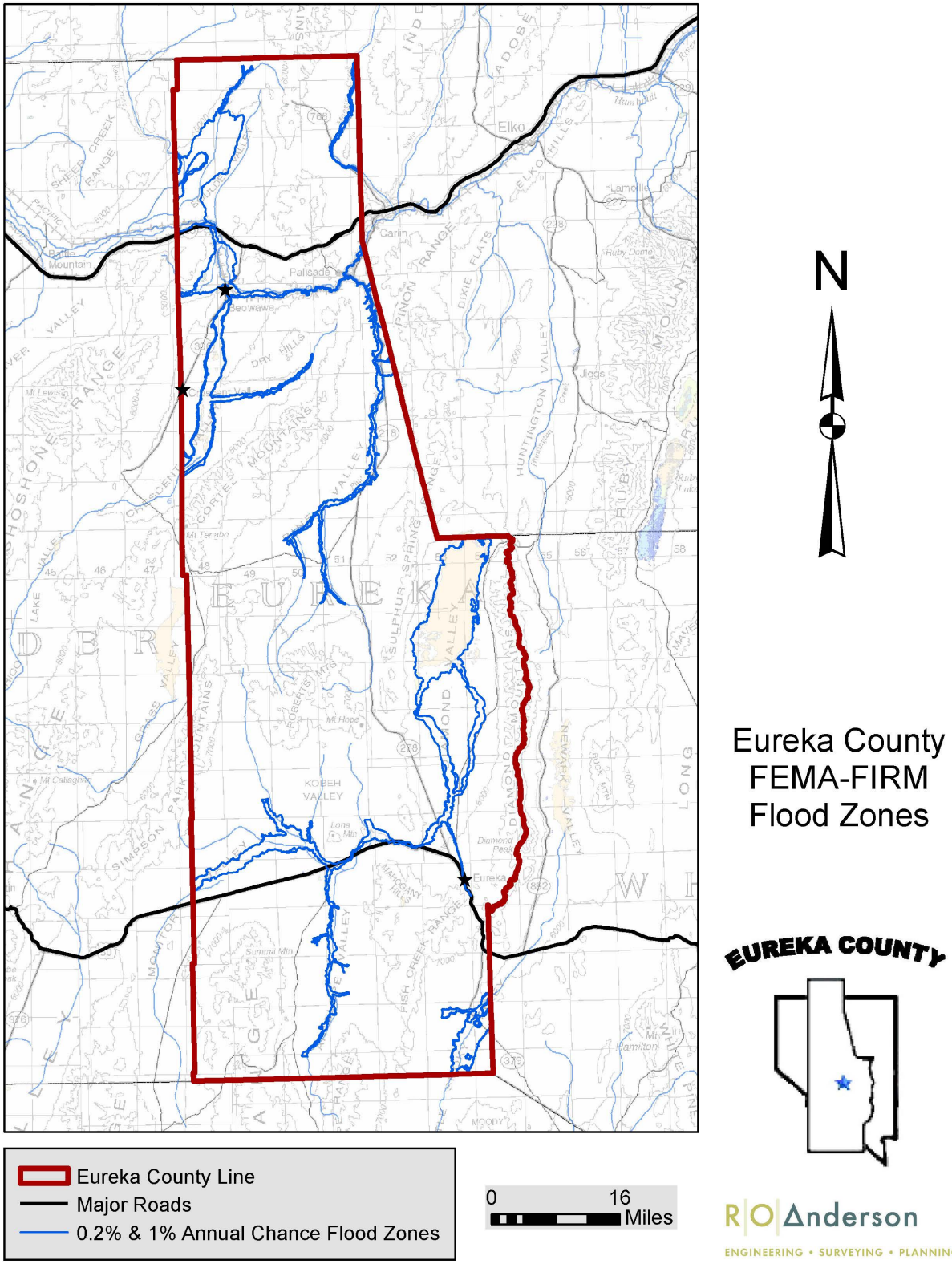
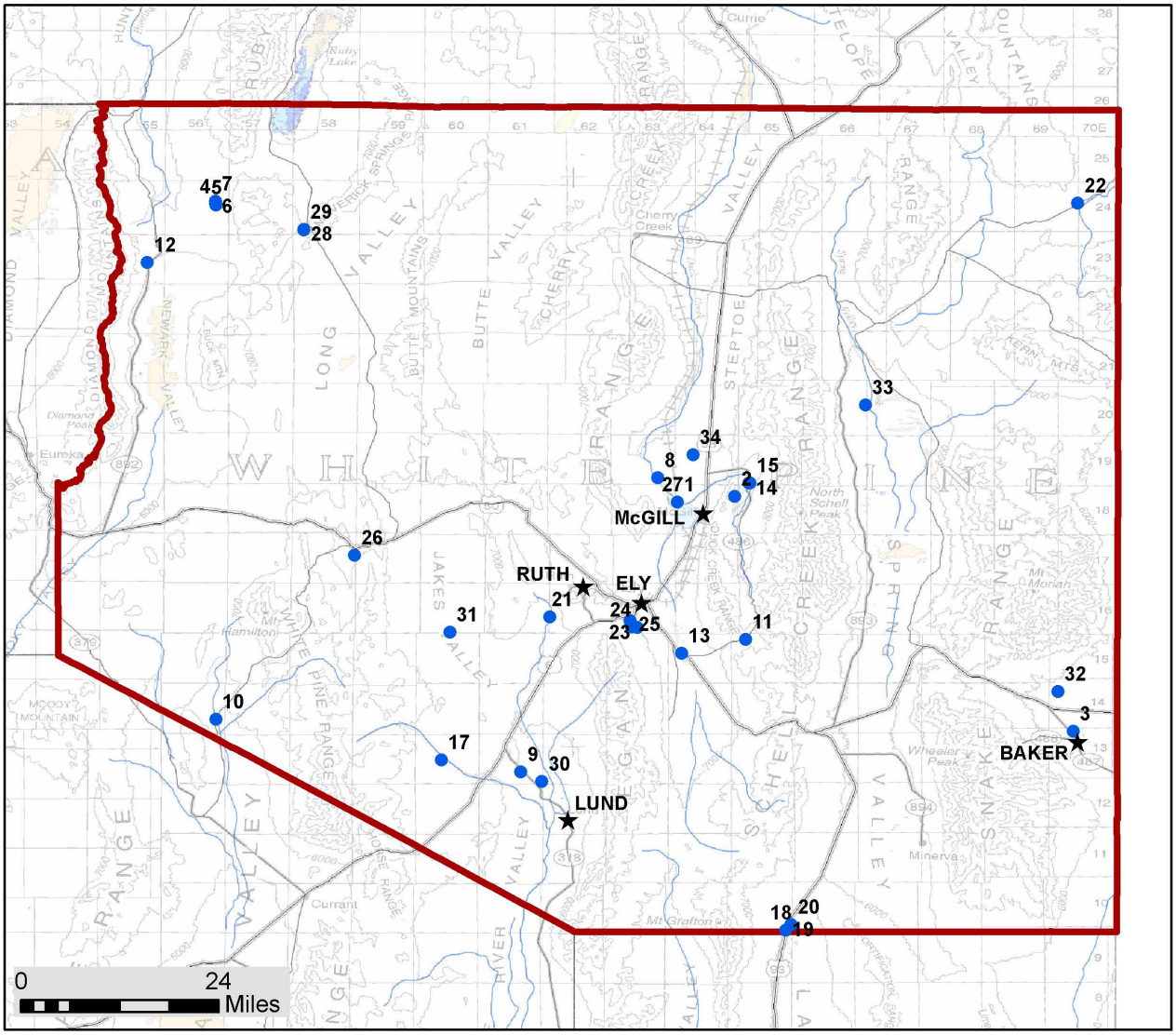


Figure B-6: White Pine County Dam Locations



White Pine County Dam Locations

N

White Pine County
Major Roads
Dam Locations

WHITE PINE COUNTY
NEVADA

R O Anderson
ENGINEERING • SURVEYING • PLANNING

Figure B-7: Eureka County Dam Locations

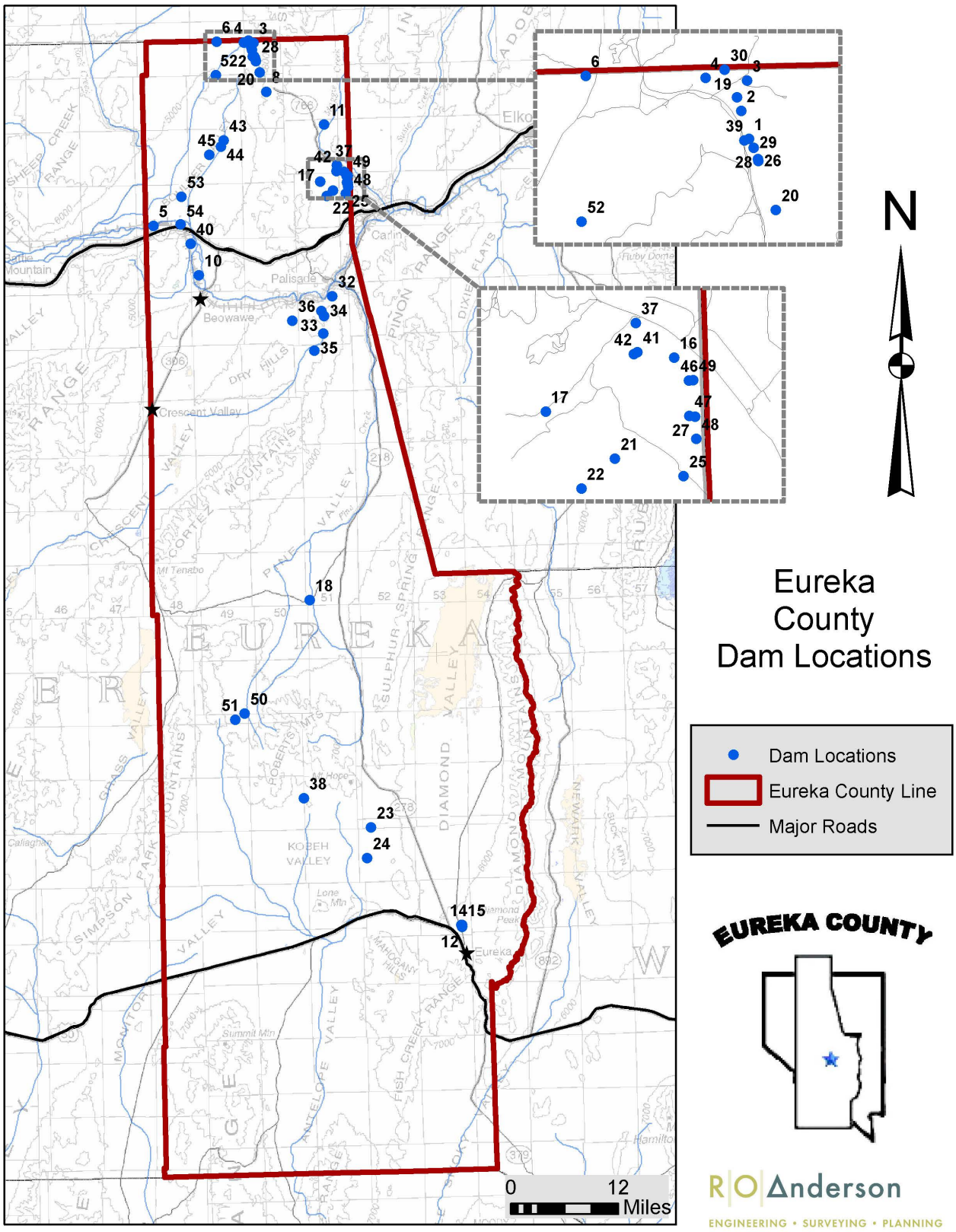


Figure B-8: Potential Hazardous Materials Sites and Routes for Eureka County

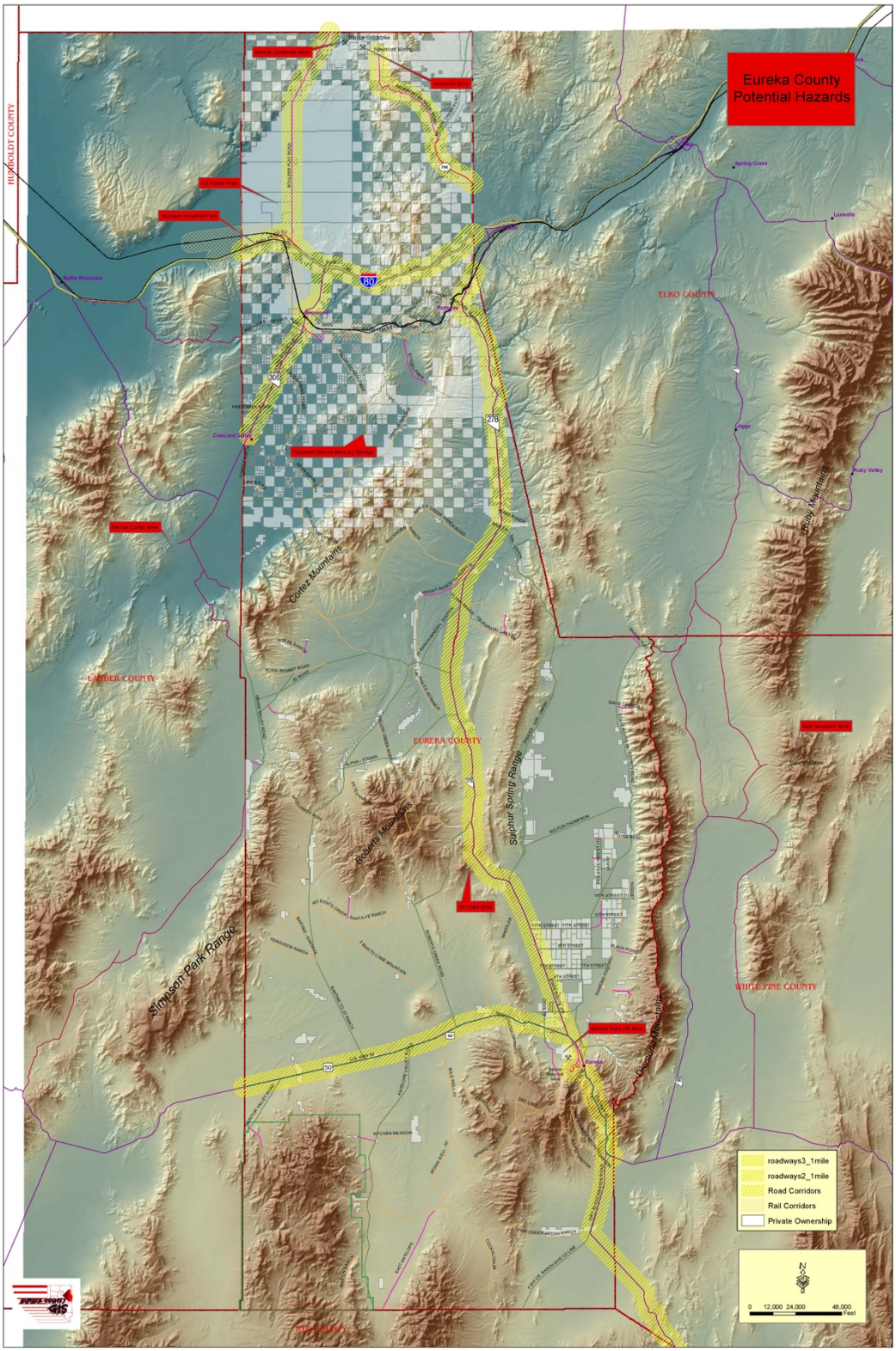


Figure B-9: White Pine County Wildfire Exhibit

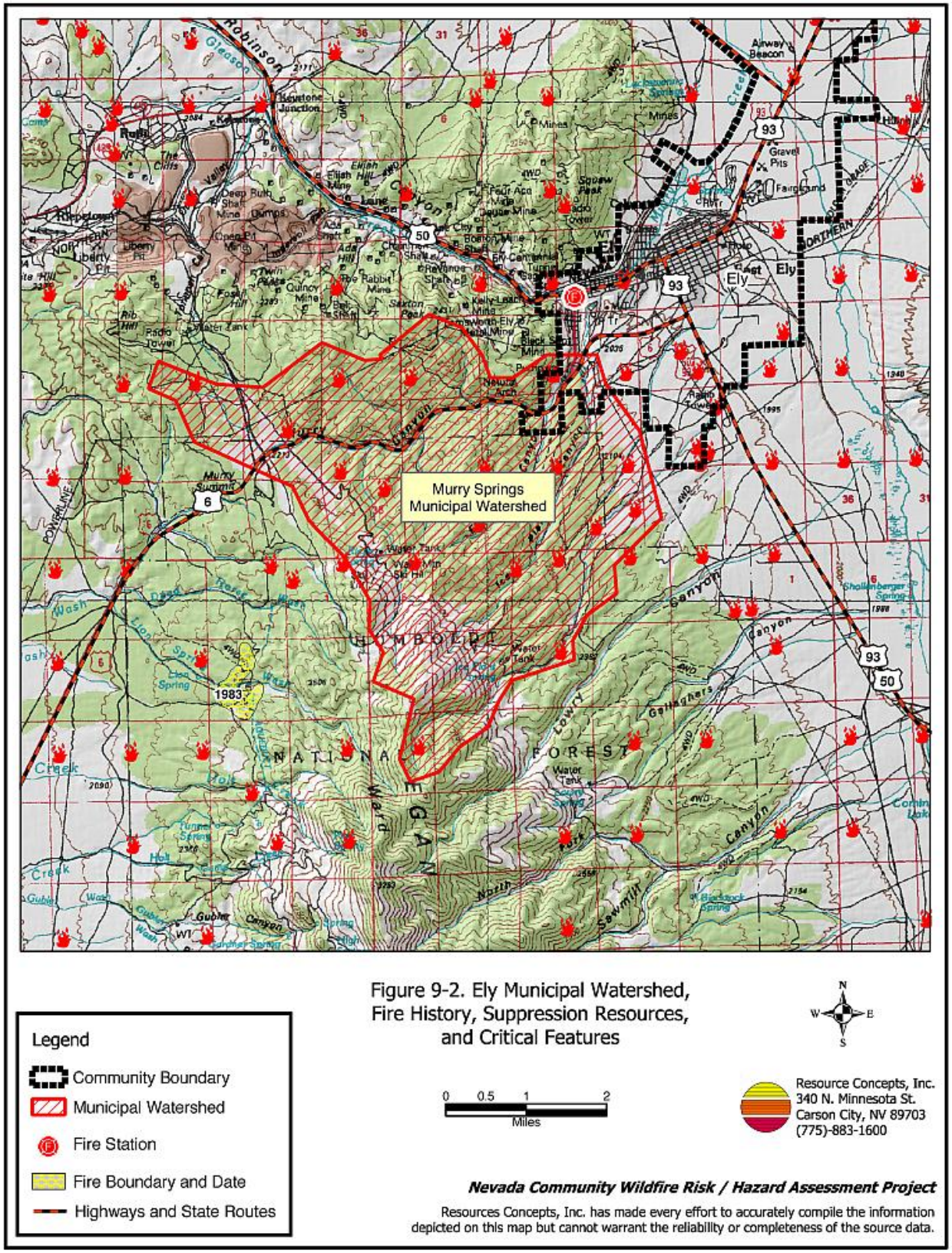


Figure B-10: Eureka County Wildfire Exhibit

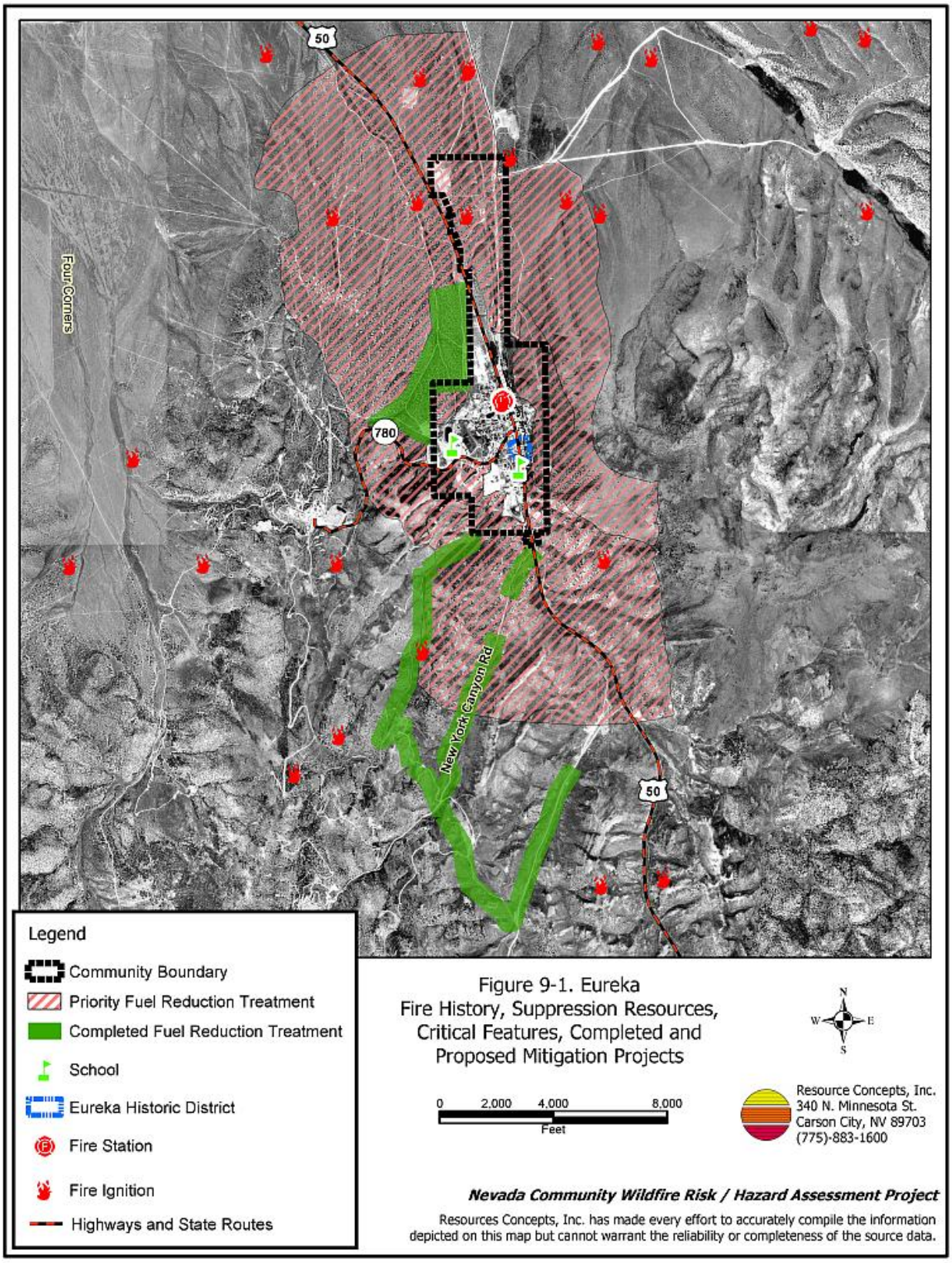
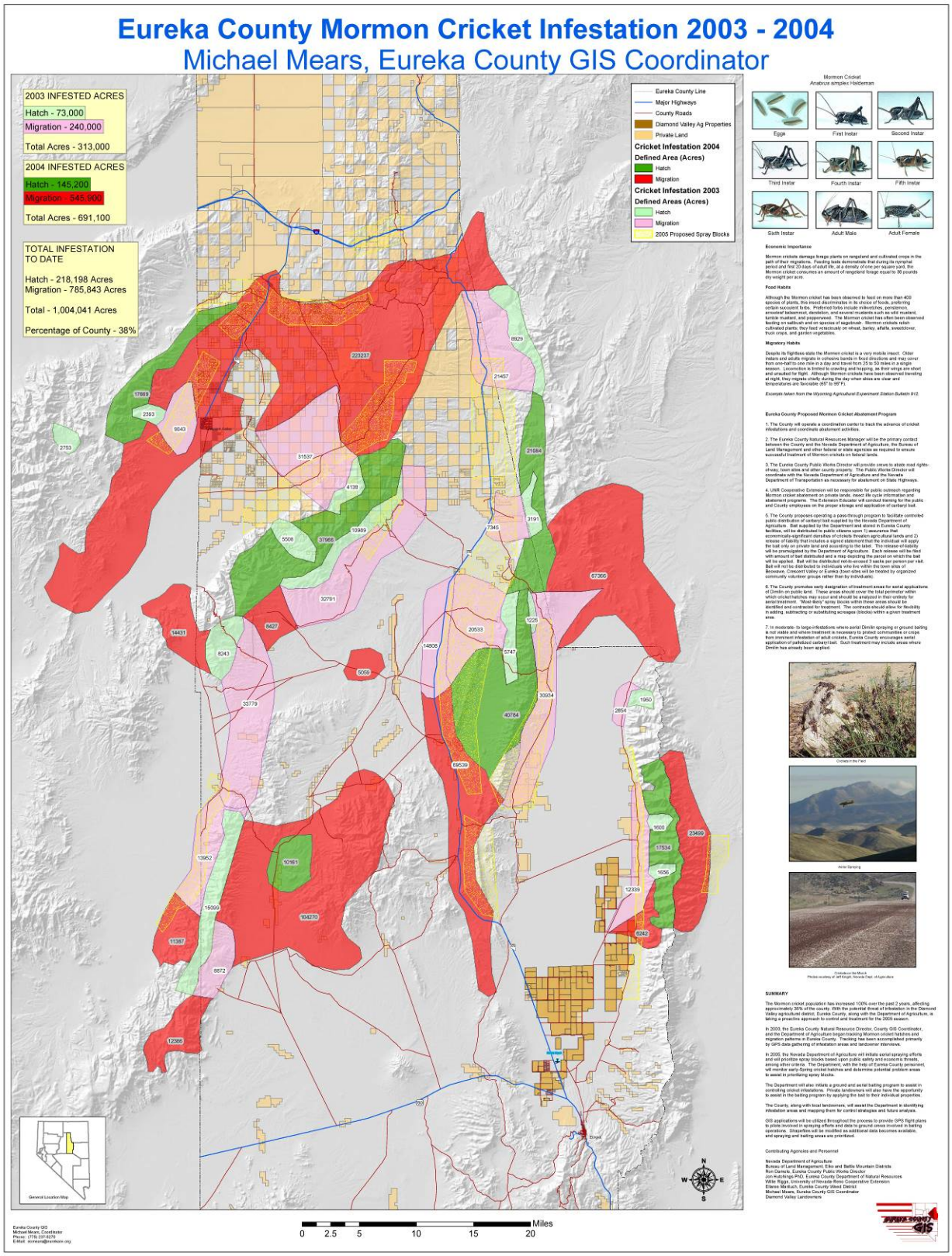


Figure B-11: Infestation of Mormon Crickets in Eureka County



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Appendix C
Public Information

DATE

Dear Neighboring Community,

We would like to invite you to participate in the update of the *White Pine and Eureka County Multi-Jurisdictional Hazard Mitigation Plan.*

Over the next several months, we will conduct a planning effort to update our multi-jurisdictional hazard mitigation plan for White Pine County, Eureka County, and the City of Ely. This updated plan will be developed to facilitate compliance with federal requirements and to provide a tool for local government, industry, and private venues to help reduce the impact of natural and man-made disasters. Further, the plan will help our communities develop infrastructure and mitigation actions to lessen potential damage.

One of the major components of the plan development is having a good cross-section of community input and participation by neighboring communities, and that is the reason for this invitation. I am hoping that you will agree to be included on the Local Planning Team. The level of commitment will involve a few meetings, plus a review of the components of the plan as they are written. Generally, much of the work can be completed via email.

I am hoping that you can participate as a representative of your profession. If you are willing to join our team, please RSVP to me at RDamele@EurekaCountyNV.gov.

Cordially,

Ron Damele
Eureka County Emergency Manager

DATE

Fire Chief Tim Woolever and White Pine County Emergency Management respectfully request your participation in the review and update of the *White Pine and Eureka County Multi-Jurisdictional Hazard Mitigation Plan*.

As many of you are aware, White Pine County, Eureka County and the City of Ely developed a comprehensive Multi-Hazard Mitigation Plan in 2014. FEMA requires the plan to be updated and resubmitted for federal approval every five years. Therefore, over the next eighteen months, Nevada Division of Emergency Management will be assisting the Counties and the City to facilitate the planning effort in order to accomplish this task.

This plan was developed to facilitate compliance with federal requirements and to provide a tool for local government, industry, and private venues to help identify and reduce the impact of potential threats. The plan examines the potential threats that residents may face. It also addressed mitigation efforts that can take place in both public and private venues that can help reduce the impacts of these threats.

We are hoping that you can participate as a representative of your expertise. If you are willing to join the Planning Committee, please RSVP to me at TWoolever@whitepinecountynv.gov.

Sincerely,

WHITE PINE AND EUREKA COUNTY
EMERGENCY MANAGEMENT PRESS RELEASE

In recent years nature has been restless in Nevada. There have been swarms of earthquakes rattling the western portion of the State, ravishing wildland fires, and recent flood events. All of these emergency events have demonstrated to us all that White Pine County and Eureka County can be vulnerable to natural disasters. The risks posed by these hazards will continue to increase as the County's population continues to grow.

White Pine County, Eureka County, and the City of Ely have launched a planning effort, known as the White Pine and Eureka County Multi-Jurisdictional Hazard Mitigation Plan. The purpose of this effort is to evaluate the risks different types of hazards pose to the Counties, and to engage the Counties and the community in dialogue to identify the steps that are most important in reducing these risks. This plan is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance. White Pine County, Eureka County, and the City of Ely anticipate the planning process to be completed by spring 2019.

Public comments and participation are welcomed and encouraged. For additional information, request to participate, or to make comments, please contact:

Eureka County: Ron Damele,
Eureka County Emergency Manager
(775) 237-5372,
email RDamele@EurekaCountyNV.gov

White Pine County: Tim Woolever,
Fire Chief/Emergency Management
(775)293-6503,
email TWoolever@whitepinecountynv.gov

Publish: The Eureka Sentinel, May 3, 2018.

WHITE PINE AND EUREKA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Posted by The Ely Times | Jul 27, 2018 | News | 0

In recent years nature has been restless in Nevada. There have been swarms of earthquakes rattling the western portion of the State, ravishing wildland fires, and recent flood events.

All of these emergency events have demonstrated to us all that White Pine County and Eureka County can be vulnerable to natural disasters. The risks posed by these hazards will continue to increase as the County's population continues to grow.

White Pine County, Eureka County, and the City of Ely have launched a planning effort, known as the White Pine

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White Pine County, Eureka County, and the City of Ely anticipate the planning process to be completed by spring 2019.

Public comments and participation are welcomed and encouraged. For additional information, request to participate, or to make comments, please contact:

Eureka County: Ron Damele, Eureka County Emergency Manager at (775) 237-5372, email RDamele@EurekaCountyNV.gov

White Pine County: Elizabeth Frances, Finance Director at (775)293-6508, email EFrances@whitepinecountynv.gov

SHARE:

INSERT PRESS RELEASES FROM PUBLIC COMMENT PERIOD.

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Appendix D
Meeting Agendas & Handouts

EUREKA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE

PO BOX 677 · EUREKA · NEVADA · 89316
(775) 237-5262

AGENDA

NOTICE IS HEREBY GIVEN that the Local Emergency Planning Committee will meet pursuant to law on January 19, 2018 at 12:00 p.m. in the Eureka County Courthouse, 10 S. Main Street

POSTED JANUARY 16, 2018

Public Notice:

- *The Committee may take action on items marked "Discussion/For Possible Action.*
- *Items may be taken out of the order presented on the agenda at the discretion of the chairperson.*
- *Items may be combined for consideration by the Committee at the discretion of the chairperson.*
- *Items may be pulled or removed from the agenda at any time.*

1) **Call to Order** – Call meeting to order.
2) **Public Comment** – Public comment may be heard on any agenda item prior to being heard by the Committee. The Committee will grant each person three minutes to express their viewpoints on any agenda item.
3) **Agenda** – Approval of the agenda notice with addition of any emergency item and/or deletion. (For Possible Action)
4) **Minutes** - Review and approve or deny the minutes from October 6, 2017. (For Possible Action)
5) **LEPC Matters** - Review Multi-Jurisdictional Hazard Mitigation Plan in preparation for update through Stephanie Hicks, Director of Grants and Hazard Mitigation Planning for R.O. Anderson. (For Possible Action)
6) **LEPC Matters** - Appoint Chair and Vice-Chair and review members for Calendar year 2018. (For Possible Action)
7) **LEPC Matters** - Review annual documents for submission to SERC including: Letter of Promulgation; By-Laws; NRT-1A Checklist; Level of Response Questionnaire; Membership List; Member Contact Form; Public Service Announcement Publication and Affidavit and Record of Change for 2018 HazMat Plan. (For Possible Action)
8) **LEPC Matters** – Determine date(s) and topic(s) for training and/or Tabletop Exercises. (Discussion)
9) **LEPC Matters** – Review letter of resignation from LEPC Secretary, Amanda Pearce. (For Possible Action)
10) **Public Health Preparedness** – Review PHP Updates provided by Crystal Harjo.
11) **Next Meeting Date** - The committee will tentatively set the next meeting date(s). (For Possible Action)
12) **Public Comment & Open Discussion**
    - Public comment and open discussion. No action may be taken on a matter raised under this item until the matter has been specifically included on an agenda as an item upon which action will be taken.
    - The public is welcome to request agenda items for future meetings during the "Public Comment" period or consult with one or more of the Committee members to request agenda items for future meetings.
    - Public comment may be heard on any agenda item. The Committee will grant each person three minutes to express their viewpoints.
    - The public may comment on any matter not specifically on the agenda
13) **Next Agenda Items** - Consider items requiring action to be placed on the agenda for the next meeting. (For Possible Action)
14) **Adjournment** The Committee will adjourn the meeting.

Posted in Eureka at: Courthouse x 2, Administration Facility, and US Post Office. Posted in Crescent Valley at the Crescent Valley Town Hall. Notice to persons with disabilities: People who require special assistance are requested to notify the Clerk/Treasurer office prior to the meeting at 775-237-5262. Supporting material for the LEPC can be obtained from Amanda Pearce at the Eureka County Clerk & Treasurer Office at 10 S. Main Street, Eureka, NV 89316. Phone 775-237-5262.

EUREKA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE
PO BOX 677 · EUREKA · NEVADA · 89316
(775) 237-5262

MINUTES - January 19, 2018

The Local Emergency Planning Committee met in the Eureka County Courthouse
Present: Keith Logan, Michael Mears, Amanda Pearce, Mike Sharkozy, Shealene French, Ronald Damele, Michael Sullivan, Roger Hubbard, Jayme Halpin, Earl Overholser, John Schweble, Jr., and guests from McEwen Mining, Mike Worley and Ron Jensen.

Call to Order:
The Chair called the meeting to order at 12:05 pm.

Public Comment:
LEPC member, Earl Overholser reported that Hunt & Sons Petroleum bought Al Park Petroleum, where he was previously employed; Mr. Overholser represents both the Local Environmental and EPCRA Facility categories for Eureka LEPC. Mr. Overholser also reported that Hunt & Sons will be hosting a luncheon on February 1st at the Opera House and bringing a 110' long truck that highlights facets of the company-all are invited.

Agenda:
After reviewing the agenda, Michael Sharkozy motioned to approve as written. Ronald Damele seconded the motion. The Chair called for further discussion; nothing further; motion carried 10-0.

Minutes:
Co-Chair Michael Mears motioned to approve the October 6, 2017 minutes as written. Mr. Sullivan seconded the motion. The Chair called for further discussion; nothing further; motion carried 10-0.

LEPC Matters:
Multi-Jurisdictional Mitigation Plan Update: Mr. Damele reported that the LEPC will work with Stephanie Hicks during 2018 to update the plan, at no cost to the County. He proposed appointing the existing LEPC members to populate the subcommittee. A discussion ensued. Mr. Damele motioned to appoint the LEPC members as the subcommittee to work with Stephanie Hicks, Mitigation Planner with Nevada Division of Emergency Management; Mr. Overholser seconded; motion carried 10-0.
2018 Appointments: Mr. Sullivan, who is retiring, motioned to appoint EMT Shealene French in his stead for both the First Aid and Health categories on the Planning Committee Membership List; Mr. Damele seconded; Mr. Sharkozy motioned to appoint Ron Jenkins, from McEwen Mining as the alternate for both the Local Environmental and EPCRA Facility categories. Mr. Sharkozy motioned to retain Mr. Logan as Chair of the LEPC, and Mr. Mears as Vice-Chair; Ms. French seconded; all motions carried 10-0.
2018 Hazmat Plan: Mr. Damele motioned to accept changes to the Eureka HazMat plan for 2018; primarily changes to Volunteer Fire Department Personnel, retirement of EMS Director, and some vehicles; Mr. Mears seconded; motion carried 10-0.

Training/Tabletop: A discussion ensued regarding the timing for a Tabletop Exercise in Calendar Year 2018. With many departments undergoing software conversions in the first two quarters, the Committee determined that the Tabletop would likely be conducted at the July 6, 2018 meeting.

Next Meeting

The Chair set the next meeting for April 6, 2018; Mr. Damele pointed out that the Multi-Jurisdictional Hazard Mitigation Plan updates might prompt special meetings prior to that date.

Public Comment and Open Discussion

EMS Director, Michael Sullivan reported on the severity of the flu this winter. He indicated that Eureka had not seen cases on the same proportion as the rest of the country, due to the mild weather, but he said he anticipates more cases as the season progresses.

Next Agenda Items

Mr. Logan requested that the USPD hub software purchase included on the FY18 SERC Grant be posted on the April 6, 2018 agenda. A discussion ensued regarding possible equipment requests for the FY19 SERC Grant. The Committee discussed possibly requesting a Portable Repeater, or requesting funds for a portion of a tower repeater.

Adjournment

Mr. Damele motioned to adjourn the meeting at 12:46; Mr. Sharkozy seconded the motion. The Chair called for further discussion; nothing further; motion carried 10-0.

4-19-18 Meeting Agenda
White Pine & Eureka County Multi-Jurisdictional Hazard Mitigation Plan Update

1:00 to 4:00 pm, Thursday, April 19, 2018
WPC Emergency Operations Center
1150 North McGill Highway, Ely, NV

1. **WELCOME & INTRODUCTIONS**
2. **HAZARD MITIGATION PLANNING PROCESS OVERVIEW**
3. **INCORPORATION OF EXISTING PLANS**
4. **HAZARD RANKING & PROFILE REVIEW**
5. **ANNOUNCEMENT OF FUTURE MEETINGS**

4-19-18 Meeting Sign In Sheet

White Pine County HMP Planning Subcommittee
April 19, 2018 – HMP Update
Sign-in-Sheet

Name	Firm/Agency	Phone Number	Email
Kathryn Griffith	LEPC	775-293-7238	kmgriffithnv@gmail.com
Scott Herrick	W.P.C.S.D.	775-289-8898	sherrick@whitepinecountynv.gov
Matthew Walker	WBRH	775-289-1429	mwalker@wbrhely.org
Burton Hilton	WPC Assessor	775-293-6582	bhilton@whitepinecountynv.gov
Pete Mangum	WPCo. S.D.	775-293-5242	pete.mangum@wpcnv.com
Ross Rivera	Ely Fire Dept	775-289-6633	rriverafire@aol.net
Desiree Burnson	Social Services	775-293-6528	Dburnson@whitepinecounty.net
Bill Alderwood	Public Works	775-293-6553	bealderwood@ " "
Tim Woolever	WPC OEM/F.D.	775-293-6503	twoolever@whitepinecountynv.gov
Saundra Robertson		775-296-1465	saundra5@sbcglobal.net
Dave Berry	City of Ely (Streets)	775-293-7084	dberry@elycity.com
Juan Cabes Cervantes	COOP. Extension	775-293-6598	cervantes@unce.unr.edu

EUREKA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE

PO BOX 677 · EUREKA · NEVADA · 89316
(775) 237-5262

AGENDA

NOTICE IS HEREBY GIVEN that the Local Emergency Planning Committee will meet pursuant to law on April 20, 2018 at 12:00 p.m. in the Eureka County Courthouse, 10 S. Main Street

POSTED APRIL 16. 2018

Public Notice:

- *The Committee may take action on items marked "Discussion/For Possible Action.*
- *Items may be taken out of the order presented on the agenda at the discretion of the chairperson.*
- *Items may be combined for consideration by the Committee at the discretion of the chairperson.*
- *Items may be pulled or removed from the agenda at any time.*

- **Call to Order** – Call meeting to order.
- **Public Comment** – Public comment may be heard on any agenda item prior to being heard by the Committee. The Committee will grant each person three minutes to express their viewpoints on any agenda item.
- **Agenda** – Approval of the agenda notice with addition of any emergency item and/or deletion. (For Possible Action)
- **Minutes** - Review and approve or deny the minutes from January 19, 2018. (For Possible Action)
- **LEPC Matters – White Pine & Eureka County Multi-Jurisdictional Hazard Mitigation Plan Update**. (For Possible Action)
    a) Welcome and Introductions
    b) Hazard Mitigation Planning Process Overview
    c) Incorporation of Existing Plans
    d) Hazard Ranking and Profile Review
    e) Announcement of Future Meetings
- **Next Meeting Date** - The committee will tentatively set the next meeting date(s). (For Possible Action)
- **Public Comment & Open Discussion**
    - Public comment and open discussion. No action may be taken on a matter raised under this item until the matter has been specifically included on an agenda as an item upon which action will be taken.
    - The public is welcome to request agenda items for future meetings during the "Public Comment" period or consult with one or more of the Committee members to request agenda items for future meetings.
    - Public comment may be heard on any agenda item. The Committee will grant each person three minutes to express their viewpoints.
    - The public may comment on any matter not specifically on the agenda

8) **Next Agenda Items** - Consider items requiring action to be placed on the agenda for the next meeting. (For Possible Action)
9) **Adjournment** The Committee will adjourn the meeting.

Posted in Eureka at: Courthouse x 2, Administration Facility, and US Post Office. Posted in Crescent Valley at the Crescent Valley Town Hall. Notice to persons with disabilities: People who require special assistance are requested to notify the Clerk/Treasurer office prior to the meeting at 775-237-5262. Supporting material for the LEPC can be obtained from Amanda Pearce at the Eureka County Clerk & Treasurer Office at 10 S. Main Street, Eureka, NV 89316. Phone 775-237-5262.

Eureka County HMP Planning Subcommittee
April 20, 2018 – HMP Update
Sign-in-Sheet

Name	Firm/Agency	Phone Number	Email
KEITH LOGAN	EUREKA COUNTY SHERIFF	(775)318.0307	klogan@eurekacountynv.gov
JAYME HALPEN	EUREKA PUBLIC WORKS	775 233 5031	jhalpin@eurekacountynv.gov
R Earl Overholser	Hunt & Sons	775 318 0299	HPT appeal@att.net
Shealene French	Eureka County EMS	775-340-1356	SFrench@eurekacountynv.gov
JESSE WATTS	EUREKA COUNTY CITIZEN	7752379898	WATTSJ86@GMAIL.COM.
Ronald Damele	Eureka County	775 237 5372	rdamele@eurekaCounty nv.gov
CATHY WOLF	EUREKA CO. EMS / CRESCENT VALLEY	775.388.3830	CWolf@eurekacountynv.gov

State Enhanced Hazard Mitigation Plan 2013 Update

HAZARD PRIORITIZATION CRITERIA			
Criterion	Value	Category	Description
Probability/Frequency	1	Very Low	Occurs less than once in 1000 years.
	2	Low	Occurs less than once in 100 to once in 1000 years.
	3	Medium	Occurs less than once in 10 to once in 100 years.
	4	High	Occurs less than once in 5 to once in 100 years.
	5	Very High	Occurs more frequently than once in 5 years.
Magnitude/Severity (includes Economic Impact, Area Affected and Vulnerability)	1	Very Low	• Negligible property damages (less than 5% of all buildings and infrastructure). • No deaths and injuries/illnesses treatable with first aid and do not require hospitalization. • Negligible loss of quality of life. • Economic and geographic effects are localized.
	2	Low	• Slight property damages (5% to 15%) of all buildings and infrastructure). • No deaths and few injuries/illnesses require hospitalization. • Slight loss of quality of life. • Economic and geographic effects felt at the city or community.
	3	Medium	• Moderate property damages (15% to 30% of all buildings and infrastructure). • Fewer than 5 deaths and multiple injuries/illnesses require hospitalization. • Some loss of quality of life. • Economic and geographic effects felt countywide.
	4	High	• Moderate property damages (30% to 50% of all buildings and infrastructure). • More than 5 deaths and considerable injuries/illnesses require hospitalization in multiple facilities with some resulting in permanent disability. • Moderate loss of quality of life. • Economic and geographic effects felt statewide.
	5	Very High	• Moderate property damages (30% to 50% of all buildings and infrastructure). • Significant number of deaths and injuries/illnesses requiring hospitalization in multiple facilities with some resulting in permanent disability. • Significant loss of quality of life. • Economic and geographic effects felt at the Region IX level.
Warning Time	1	Very Low	Greater than 48 hrs
	2	Low	24 to 48 hrs
	3	Medium	12 to 24 hrs
	4	High	6 to 12 hrs
	5	Very High	Less than 6 hrs
Duration of Loss of Critical Facilities and Services	1	Very Low	1 to 3 days
	2	Low	4 to 7 days
	3	Medium	8 to 14 days
	4	High	15 to 20 days
	5	Very High	More than 20 days

2013 Table 5-3: Hazard Ranking Results — White Pine County

Hazard Type	Frequency	Magnitude/Severity	Warning Time	Duration of Loss of Critical Facilities & Services
Natural				
Avalanche	Low	Low	Medium	Low
Drought	High	Medium	Low	Medium
Earthquakes	Low	Medium	High	High
Epidemic	Low	Low	Low	Low
Expansive Soils	Low	Low	Low	Low
Flood (Includes dam failure & canal failure)	Medium	Medium	Medium	Medium
Infestations	Medium	Low	Low	Medium
Landslide	Low	Low	Low	Low
Land Subsidence & ground Failure	Low	Low	Low	Low
Severe Weather (Extreme Heat, Thunderstorm, Snow, Tornado, Windstorm)	High	Medium	Medium	Medium
Tornado	Low	Low	Medium	Low
Utility Loss/Power Loss	Medium	Low	Medium	Medium
Volcano	Low	Low	Very Low	Low
Wildfire	Very High	High	High	Medium
Human Caused				
Hazmat	High	Medium	Very High	Low
Mining Hazards	Medium	Low	Low	Very Low
WMD/Terrorism	Low	Low	High	Low

Table 5-3: cont'd — City of Ely

Hazard Type	Frequency	Magnitude/Severity	Warning Time	Duration of Loss of Critical Facilities & Services
Natural				
Avalanche	Very Low	Very Low	Very Low	Very Low
Drought	Medium	Medium	Low	Low
Earthquakes	Medium	Medium	Medium	Medium
Epidemic	Low	Low	Medium	Low
Expansive Soils	Low	Low	Low	Low
Flood (Includes dam failure & canal failure)	Medium	Medium	Very High	Low
Infestations	Very Low	Very Low	Very Low	Very Low
Land Slide	Very Low	Very Low	Very low	Very Low
Land Subsidence & ground Failure	Very Low	Very Low	Very low	Very Low
Severe Weather (Extreme Heat, Thunderstorm, Snow, Tornado, Windstorm)	Medium	Medium	High	Medium
Tornado	Very Low	Very Low	Very Low	Low
Utility Loss/Power Loss	Medium	Low	Medium	Medium
Volcano	Very Low	Very Low	Very Low	Very Low
Wildfire	Medium	Low	Medium	Very Low
Human Caused				
Hazmat	Medium	Medium	High	Low
Mining Hazards	Very Low	Very Low	Very Low	Low Very
WMD/Terrorism	Very Low	Very Low	Very Low	Very Low

Table 5-3: cont'd — Eureka County

Hazard Type	Frequency	Magnitude/Severity	Warning Time	Duration of Loss of Critical Facilities & Services
Natural				
Avalanche	Low	Low	Medium	Low
Drought	High	Medium	Very Low	Low
Earthquakes	High	Medium	Very High	High
Epidemic	Low	Low	Low	Medium
Expansive Soils	Low	Very Low	Low	Low
Flood (Includes dam failure & canal failure)	Medium	Medium	Medium	Medium
Infestations	Medium	Low	Very Low	Low
Land Slide	Low	Low	Medium	Low
Land Subsidence & Ground Failure	Low	Low	Medium	Low
Severe Weather (Extreme Heat, Thunderstorm, Snow, Tornado, Windstorm)	High	Medium	Medium	Low
Tornado	Low	Low	Medium	Low
Utility Loss/Power Loss	Medium	Low	Medium	Medium
Volcano	Very Low	Very Low	Very Low	Very Low
Wildfire	Very High	High	High	High
Human Caused				
Hazmat	High	Medium	High	Low
Mining Hazards	Very Low	Very Low	Very Low	Very Low
WMD/Terrorism	Low	Low	Medium	Medium

Table 5-4: Hazard Ranking

High Risk	Medium Risk	Low Risk
Earthquake Flood Wildfire Hazardous Materials	Drought Epidemic Severe Weather Utility Loss/Power Loss WMD/Terrorism	Avalanche Expansive Soils Infestations Land Slide Land Subsidence & Ground Failure Mining Hazards Tornado

10.1 INCORPORATION OF EXISTING PLANS AND OTHER RELEVANT INFORMATION

During the planning process, the Planning Committees reviewed and incorporated information from existing plans, studies, reports, and technical reports into the HMP. A synopsis of the sources used follows.

- ***Eureka County Water Resources Master Plan* (2016):** Section 7.1 Floodplain Management in Eureka County.
- ***Eureka County, Nevada Socioeconomic Conditions* (2015):** Population and Housing
- ***Eureka County Master Plan (*2010*)**: Guiding document which includes Element 3 Growth Management, Element 6 Natural Resources, Element 7 Land Use, Element 11 Conservation, and Element 13 Open Space.
- ***White Pine County Comprehensive Economic Development Strategy (*2012*)**: This document provides geography, history, and land use information regarding White Pine County.
- ***City of Ely Floodplain Management Ordinance*:** These regulations apply to development within all areas of special flood hazards within the jurisdiction of the City of Ely.
- ***City of Ely Building Code*:** These regulations adopt of the most current edition of the building code, mechanical code, administrative code, plumbing code, fire code, and electrical code as used by the State of Nevada for populations of less than 100,000.
- ***City of Ely Fire Prevention Code***: These regulations adopt the latest edition of the uniform fire code.
- ***Community Wildfire Risk/Hazard Assessment Project, Eureka County (*RCI, May 2005*):** This document includes findings and recommendations for mitigating the threat to property from wildland fires.
- ***Community Wildfire Risk/Hazard Assessment Project, White Pine County (*RCI, April 2005*):** This document includes findings and recommendations for mitigating the threat to property from wildland fires.
- ***Emergency Operations Plan (*Eureka County 2009*)**: This document is the main reference source for managing disasters and large scale emergencies in Eureka County.
- ***Eureka County Hazardous Materials Response Plan (*2012*)**: This plan provides guidance to emergency response personnel on the general plan of action for a response to a hazardous materials emergency and provides for a resource directory.
- ***Eureka County School District School Emergency Response Plan:*** This document is the main reference source for managing disasters and large scale emergencies in the Eureka County School District.
- ***FEMA Flood Insurance Study for Eureka County, NV (*FEMA 2011*)**: This outlined the principal flood problems and floodplains within the County.

- ***FEMA Flood Insurance Study for White Pine County, NV (*FEMA 2010*):*** This outlined the principal flood problems and floodplains within the County.
- ***Lessons Learned: Summary of Findings and Recommendations For the Blue Ribbon Commission on America's Nuclear Future (2011):*** As one of the designated Affected Units of Local Government, Eureka County, Nevada, drafted this document to provide recommendations to the Blue Ribbon Commission on America's Nuclear Future regarding Yucca Mountain and its transportation routes.
- ***White Pine County Public Lands Policy Plan (2007):*** This document details White Pine County's Vision and strong policy voice concerning public lands and defines public lands related issues and needs.
- ***White Pine County Hazardous Materials Contingencies (2011)****:* This plan provides guidance to emergency response personnel on the general plan of action for a response to a hazardous materials emergency and provides for a resource directory.
- ***State of Nevada Multi-Hazard Mitigation Plan****:* This plan, prepared by NDEM, was used to ensure that the County's HMP was consistent with the State's Plan.
- ***State Maintained Highways of Nevada (January 2012):*** This report provides descriptions and Maps of Highways by County.

the hazard mitigation planning process

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and human-caused hazards. Four basic phases are described for the hazard mitigation planning process as shown in this diagram.

For illustration purposes, this diagram portrays a process that appears to proceed sequentially. However, the mitigation planning process is rarely a linear process. It is not unusual that ideas developed while assessing risks should need revision and additional information while developing the mitigation plan, or that implementing the plan may result in new goals or additional risk assessment.

organize resources

From the start, communities should focus on the resources needed for a successful mitigation planning process. Essential steps include identifying and organizing interested members of the community as well as the technical expertise required during the planning process.

assess risks

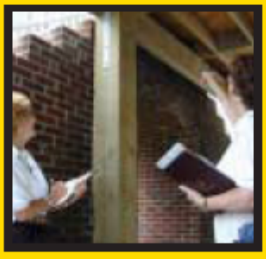
Next, communities need to identify the characteristics and potential consequences of hazards. It is important to understand how much of the community can be affected by specific hazards and what the impacts would be on important community assets.

develop a mitigation plan

Armed with an understanding of the risks posed by hazards, communities need to determine what their priorities should be and then look at possible ways to avoid or minimize the undesired effects. The result is a hazard mitigation plan and strategy for implementation.

implement the plan and monitor progress

Communities can bring the plan to life in a variety of ways ranging from implementing specific mitigation projects to changes in the day-to-day operation of the local government. To ensure the success of an on-going program, it is critical that the plan remains relevant. Thus, it is important to conduct periodic evaluations and make revisions as needed.



August 2, 2018 Meeting Agenda
White Pine & Eureka County Multi-Jurisdictional Hazard Mitigation Plan Update

1:00 to 4:00 pm, Thursday, August 2, 2018
WPC Emergency Operations Center
1150 North McGill Highway, Ely, NV

1. **CRITICAL INFRASTRUCTURE AND VULNERABILITY ASSESSMENT**
2. **CAPABILITY ASSESSMENT**
3. **MITIGATION ACTIONS STATUS & REVIEW**
4. **PLAN MAINTENANCE**
5. **ANNOUNCEMENT OF FUTURE MEETINGS**

White Pine County HMP Planning Subcommittee
August 2, 2018 – HMP Update
Sign-in-Sheet

Name	Firm/Agency	Phone Number	Email
Ross Rivera	Ely Fire Dept	775-289-6633	rrivera1906@Attnet
Rod McKenzie	W.P. County Water Advis.	775-238-5384	
Deirce Bamson	W.P.C. Social Services	775-293-6525	dbamson@whitepinecountynv.gov
Burton Hilton	WPC Assessor	775-293-6542	bhilton@whitepinecountynv.gov
Pete Manguem	W.P. Co School Dist	775-293-5242	pete-manguem@wpcnv.k12.nv.us pete_manguem@yahoo.com

EUREKA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE
PO BOX 677 · EUREKA · NEVADA · 89316
(775) 237-5262

AGENDA

NOTICE IS HEREBY GIVEN that the Local Emergency Planning Committee will meet pursuant to law on August 3, 2018 at 12:00 p.m. in the Eureka County Courthouse, 10 S. Main Street
POSTED JULY 30, 2018

Public Notice:

- *The Committee may take action on items marked "Discussion/For Possible Action.*
- *Items may be taken out of the order presented on the agenda at the discretion of the chairperson.*
- *Items may be combined for consideration by the Committee at the discretion of the chairperson.*
- *Items may be pulled or removed from the agenda at any time.*

- **Call to Order** – Call meeting to order.
- **Public Comment** – Public comment may be heard on any agenda item prior to being heard by the Committee. The Committee will grant each person three minutes to express their viewpoints on any agenda item.
- **Agenda** – Approval of the agenda notice with addition of any emergency item and/or deletion. (For Possible Action)
- **Minutes -** Review and approve or deny the minutes from April 20, 2018. (For Possible Action)
- **LEPC Matters** – White Pine & Eureka County Multi-Jurisdictional Hazard Mitigation Plan Update. (For Possible Action)

White Pine & Eureka County Multi-Jurisdictional Hazard Mitigation Plan Update

a) **CRITICAL INFRASTRUCTURE AND VULNERABILITY ASSESSMENT**
b) **CAPABILITY ASSESSMENT**
c) **MITIGATION ACTIONS STATUS & REVIEW**
d) **PLAN MAINTENANCE**
e) **ANNOUNCEMENT OF FUTURE MEETINGS**

- **Next Meeting Date** - The committee will tentatively set the next meeting date(s). (For Possible Action)
- **Public Comment & Open Discussion**
  - Public comment and open discussion. No action may be taken on a matter raised under this item until the matter has been specifically included on an agenda as an item upon which action will be taken.
  - The public is welcome to request agenda items for future meetings during the "Public Comment" period or consult with one or more of the Committee members to request agenda items for future meetings.
  - Public comment may be heard on any agenda item. The Committee will grant each person three minutes to express their viewpoints.
  - The public may comment on any matter not specifically on the agenda

8) **Next Agenda Items** - Consider items requiring action to be placed on the agenda for the next meeting. (For Possible Action)
9) **Adjournment** The Committee will adjourn the meeting.

Eureka County HMP Planning Subcommittee
August 3, 2018 – HMP Update
Sign-in-Sheet

Name	Firm/Agency	Phone Number	Email
R Earl Overholser		3180294	ArtEarl@Htt.net
Ron Jensen	McEwen Mining	775-397-1445	rjensen@mcewenmining.com
Jesse Watts	Sheriff-Elect	775-237-9898	WattsJ86@Gmail.com
Ronald Damele	Public Works	775 237 5372	rdamele@eurekacounty nv.gov
Michael Mears	Fire \ Media	775 237 5270	mmears@eurekacountynv.gov
Amanda Pearce	Clerk	775 237-5262	apearce@eurekacountynv.gov

Mitigation Plan Status

PLAN SECTION	QUESTIONS	YES	NO	COMMENTS
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action?			
	Are there procedures (e.g., meeting announcement, plan updates) that can be done more efficiently?			
	Has the Steering committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?			
HAZARD PROFILES	Has a natural and/or human-caused disaster occurred in this reporting period?			
	Are there natural and/or human-caused hazards that have not bee addressed in this HMP and should be?			
	Are additional maps or new hazards studies available? If so, what have they revealed?			
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?			
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?			
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?			
	Are the goals still applicable?			
	Should new mitigation actions be added to a community's Mitigation Action Plan?			
	Do existing mitigation actions listed in a community's Mitigation Action Plan need to be reprioritized?			
	Are the mitigation actions listed in a community's Mitigation Action Plan appropriate for available resources?			

The considerations under each criterion are suggested ones to use; you can revise to these to reflect your own considerations.

1. Scoring: For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.
2. When you complete the scoring, negatives will indicate gaps or short comings in the particular actions. The Planning Subcommittee will collectively discuss and provide a priority of high, medium, or low for each mitigation action based on the scoring.

Table 8-3: STAPLE+E Evaluation Criteria for Mitigation Actions

Evaluation Category	Discussion "It is important to consider..."	Considerations
Social	The public Support for the overall mitigation strategy and specific mitigation actions	Community acceptance; adversely affects population
Technical	If the mitigation action is technically feasible and if it is the whole or partial solution	Technical feasibility; Long-term solutions; Secondary impacts
Administrative	If the community has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary	Staffing: Funding allocation; Maintenance/operations
Political	What the community and its members feel about issues related to the environment, economic development, safety, and emergency management	Political support; Local champion; Public support
Legal	Whether the community has the legal authority to implement the action, or whether the community must pass new regulations	Local, State, and Federal authority; Potential legal challenge
Economic	If the action can be funded with current or future internal and external sources, if the costs seem reasonable for the size of the project, and if enough information is available to complete a FEMA Benefit Cost Analysis	Benefit/cost of action; Contributes to other economic goals; Outside funding required; FEMA Benefit Cost Analysis
Environmental	The impact on the environment because of public desire for a sustainable and environmentally healthy community	Effect on local flora and fauna; Consistent with community environmental goals; Consistent with local, State and Federal laws

3.

STAPLE + E Evaluation Table

Considerations / Mitigation Actions	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)					PT
	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Native Habitat	Consistent with Local / Federal Laws	Priority (High, Medium, Low)
1.A																								
1.B																								
1.C																								
1.D																								
1.E																								
1.F																								
1.G																								
1.H																								
2.A																								
2.B																								
2.C																								
2.D																								
3.A																								
3.B																								
3.C																								
3.D																								
4.A																								
4.B																								
4.C																								

STAPLE + E Evaluation Table

Considerations ⇧ / Mitigation Actions ⇨	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)					PT
	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Native Habitat	Consistent with Local / Federal Laws	Priority (High, Medium, Low)
4.D																								
4.E																								
4.F																								
4.G																								
4.H																								
5.A																								
5.B																								
6.A.																								
6.B																								
6.C																								
6.D																								
7.A																								
7.B																								
8.A																								
8.B																								
9.A																								
9.B																								

Appendix E
Plan Maintenance Documents

Sample Press Release for
Annual Maintenance Meeting

White Pine County/Eureka County, Nevada is meeting to review and maintain its Hazard Mitigation Plan to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. This plan is required under the Federal Disaster Mitigation Act of 2000 as a prerequisite for receiving certain forms of Federal disaster assistance. The plan can be found on the County's website at website address.

Public comments and participation are welcomed. For additional information or to request to participate, or to submit comments, please contact _____, White Pine County/Eureka County Emergency Management, at (775) _____ or email address

Annual Review Questionnaire

PLAN SECTION	QUESTIONS	YES	NO	COMMENTS
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action?			
	Are there procedures (e.g., meeting announcement, plan updates) that can be done more efficiently?			
	Has the Steering committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?			
HAZARD PROFILES	Has a natural and/or human-caused disaster occurred in this reporting period?			
	Are there natural and/or human-caused hazards that have not bee addressed in this HMP and should be?			
	Are additional maps or new hazards studies available? If so, what have they revealed?			
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?			
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?			
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?			
	Are the goals still applicable?			
	Should new mitigation actions be added to a community's Mitigation Action Plan?			
	Do existing mitigation actions listed in a community's Mitigation Action Plan need to be reprioritized?			
	Are the mitigation actions listed in a community's Mitigation Action Plan appropriate for available resources?			

Mitigation Action Progress Report

Progress Report Period:_____ to _____
(date) (date)

Project Title:_____ Project ID#_____

Responsible Agency:

Address:_____

City:_____

Contact Person:_____

Phone # (s): _____ email address:_____

List Supporting Agencies and Contacts:

Total Project Cost: _____

Anticipated Cost Overrun/Underrun: _____

Date of Project Approval: _____ Start date of the project: _____

Anticipated completion date: _____

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase): _____

Milestones	Complete	Projected Date of Completion

Plan Goal(s) Address

Goal: _____

Indicator of Success: _____

_____

_____

_____

Project Status

☐ Project on schedule

☐ Project completed

☐ Project delayed*

*explain _____

_____

☐ Project Cancelled

Project Cost Status

☐ Cost unchanged

☐ Cost overrun*

*explain_____

_____

☐ Cost underrun*

*explain_____

_____

Summary of progress on project for this report:

A. what was accomplished during this reporting period?

_____

_____

_____

B. What obstacles, problems, or delays did you encounter, if any?

_____

_____

_____

C. How was each problem resolved?

_____

_____

_____

Next Steps: What are the next step(s) to be accomplished over the next reporting period?

Other Comments:

Appendix F
Mitigation Actions

Eureka County – August 2018

PLAN SECTION	QUESTIONS	YES	NO	COMMENTS
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action?	X		DEM and LEPC
	Are there procedures (e.g., meeting announcement, plan updates) that can be done more efficiently?		X	
	Has the Steering committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?	X		Eureka County's review of hazards and mitigations actions is incorporated into the annual LPEC table Top Exercise that they do. For this plan update, they have published notice in the newspaper twice. The county also holds annual outreach activities such as Firewise Week and National Night Out. They provide annual Immunization Clinics, and the schools have outreach for EMS also earthquake awareness through the Great Nevada Shakeout.
HAZARD PROFILES	Has a natural and/or human-caused disaster occurred in this reporting period?	X		Yes, there was a large HazMat spill in 2016 and flooding on Humboldt in 2016.
	Are there natural and/or human-caused hazards that have not bee addressed in this HMP and should be?		X	
	Are additional maps or new hazards studies available? If so, what have they revealed?		X	Water Resources Master Plan, Water Conservation Plan
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?		X	
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?		X	Development has remained flat.
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?	Y		New IT Position
	Are the goals still applicable?	Y		With the exception of 7.A which can be removed
	Should new mitigation actions be added to a community's Mitigation Action Plan?		N	
	Do existing mitigation actions listed in a community's Mitigation Action Plan need to be reprioritized?	Y		STAPLEE was completed and a couple changes in priority were made.
	Are the mitigation actions listed in a community's Mitigation Action Plan appropriate for available resources?	Y		

White Pine County – August 2018

PLAN SECTION	QUESTIONS	YES	NO	COMMENTS
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action?	X		LEPC Board has key people who try to address the issues. White Pine & Ely's problem is that there has never been consistency with the Board members. Especially for the Emergency Manager.
	Are there procedures (e.g., meeting announcement, plan updates) that can be done more efficiently?	X		It's hard to get everyone to the table. Trying to get everyone together. Sometimes they don't get feedback from the State (Health and others) that come out. Meet quarterly minimum for LEPC.
	Has the Steering committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?	X		POD, School Exercise for All Hazards but mainly active shooter, and Hazmat Spill exercise
HAZARD PROFILES	Has a natural and/or human-caused disaster occurred in this reporting period?		X	No, major disaster but there was a – Snow Storm – people were stranded overnight on the road. NHP tried to handle themselves and didn't inform the local EMS. Maybe 3 years ago on Hwy 93 S
	Are there natural and/or human-caused hazards that have not bee addressed in this HMP and should be?		X	
	Are additional maps or new hazards studies available? If so, what have they revealed?		X	Strawberry Fire in last 2 to 3 years by Baker and one person died. On Forest Service and BLM and State Parks. Close to Maintenance Stations. Flooding out by Baker last summer,
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?	X		They have been added.
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?		X	
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?	X		Personnel have changed but no new resources
	Are the goals still applicable?	X		
	Should new mitigation actions be added to a community's Mitigation Action Plan?		X	
	Do existing mitigation actions listed in a community's Mitigation Action Plan need to be reprioritized?	X		STAPLEE was completed and a couple changes in priority were made.
	Are the mitigation actions listed in a community's Mitigation Action Plan appropriate for available resources?	X		

2018 Action Plan Review Matrix

Action Number	Action Item	Department / Division	Implementation Timeline	Priority Level	2015 Status	2016 Status	2017 Status	2018 Status
1.A	Update the Master Plan to be consistent with the hazard area maps and implementation strategies developed in the HMP every 10 years. Update Ordinances every 3 years.*	White Pine County Economic Development City of Ely	36-48 months	High		***City of Ely*** - completed Master Plan.		***White Pine County*** - No progress. The White Pine Economic Development Department does not exist anymore. City of Ely is handling Master Plan for both the County and City.
1.B	Engage the Planning Commission to update the Master Plan to be consistent with the hazard area maps and implementation strategies developed in the HMP every 10 years.*	Eureka County Public Works/ Emergency Mgmt.	36-48 months	Medium				***Eureka County*** - No update but the master plan is less than 10 years
1.C	Annually review the County's EOP & update & integrate w/local Hazard Mitigation Plan.	White Pine Emergency Mgmt.	Ongoing	High	***White Pine County*** - Started updating EOP's.	***White Pine County*** -Continued updating EOP's	***White Pine County*** - Finalized update to EOP's.	
1.D	Review the County's EOP & update & integrate w/local Hazard Mitigation Plan as needed.	Eureka County Emergency Mgmt./ LEPC	Ongoing	Medium				***Eureka County*** – The EOP's have not been updated for 6 years. However, the County has recently contracted with the former Clark County EM to review to see if updates are necessary.

2018 Action Plan Review Matrix

Action Number	Action Item	Department / Division	Implementation Timeline	Priority Level	2015 Status	2016 Status	2017 Status	2018 Status
1.E	Increase GIS and mapping capability to assess the risks in the County & City including equipment, software, servers, internet service, and staffing.*	White Pine County Building Department City of Ely	Ongoing	High				***White Pine County*** – The County has increased their GIS capabilities and the information being collected just as street centerline and updated parcel data. The County with a consultant who will continue to assist them in mapping infrastructure and data.
1.F	Incorporate GIS and mapping as new information is received to assess the risk in the County.*	Eureka County GIS	Ongoing	High	***Eureka County*** - Ongoing	***Eureka County -*** Ongoing	***Eureka County -*** Ongoing	***Eureka County -*** Ongoing. Assessor looks at portions of the County annually to get aerial photography, creates shape files for hazards and continue to update data. County employees use GIS daily. Imagery is probably the greatest benefit and GIS desktop tools. Flood zone mapping is incorporated into Pictometry used by the County. A new GIS application was also launched onto

2018 Action Plan Review Matrix

Action Number	Action Item	Department / Division	Implementation Timeline	Priority Level	2015 Status	2016 Status	2017 Status	2018 Status
								website this last year.
1.G	Collect and integrate new information (i.e. USA Digs, data for infrastructure, LIDAR) into County & City GIS and planning documents.	White Pine County Building Department & City of Ely	Ongoing	Medium			***White Pine County & City of Ely*** - With the major project underway by NDOT on Hwy 50, they are working closely to obtain data on storm drain and other infrastructure.	***White Pine County & City of Ely*** - Ongoing
1.H	Continue planning and coordination with multi-agency/regional planning for multi-hazards (applies to Goals 3-9).	White Pine County Emergency Mgmt. & City of Ely Eureka County Emergency Mgmt./ LEPC	Ongoing	Medium	***Eureka County*** – Annually attends Wildland Fire Refresher Class and EMS does annual certifications as well.	***Eureka County –*** Annually attends Wildland Fire Refresher Class and EMS does annual certifications as well.	***White Pine County & City of Ely –*** Annually attend regional event at Fire Show West, and Emergency Manager's conference. ***Eureka County –*** Annually attends Wildland Fire Refresher Class and EMS does annual certifications as well.	***White Pine County & City of Ely –*** Annually attend regional event at Fire Show West, and Emergency Manager's conference. ***Eureka County –*** Annually attends Wildland Fire Refresher Class and EMS does annual certifications as well.

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2.A	Utilize social media and/or county website as a communication tool, as well as an education tool for hazard loss prevention.*	White Pine County Emergency Mgmt., City of Ely, Fire Dept., Sherriff, School District, Health Dept. Eureka County Emergency Mgmt., Fire Dept., Sherriff, School District, Health Dept.	Ongoing	Medium	***White Pine County*** - Using Code Red and 211 website.	***White Pine County*** - Using Code Red and 211 website.	***White Pine County*** - Using Code Red and 211 website. The White Pine County School District has their own system called Infinite Campus to send phone calls to families. Also the White Pine County School District uses Crisis Go for internal communication and it is incorporated into their Emergency Plan. ***Eureka County*** – The County uses US PD HUB launched from the Sheriff's Office to push out information to the public.	***White Pine County*** - Using Code Red and 211 website. The County will be transitioning to a new website that will be able integrate social media and send out and post emergency notifications. The White Pine County School District has their own system called Infinite Campus to send phone calls to families. Also the White Pine County School District uses Crisis Go for internal communication and it is incorporated into their Emergency Plan. WP- Statte has also impleemtned Safe Voice. Mostly for emotional things but could also be for hazrards. ***Eureka County*** – The County uses US

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								PD HUB launched from the Sheriff's Office to push out information to the public. They also have the ability to post on the website but have not used that yet. The Opera House and Pool both have a facebook page so they could get information out through that and also a community facebook page. As of Jan the Sheriff's office will have a facebook page, RSS feeds and twitter.
2.B	Work with NOAA to reach a storm-ready community status.*	White Pine County Emergency Mgmt.	Ongoing	Medium	***White Pine County*** - Ongoing	***White Pine County*** - Ongoing	***White Pine County*** - Had a meeting with NOAA last year; ongoing	Ongoing
2.C	Conduct minimum of one hazard mitigation exercise per year.	White Pine County Emergency Mgmt., City of Ely, Fire Dept. Eureka County Emergency Mgmt., Fire Dept.	Ongoing	Medium	***White Pine County*** - Ongoing annual POD and HazMat Spill Exercise; Schools District has an All Hazards and Active Shooter Exercise and participates in Great Nevada Shakeout ***Eureka County*** –	***White Pine County*** - Ongoing annual POD and HazMat Spill Exercise; Schools District has an All Hazards and Active Shooter Exercise and participates in Great Nevada Shakeout ***Eureka County*** –	***White Pine County*** - Ongoing annual POD and HazMat Spill Exercise; Schools District has an All Hazards and Active Shooter Exercise and participates in Great Nevada Shakeout ***Eureka County*** – Ongoing; has annual	***White Pine County*** - Ongoing annual POD and HazMat Spill Exercise; Schools District has an All Hazards and Active Shooter Exercise and participates in Great Nevada Shakeout ***Eureka County*** – Ongoing; has annual

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					Ongoing; has annual Firewise and Immunization and School District participates in the Great Nevada Shakeout	Ongoing; has annual Firewise and Immunization and School District participates in the Great Nevada Shakeout	Firewise and Immunization and School District participates in the Great Nevada Shakeout	Firewise and Immunization and School District participates in the Great Nevada Shakeout
2.D	Prepare, develop, & distribute appropriate public information about hazard mitigation programs and projects at County & City sponsored events.	White Pine County Emergency Mgmt., City of Ely, Fire Dept. Eureka County Emergency Mgmt. Fire Dept.	Ongoing	Medium	***White Pine County*** - Ongoing annual POD; Health Fair gives out information; Out Reach Day for Sheriff's Office & Fire Prevention Week; EMS Program Week. And the School District participates in the Great Nevada Shakeout. ***Eureka County*** – Ongoing; has annual Firewise and Immunization Events, Law Enforcement Night Out and School District participates in the Great Nevada Shakeout.	***White Pine County*** - Ongoing annual POD; Health Fair gives out information; Out Reach Day for Sheriff's Office & Fire Prevention Week; EMS Program Week. And the School District participates in the Great Nevada Shakeout. ***Eureka County*** – Ongoing; has annual Firewise and Immunization Events, Law Enforcement Night Out and School District participates in the Great Nevada Shakeout	***White Pine County*** - Ongoing annual POD; Health Fair gives out information; Out Reach Day for Sheriff's Office & Fire Prevention Week; EMS Program Week. And the School District participates in the Great Nevada Shakeout. ***Eureka County*** – Ongoing; has annual Firewise and Immunization Events, Law Enforcement Night Out and School District participates in the Great Nevada Shakeout	***White Pine County*** - Ongoing annual POD; Health Fair gives out information; Out Reach Day for Sheriff's Office & Fire Prevention Week; EMS Program Week. And the School District participates in the Great Nevada Shakeout. ***Eureka County*** – Ongoing; has annual Firewise and Immunization Events, Law Enforcement Night Out and School District participates in the Great Nevada Shakeout

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3.A	Pursue studies and formalized agreements to minimize impacts of drought conditions, including aquifer water quality and quantity, ground stabilization, economic impacts, wellhead protection areas, and municipal/private well water supply.	White Pine County & City Water Utilities, Emergency Mgmt.	24-36 months	Medium	***White Pine County*** – The County has a Water Advisory Committee and meets monthly.	***White Pine County*** – The County has a Water Advisory Committee and meets monthly.	***White Pine County*** – The County has a Water Advisory Committee and meets monthly.	***White Pine County*** – The County has a Water Advisory Committee and meets monthly. Also the County participates with the State Water Engineer who is continuing to monitor these valleys. There have been some studies regarding the mine dewatering and the affect on the ground water impacts.
3.B	Pursue studies and formalized agreements to minimize impacts of drought conditions, including aquifer water quantity, ground stabilization, economic impacts and municipal/private well water supply.	Eureka County Water Utilities, Emergency Mgmt.	24-36 months	High		***Eureka County*** - Completed Water Resource Plan. Also the County is mandated by DWR to have a water conservation plan which is updated every 5 years.	***Eureka County*** - Completed Water Resource Plan. Also the County is mandated by DWR to have a water conservation plan which is updated every 5 years.	***Eureka County*** - Completed Water Resource Plan. Also the County is mandated by DWR to have a water conservation plan which is updated every 5 years.
3.C	Encourage public participation in drought strategies through public information programs on water conservation and drought resistant landscaping and through building code ordinances and Nevada Cooperative	White Pine County & City Water Utilities, Emergency Mgmt.	12 months	Medium	***White Pine County*** – The County has a Water Advisory Committee and meets monthly.	***White Pine County*** – The County has a Water Advisory Committee and meets monthly.	***White Pine County*** – The County has a Water Advisory Committee and meets monthly. Also the Cooperative Extension came in and provided information to the	***White Pine County*** – The County has a Water Advisory Committee and meets monthly. Also the County participates with the State Water Engineer who is continuing to

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	Extension.*						Board of Supervisors regarding drought resistance.	monitor these valleys. There have been some studies regarding the mine dewatering and the affect on the ground water impacts.
3.D	Encourage public participation in drought strategies through public information programs on water conservation and drought resistant landscaping and through the Nevada Cooperative Extension.*	Eureka County Water Utilities, Emergency Mgmt.	12 months	High				***Eureka County*** - Plan is mailed to every water customer and is also in the website.
4.A	Continue to enforce the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards. Update County & City Codes to current IBC.*	White Pine County & City of Ely Bldg. Dept.	Ongoing	Medium	***White Pine County*** - Ongoing	***White Pine County*** - Ongoing	***White Pine County*** - Ongoing	***White Pine County*** - Ongoing
4.B	Recommend the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards.*	Eureka County	Ongoing	Low				***Eureka County*** - Follows a code for County Buildings and recommends that to anyone that calls but cannot require. Any building accessed by the public building whether public or privately owned will have to meet State

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								Fire Marshall for fire codes.
4.C	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of critical facility and infrastructure, and retrofit buildings, if necessary.	White Pine County & City of Ely Building, Fire Dept., School District	24-48 months	Medium				No progress
4.D	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of existing public buildings, and retrofit buildings, if necessary.	Eureka County Public Works, Fire Dept., School District	24-48 months	Low				No progress
4.E	Implement an Unreinforced Masonry (URM) building program that determines the structural safety of existing building inventory, and retrofit buildings, if necessary.	White Pine County & City of Ely Building, Fire Dept.	24-48 months	Medium				No progress

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4.F	Implement/plan for non-structural retrofit for private and public buildings.	White Pine County & City of Ely Building, Fire Dept.	24-48 months	Medium			***White Pine County*** - Middle school had some structural repairs to SW corner for unreinforced masonry.	No progress.
4.G	Discuss and evaluate non-structural retrofit for public buildings.	Eureka County Public Works, Fire Dept., School District	24-48 months	Low				No progress
4.H	Work with UNR Seismology Lab to obtain a seismograph to track earthquake occurrence and data.*	White Pine County Emergency Mgmt., Building	24-48 months	Low				No progress
5.A	Improve communication, collaboration and integration among stakeholders and promote awareness of epidemic threats.*	White Pine County Health Dept. and Eureka County Clinic	6-12 months	Medium	***White Pine County*** – POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair	***White Pine County*** – POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair	***White Pine County*** – POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair	***White Pine County*** – POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair
5.B	Create & implement a training and exercise program relative to epidemics.*	White Pine County Health Dept. and Eureka County Clinic	6-12 months	Medium	***White Pine County*** – POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair	***White Pine County*** - POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair	***White Pine County*** - POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair	***White Pine County*** - POD & Health Fair ***Eureka County -*** Immunization Clinics & Health Fair

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6.A	Review & update flood plans in order to educate public regarding flood hazards and damage potential.	White Pine County Emergency Mgmt, Building Eureka County Emergency Mgmt, Public Works	24-36 months	Medium	***White Pine County*** – Ongoing; Addressed for new construction	***White Pine County*** – Ongoing; Addressed for new construction	***White Pine County*** – Ongoing; Addressed for new construction	***White Pine County*** – Ongoing; Addressed for new construction but no progress on mew plan or mapping. However, there should be a push to do it since upon completion of Hwy 50 project, FEMA will be remapping downtown areas. ***Eureka County*** – No changes since the last plan.
6.B	Partner with NDOT to enhance storm drainage capacity through the City of Ely.	White Pine County Emergency Mgmt, City of Ely	24-36 months	Medium	***White Pine County*** – Ongoing	***White Pine County*** - Ongoing	***White Pine County*** - Ongoing	***White Pine County*** - Ongoing
6.C	Join Community Rating System (CRS) to increase flood insurance savings to County and City residents.	White Pine County Emergency Mgmt, Building, City of Ely	24-36 months	Medium				***White Pine County*** - Maybe after the next mapping.
6.D	Survey homes and businesses in special flood hazard areas (SFHA) near drainages for possible	White Pine County Emergency Mgmt,	24-36 months	Medium				***White Pine County*** - No update, just new construction is monitored.

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	elevation or acquisition.	Building, City of Ely						
7.A	In areas at risk to severe weather, retrofit public buildings to withstand snow loads and severe winds to prevent roof collapse/damage.	White Pine County Public Works & City of Ely Eureka County Public Works	12-14 months	Medium				***White Pine County*** - None to date ***Eureka County*** - Nothing that required updates. This can be removed for Eureka.
7.B	Enhance shelter facilities to withstand severe weather events (electrical, structural, etc.).	White Pine County Public Works & City of Ely Eureka County Public Works	12-14 months	Low				***White Pine County*** - None to date ***Eureka County*** – Made great progress because Fire Department is a shelter and so is new gym at high school.
8.A	Develop partnerships/continue programs for a community based vegetation management program including chipping programs and disposal of green waste for defensible space.*	NV Div. of Forestry White Pine County Fire Dept. Eureka County Fire Department	6-12 Months	High	***White Pine County*** – Ongoing ***Eureka County*** - Ongoing with State and Federal Partners	***White Pine County*** – Ongoing ***Eureka County*** - Ongoing with State and Federal Partners	***White Pine County*** – Ongoing ***Eureka County*** - Ongoing with State and Federal Partners	***White Pine County*** – Ongoing ***Eureka County*** - Ongoing with State and Federal Partners
8.B	Develop and implement public education program regarding the requirements of the International Wildland	NV Div. of Forestry White Pine County Fire	Ongoing	High	***White Pine County*** – Ongoing ***Eureka County*** – Participates in	***White Pine County*** – Ongoing ***Eureka County*** – Participates in	***White Pine County*** – Ongoing ***Eureka County –*** Participates in	***White Pine County*** – Ongoing ***Eureka County –*** Participates in

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	Urban Interface Code (IWUI) and defensible space best practices.	Dept. Eureka County Fire Department			Firewise Week	Firewise Week	Firewise Week	Firewise Week
9.A	Enforce zoning ordinances and building codes to reduce public health risks from hazardous materials release.*	White Pine County Building, Fire Dept., City of Ely Bldg. Dept., Fire Dept.	12-24 Months	Medium	***White Pine County & Eureka County*** - Ongoing	***White Pine County & Eureka County*** - Ongoing	***White Pine County & Eureka County*** - Ongoing	***White Pine County & Eureka County*** - Ongoing
9.B	Update Hazardous Materials Plan.*	White Pine County Emergency Mgmt. Eureka County Emergency Mgmt.	Ongoing	High	***White Pine County*** - Started updating EOP's.	***White Pine County*** -Continued updating EOP's	***White Pine County*** - Finalized update to EOP's.	***Eureka County*** – The EOP's have not been updated for 6 years. However, the County has recently contracted with the former Clark County EM to review to see if updates are necessary.