

Esmeralda County, Nevada Local Hazard Mitigation Plan

Prepared for:

Esmeralda County, Nevada



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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
County	Esmeralda County
DEM	Department of Emergency Management
DMA 2000	Disaster Mitigation Act of 2000
EHS	Extremely Hazardous Substance
EHSF	Extremely Hazardous Substance Facility
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FMA	Flood Mitigation Assistance
FY	Fiscal Year
<i>g</i>	acceleration due to gravity
GIS	Geographic Information System
HAZUS	Hazards U.S.
HAZUS-MH	Hazards U.S.–Multi Hazard
HIV	Human Immunodeficiency Virus
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
IBC	International Building Code
I-95	Interstate 95
LEPC	Local Emergency Planning Commission
LHMP	Local Hazard Mitigation Plan
M	Magnitude
MERS	Middle East Respiratory Syndrome

MM	Modified Mercalli
mph	mile(s) per hour
NBMR	Nevada Bureau of Mines and Geology
NCDC	National Climactic Data Center
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NFIP	National Flood Insurance Program
NHMPC	Nevada Hazard Mitigation Planning Committee
NPS	National Park Service
NRC	National Response Center
PDM	Pre Disaster Mitigation
PGA	peak ground acceleration
PSHA	Probabilistic Seismic Hazard Analysis
RFC	Repetitive Flood Claim
ROP	Repository Oversight Program
SARS	Severe Acute Respiratory Syndrome
SBA	Small Business Administration
SERC	State Emergency Response Commission
SFHA	Specific Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SRL	Severe Repetitive Loss
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, Environmental
TB	Tuberculosis
UNR	University Nevada-Reno
URM	Unreinforced Masonry
U.S.C.	U.S. Code
USDA	United States Department of Agriculture
USDM	US Drought Monitor
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USGS	United States Geological Survey

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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. Esmeralda County, Nevada, recognizes the consequences of disasters and the need to reduce the impacts of natural and human-caused hazards.

The elected and appointed officials of Esmeralda 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 Esmeralda County Hazard Mitigation Steering Committee updated the *Esmeralda County, Nevada Local Hazard Mitigation Plan*. With the support of various Esmeralda County officials, the State of Nevada, and the United State Department of Homeland Security/Federal Emergency Management Agency (FEMA), this plan is the result of several months' worth of work to update a hazard mitigation plan that will guide the Esmeralda County toward greater disaster resistance in full harmony with the character and needs of the community and region.

People and property in Esmeralda 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 *Esmeralda County, Nevada Local 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 2005, 1 mitigation action has been completed and three are ongoing. This updated plan identifies on-going and new hazard mitigation actions intended to eliminate or reduce the effects of future disasters throughout Esmeralda County, Nevada.

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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 updated *Esmeralda County, Nevada Local Hazard Mitigation Plan* (LHMP) 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 the Plan. Adoption by the Local Governing Body and Supporting Document

The requirements for the adoption of an LHMP 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.

Esmeralda County, to be referred to as Esmeralda County or the County throughout this plan, is the sole jurisdiction represented in this LHMP. There are no other political subdivisions within Esmeralda County. The LHMP meets the requirements of Section 409 of the Stafford Act and Section 322 of the DMA 2000.

The local governing body of Esmeralda County (Esmeralda County Board of Supervisors) has adopted this LHMP. The signed resolution is provided in Appendix A.

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This section provides an overview of the Esmeralda County's LHMP. This includes a review of the purpose and authority of the LHMP 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 Esmeralda County LHMP meets the requirements of the DMA 2000, which calls for all communities to prepare hazard mitigation plans. By preparing this LHMP, the County is eligible to receive Federal mitigation funding after disasters and to apply for mitigation grants before disasters strike. This LHMP starts an ongoing process to evaluate the risks different types of hazards pose to the County, and to engage the County and the community in dialogue to identify the steps that are most important in reducing these risks. This constant focus on planning for disasters will make the County, including its 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 LHMPs 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), and 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 LHMP. Adoption legitimizes the updated LHMP and authorizes responsible agencies to execute their responsibilities. The resolution adopting this LHMP is 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): The FMA program provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program (NFIP). FMA provides up to 75% Federal funding for a mitigation activity grant and/or up to 90% Federal funding for a mitigation activity grant containing a repetitive loss strategy.

Repetitive Flood Claims (RFC): The RFC program provides funds on an annual basis to reduce the risk of flood damage to individual properties insured under the NFIP that have had one or more claim payments for flood damages. RFC provides up to 100% Federal funding for eligible projects in communities that qualify for the program.

Severe Repetitive Loss (SRL): The SRL program provides funds on an annual basis to reduce the risk of flood damage to residential structures insured under the NFIP that have had one or more claim payments for flood damages. SRL provides up to 75% Federal funding for eligible projects in communities that qualify for the program.

2.3 PLAN ORGANIZATION

The remainder of this LHMP consists of the following sections.

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

Section 3 provides a general history and background of the Esmeralda County 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 Steering Committee members, and the key stakeholders within the community 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 Steering Committee identified and compiled relevant data on all potential natural hazards that threaten the County and the immediately surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the County and how these events impacted residents and their property.

The descriptions of natural hazards that could affect the County 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 County 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 County'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 Steering Committee 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 and objectives, the Steering Committee 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 Steering Committee's formal plan maintenance process to ensure that the LHMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the LHMP; implementation through existing planning mechanisms; and continued public involvement.

- ***Section 10 - References***

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

- ***Appendices***

The appendices include the Adoption Resolution, Maps, Steering Committee Meetings, and Public Involvement process.

This section describes the history, location, and geography of Esmeralda County, as well as its government structure, demographic information, and current land use and development trends. Within Esmeralda County there are no incorporated cities; therefore, this LHMP is a single-jurisdiction HMP.

3.1 HISTORY, LOCATION, AND GEOGRAPHY

Created in 1861, the name of Esmeralda County is likely connected to the Esmeralda Mining District, which was named by an early Nevada miner, J.M. Corey. It is believed that Corey named the district after the gypsy dancer, Esmeralda, from Victor Hugo's novel, *The Hunchback of Notre Dame*. Esmeralda has had three county seats since its inception: Aurora until 1883, Hawthorne from 1883 to 1907, and Goldfield since 1907. Esmeralda County grew from a gold mining boom in the early 20th century. From 1904 to 1918 the Goldfield Mining District was Nevada's most important gold-producing region, with \$85 million mined during that period. By 1906, the town of Goldfield had reached a peak population of approximately 30,000 people, which at the time was larger than both Reno and Las Vegas. By the 1920's, the mining resources were largely depleted and the population and economy began to decline. The largest mining company left Goldfield in 1919 and in 1923 a fire destroyed most of what was left behind.



Esmeralda County is one of the original Nevada counties and is located in the southwestern portion of the state. Esmeralda County is bordered by the State of California to the south and southwest; Nye County, Nevada to the east and northeast; and Mineral County, Nevada to the north and northwest. It covers approximately 3,570 square miles and accounts for 3.2 percent of Nevada's total surface area of 110,540 square miles. Located halfway between Reno and Las Vegas, Esmeralda County is home to many current mining communities and ghost towns. US Route 95 runs north and south along the eastern border of the County, providing access to Las Vegas to the south. In Tonopah, Nevada US 95 turns west to join US Route 6 and crosses the northern portion of Esmeralda County to Coaldale, where US 95 then turns northwest towards Reno and US 6 continues west into Mineral County. Nevada State Routes 267, 774, 266, 265, 773, and 264 provide paved roads between the five unincorporated towns located throughout the County (see Figure 1, Location Map in Appendix B).

Esmeralda County is surrounded by vast open basins intermixed with rugged mountain wilderness. The highest point in Nevada, Boundary Peak at an elevation of 13,145 feet, is located at the tip of the eastern border of Esmeralda County adjacent to both Mineral County and the State of California. The County is located east of the Sierra Nevada Mountain range and does not receive significant amounts of precipitation. The average annual rainfall is 3 inches, with average temperatures in January ranging from highs of 47° F and lows of 25° F to highs near 92° F and lows of 76° F in July. In terms of natural hazard threats, flash flooding is considered a primary threat to Esmeralda County as described in Section 5.3.5 of this LHMP. The Nevada State Floodplain Manager states Esmeralda County does not have any Special Flood Hazard Areas (SFHA). Additionally, the State Floodplain Manager advises that there are no repetitive loss properties recorded within Esmeralda County. Since Esmeralda County does not have any

identified SFHAs, floodplains, or repetitive loss properties, there is a lack of floodplain planning and regulatory mechanisms.

3.2 GOVERNMENT

There are five unincorporated towns in Esmeralda County which include:

- Town of Goldfield
- Town of Silver Peak
- Town of Dyer
- Town of Lida
- Town of Gold Point

Esmeralda County has never had any incorporated cities or towns and is divided into three voting districts. District 1 represents the Town of Goldfield; District 2 represents the Town of Silver Peak, the Town of Lida, and the Town of Gold Point; and District 3 represents the remaining portions of Esmeralda County which include the Town of Dyer and Fish Lake Valley. Each district votes to elect one representative that will sit on the three-member County Board of Commissioners. Each member is elected for a 4-year term and the elections are held on staggered years. A quorum must be met of all three members to pass any county-related decisions. The responsibilities of the district-elected Commissioners also include approving budgets each year for the elected positions of Sheriff, Clerk/Treasurer, Auditor/Recorder, District Attorney, Justice of the Peace, and Assessor. The Road Department, Department of Emergency Management, Public Works Department, and Administrative Assistant all report directly to the elected Board of Commissioners.

Below please see Esmeralda County departments and key divisions.

Key Officials

Assessor	Commissioner, District 3	Public Administrator
Auditor/Recorder	District Attorney	Public Guardian
Clerk Treasurer	Economic Development/Grant Management Manager	Public Works/Utility Supervisor
Commissioner, District 1	Emergency Manager	Road Supervisor
Commissioner, District 2	Judges	Sheriff

Town Departments/Divisions

Assessor	Economic Development	Public Works/Utilities
Auditor/Recorder	Emergency Management	Roads/Solid Waste
Clerk Treasurer	Fifth Judicial District Court	Sheriff
District Attorney	Justice of the Peace	

3.3 DEMOGRAPHICS

At the time of the 2000 U.S. Census, the recorded total population of Esmeralda County was 971 people. The 2008 population estimate completed by the U.S. Census projected that 677 people resided in the County (U.S. Census 2008), while the Nevada State Demographer estimated the 2008 population at roughly 1,240 people (Esmeralda County 2009). The difference in the two estimates cannot be resolved. However, the Nevada State Demographer estimated the 2014 population at roughly 926 people (Esmeralda County 2014). The U.S. Census 2009-2013 American Community Survey 5-Year, estimated the population of Esmeralda County at 979. The Risk Assessment in this LHMP is based on data from the 2009-2013 American Community Survey 5-Year.

Esmeralda County has the smallest population of all the Nevada counties; the U.S. Census population estimates for 2010 identify Esmeralda County as having .029 percent of the total State of Nevada population. The 2009-2013 American Community Survey reports in Esmeralda County there are 43 individuals ages 5 to 19 years old, or approximately 4 percent of the total county population; 561 individuals are between 20 and 64 years old or 57 percent of the total county population; and 245 individuals are 65 years and over or 25 percent of the total county population.

3.4 LAND USE DEVELOPMENT TRENDS

Esmeralda County is comprised of approximately 2,284,800 acres, of which over 97.5 percent is controlled and managed by the Federal government. Of these federally managed public lands approximately 2,160,098 acres are managed by the U.S. Bureau of Land Management (BLM), 66,688 acres are managed by the U.S. Forest Service (USFS), and 3,278 acres are managed by the National Park Service (NPS). The acreage managed by the USFS is comprised primarily of the Inyo National Forest within the White Mountain Range. National Park Service lands include the northeast corner of Death Valley National Monument. See Figure 1, Location Map in Appendix B, which identifies land ownership throughout the county. Figure 2, Land Status Map, in Appendix B illustrates the low level of built development throughout the county.

Esmeralda County controls less than three percent of the total acreage within its limits and therefore is extremely difficult to implement formalized land use planning structures. The County adopted their Master Plan in 1986, which was updated in 2011. The Master Plan states that the BLM and other government (federal or state) agencies must include Esmeralda County as a participating or cooperating, as applicable, local government agency in any decisions or plans regarding the use of land, e.g., grazing, mining rights, renewable energy resource utilization. The overwhelming stance the residents of Esmeralda County have taken is to not establish regulatory methods that would define zoning, building codes, building permits, land use management, and overall county planning.

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This section provides an overview of the planning process; identifies the Steering Committee members and key stake holders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this LHMP. Additional information regarding the Steering Committee and public outreach efforts is provided in Appendices D and E.

The requirements for the planning process, as stipulated in 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 non-profit 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 current 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 2008.

4.1 OVERVIEW OF PLANNING PROCESS

The first step in the planning update process was to reestablish the Steering Committee composed of existing County agencies. Sheriff Ken Elgan served as the primary Point of Contact (POC) for Esmeralda County and the public. Sheriff Elgan functioned as project leader for the update process. The Steering Committee assisted by the State of Nevada, Division of Emergency Management updated this HMP.

Steering Committee membership was drawn from the Esmeralda County Local Emergency Planning Commission (LEPC) which regularly addresses current emergency management activities. The Steering Committee is representative of each of the five unincorporated communities located within the county. In addition, the LEPC would regularly publicize the activities of the Steering Committee to the public and applicable State and Federal agencies. To finalize the Steering Committee, a request was made by the LEPC to county departments including the Roads Department, Emergency Management, Sheriff's Department and the Board of County Commissioners, involved with mitigation planning, implementation, and future mitigation projects to participate in this planning process. Staff support was provided to the Steering Committee by Esmeralda County Emergency Management. Additionally, support and consultation was provided throughout the entire planning process by the Nevada Division of Emergency Management.

During the 5 years since the previous plan was adopted, there was no plan maintenance performed. A NHMPC meeting was held in Tonopah on May 7, 2013, which discussed the hazards for both Esmeralda and Nye County. Ken Aldrich, Esmeralda County Sheriff's Office, gave a presentation on Esmeralda County hazards. An earthquake hazards evaluation was presented by Craig de Polo from the Nevada Bureau of Mines and Geology. There was discussion on mitigation actions taken and planned regarding wildfire during the update of the Community Wildfire Protection Plan. However other than wildfire all information on mitigation action accomplishments and new public input was derived during the planning process. There has been a change in Emergency Management leadership within Esmeralda County and with this new plan and the new plan maintenance section methods for updating the plan annually will be incorporated.

Once the Steering Committee was formed, the following five-step planning process took place during the period from September 2015 through January 2016.

- **Organize resources:** The Steering Committee identified resources - including county staff, State and Federal agencies, and a local community member - to provide technical expertise and historical information needed in the development of the LHMP.
- **Assess risks:** The Steering Committee identified the hazards specific to Esmeralda County, and updated the risk assessment for the four identified hazards. The Steering Committee reviewed the risk assessment, including the vulnerability analysis, during the development of the mitigation strategy.
- **Assess capabilities:** The Steering Committee reviewed current legal and regulatory capacities, administrative and technical capacities, and fiscal capacities to develop the Local Mitigation Capability Assessment, which demonstrates whether existing provisions and requirements adequately address relevant hazards.
- **Develop a mitigation strategy:** After reviewing the risks posed by each hazard, the Steering Committee worked to develop a comprehensive range of potential mitigation goals and actions. Subsequently, the Steering Committee identified and prioritized the actions to be implemented.
- **Monitor progress:** The Steering Committee developed an implementation process to ensure the success of an on-going program to minimize hazard impacts to the community.

The following table provides the new section format and provides 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	Moved from Section 2 to follow current State of Nevada outline format.
Section 2 - Background	Minor Revisions	Moved from Section 1 to current State of Nevada outline format. More detail added about Hazard Mitigation Assistance Grant Program.
Section 3 – Community Description	Minor Revisions	Update demographics, add new information regarding county key officials and departments
Section 4 – Planning Process	Moderate Revisions	This section details the current plan's planning process. Committee tables were updated. Public and stakeholders outreach efforts are provided.
Section 5 – Hazard Analysis	Moderate Revisions	Each hazard profile and hazard ranking was reviewed. Historic events for the last 5 years were updated. Hazard mapping was updated. 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	Minor Revisions	Population and building stock, as well as critical facilities and infrastructure, were reviewed and updated. Earthquake vulnerability was updated with most recent HAZUS from NBMG. Each hazard was also reviewed for environmental impacts.
Section 7 – Capability Assessment	Minor Revision	Capability assessment was reviewed with Steering Committee 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 Committee reviewed the priority of each action utilizing the STAPLE+E criteria,
Section 9 – Plan Maintenance	Minor Revisions	The Steering Committee 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 committee revised every section of the plan. The plan outline was modified to better assist the State Hazard Mitigation Officer in the review process. All Nevada state plans are requested to be in this new outline.

4.2 STEERING COMMITTEE

The planning process began in September 2015 with the formation of the Steering Committee based on the already organized and active LEPC. The LEPC included relevant county, state, academic, private business, and local citizen representation. Table 4-1 lists the individuals participating on the Steering Committee. Steering Committee responsibilities include meeting attendance and regular participation to determine hazards, select mitigation actions, review and comment on interim products, support submittal of LHMP to the County Board of Commissioners for adoption, and to support LHMP implementation.

Table 4-2 Steering Committee

Name	Jurisdiction	Agency/Department	Contribution
Ken Elgan	Esmeralda County	EC Sheriff's Office	- Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. - Reviewed and commented on all draft documents. - Participated and led Steering Committee meetings.
Ed Rannells	Esmeralda County	EC Road Supervisor	- Provided expertise on impacts to county roads from earthquake, winter storm, extreme heat and flood events. - Reviewed and commented on all draft documents.
Val Trucksa	Fish Lake Valley	EMT	- Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. - Reviewed and provided comment on draft documents
Nancy Knighten	Fish Lake Valley	EMT	- Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. - Reviewed and commented on all draft documents.
Doug Kyle	Fish Lake Valley	Fish Lake Fire Department	- Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. - Reviewed and commented on all draft documents.
Ralph Keys	Fish Lake Valley	EC Commissioner	- Acted as a lead in coordinating efforts between the Planning team and Esmeralda County government. - Attended all Steering Committee meetings and reviewed all documents prior to submittal.
Herb Robins	Gold Point	Gold Point Fire Dept.	- Provided expertise on existing wildfire protection plan. - Offered input on past wildfire events in the county and zones for potential future events.

Name	Jurisdiction	Agency/Department	Contribution
Matt Kirkland	Goldfield	EC Sheriff's Office	• Provided communication between Sheriff's office and Planning Team. • Lead role in identifying most severe hazard occurrences in recent past.
Patricia Brownfield	Goldfield	Emergency Management, LEPC Secretary	• Liaison between Esmeralda County and State of Nevada • Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. • Reviewed and commented on all draft documents.
Carl Brownfield	Goldfield	Private Sector/ LEPC	• Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. • Reviewed and commented on all draft documents.
Mike Anderson	Goldfield	Fire Chief, Goldfield Fire Department	• Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. • Provided updated critical facilities and infrastructure inventory and costs. • Reviewed and commented on all draft documents.
Dee Dee Slinger	Goldfield	Goldfield Ambulance Service	• Provided input on hazard profiles and mitigation strategies. • Reviewed and commented on all draft documents.
Art Merrill	Silver Peak	Silver Peak Fire Dept.	• Participated in hazard ranking particularly wildland fire, provided input on hazard profiles and mitigation strategies. • Reviewed and commented on all draft documents.
Scott Reed	Silver Peak	Private Sector/ LEPC	• Participated in hazard ranking, provided input on hazard profiles and mitigation strategies. • Reviewed and commented on all draft documents.
Rob Palmer	State of Nevada	Division of Water Resources	• Provided NFIP and flood information.

Name	Jurisdiction	Agency/Department	Contribution
Karen Johnson	State of Nevada	DEM Mitigation Specialist	• Liaison between State of Nevada and Esmeralda County LEPC. • Provided information regarding FEMA requirements and process. • Reviewed and commented on all draft and final documents.
Stephanie Hicks	State of Nevada	Mitigation Planner	• Liaison between State of Nevada and Esmeralda County LEPC. • Provided information regarding FEMA requirements and process. • Prepared draft and final documents.

4.2.1 Steering Committee Meetings

Esmeralda County followed all State requirements pertaining to public meetings when scheduling and announcing meetings to discuss and develop any portion of this LHMP. As the LHMP meetings were conducted in conjunction with the LEPC meetings, local community members and county staff are familiar with these requirements. As described below, the Steering Committee met formally multiple times to discuss and confer at various points throughout the planning process. Additional informal discussions occurred through numerous email interactions as well as through telephone and face-to-face communication. Meeting handouts are provided in Appendix C.

October 2015

During the kick-off meeting, Stephanie Hicks, Mitigation Planner for DEM, presented the objectives of the DMA 2000, the hazard mitigation planning process, the public outreach process, and the steps involved in updating the LHMP and achieving the County's mitigation goals. The Committee discussed the annual review questionnaire and reviewed the status of all mitigation actions. The Committee reviewed and confirmed the ranking and hazards profiled in the previous plan. Additionally, the Committee discussed each hazard profile and updated any hazard events that had taken place since the last update.

November 2015

The Steering Committee reviewed updates to Sections 1-4 and discussed revisions to each of the hazard profiles, including drought, earthquake, epidemic, flood, hazardous materials, severe weather, wildland fire, and wind, based on discussions at the last meeting. Additionally, the Committee reviewed the critical facilities and infrastructure in Section 6 – Vulnerability Analysis. The Committee provided information regarding current projects in the County and recent projects that were constructed in the last 5 years. The Committee also reviewed Section 7

– Capability Assessment and provided updates to legal and regulatory capabilities, as well as financial capabilities.

In November a press release was published in the Tonopah Times-Bonanza and Goldfield News newspapers. Neighboring jurisdictions were emailed notice about the hazard mitigation plan update and invited to provide input or attend meetings.

Additionally, all utility companies were contacted to discuss the plan and to request input on mitigation actions.

December 17, 2015 – Steering Committee Meeting

During the LEPC meeting, the Steering Committee briefly reviewed previous edits to Sections 1-5 of the plan and provided input for the final draft. Additionally, the Steering Committee reviewed the updates to Section 6 Vulnerability Analysis included the updated critical facilities and infrastructure inventory and costs estimates. The Committee reviewed the edits to Section 7 Capabilities Assessment. The Steering Committee also used the STAPLE+E criterion to prioritize the mitigation actions in Section 8 Mitigation Strategies. Rob Palmer from the Nevada Division of Water Resources provided a presentation about flooding in Esmeralda County and the National Flood Insurance Program (NFIP).

January 21, 2016 – Steering Committee Meeting

The Steering Committee met to review the final draft and to discuss and coordinate the public review process.

All handouts and a list of attendees have been included as part of Appendix C.

4.3 PUBLIC INVOLVEMENT

4.3.1 Project Initiation Media Release

In November 2015, after the second Steering Committee meeting, a press release was issued regarding the preparation of the LHMP. The press release was sent to the nearest newspaper, Tonopah Times-Bonanza and Goldfield News, a weekly newspaper which is published in the Town of Tonopah in Nye County, Nevada, and circulated throughout Nye County and Esmeralda County. These newspapers provided information to Esmeralda County residents as well as informing neighboring communities and businesses of the planning effort.

A second press release was issued in January 2016 in the same newspapers regarding the public review draft period as described in Section 4.3.2 below.

In addition to the press releases, the Steering Committee sent emails regarding the update of the LHMP to the following entities inviting them to join the planning process:

- FEMA Region IX – Hazard Mitigation Division;
- State of Nevada DEM – State Hazard Mitigation Officer;
- Nye County – Emergency Management Services;
- Mineral County, Nevada – Office of Emergency Management;

- Inyo County, California – Office of Emergency Services;
- Mono County, California – Office of Emergency Services;
- Amerigas;
- NV Power Company;
- Valley Electric Association (Dyer/Fish Lake Valley);
- Suburban Propane;
- Valley Electric;
- Valley Propane;
- Goldfield Utilities;
- Silver Peak Utilities;
- Inyo National Forest;
- Death Valley National Park;
- Goldfield Historical Society;
- Nevada Department of Health & Human Services - Nevada State Health Division;
- Goldfield Chamber of Commerce;
- American Red Cross – Southern Nevada Chapter; and
- Nevada Bureau of Mines & Geology – UNR.

The email provided an overview of the LHMP along with a brief description of the county's mitigation planning efforts, requesting public participation and comment. Details regarding the distribution and response of public outreach materials are described in Appendix D.

4.3.2 Public Review Draft Period

During the first few weeks of January 2016, a press release and a community letter was prepared describing the project planning process to date and requesting public comment and participation. The letter was posted at the following locations: Dyer, Nevada at the Esmeralda Market, Post Office, Boonies, and Dyer Elementary; Goldfield at the Esmeralda County Court House, Post Office, Library, and Goldfield Elementary; Silver Peak at the Post Office, Library, Community Center, and Silver Peak Elementary. Additionally, the letter was sent home with students in K-8 grades. 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 Esmeralda County website.

A public hearing before the Esmeralda County Board of Commissioner for review of the plan was held at the March 2016 Board of Commissioners meeting.

4.4 INCORPORATION OF EXISTING PLANS AND OTHER RELEVANT INFORMATION

As described in Section 3.4 of this document, *Land Use Development Trends*, Esmeralda County residents do not support a formalized land use planning practice that would define zoning, building codes, building permits, land use management, and overall county planning. Esmeralda County does not have traditional county departments such as Planning and Zoning, Building Permits, or Floodplain Management. Due to the lack of identified floodplains and repetitive loss properties, FEMA has not developed or conducted a Flood Insurance Study for Esmeralda County.

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

- ***Nevada State Enhanced Mitigation Plan 2013:*** 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 2011):*** This report provides descriptions and Maps of Highways by County.
- ***Esmeralda County Water Resource Plan (2012):*** This plan discussed drought impacts and develops policies for water resource management.
- ***Esmeralda County Master Plan (2011):*** This plan discusses the County's growth, management of natural resources, provision of public services and facilities, and protection of the public's health, safety, and welfare.
- ***Esmeralda County Public Lands Policy (2013):*** Defines the County's public land related issues and needs in conjunction with the Esmeralda County Master Plan.

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.

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5.1 OVERVIEW OF A HAZARD ANALYSIS

A hazard analysis includes the identification, screening, and profiling of each hazard. Hazard identification is the process of recognizing the natural events that threaten an area. Natural hazards result from unexpected or uncontrollable natural events of sufficient magnitude. Even though a particular hazard may not have occurred in recent history in the study area, all natural hazards that may potentially affect the study area are considered; hazards are eliminated from consideration if they are unlikely to occur or the risk of damage is accepted as being very low.

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.

Hazard profiling is accomplished by describing hazards in terms of their nature, history, magnitude, frequency, location, extent, and probability to occur in the future. Hazards are identified through historical and anecdotal information, review of existing plans and studies, and preparation of hazard maps. Hazard maps are used to determine the geographic extent of the hazards and define the approximate boundaries of the areas at risk.

5.2 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.

As the first step of the hazard analysis, the Steering Committee screened the potential hazards based on a range of factors, including prior knowledge or perception of the relative risk presented by each hazard, the ability to mitigate the hazard, and the known or expected availability of information on the hazard. During the October 2015 LHMP meeting, the Steering Committee reviewed the previous hazards identified in the plan, as well as hazard's identified in the State of Nevada Hazard Mitigation Plan. The Committee verified that 12 hazards affect the County (10 natural and 2 man-made). As part of the screening exercise, the Steering Committee

also reviewed and confirmed the rating of each of the hazards to be profiled. The ratings take into consideration the frequency, geographic distribution, and fiscal risk associated with each hazard to determine a gross rating of high, moderate, or low. The Steering Committee utilized the guidance outlined in Table 5-1 to determine the rating of each hazard.

Table 5-1 Guidance used by Steering Committee for Evaluating Hazards

Evaluation Criterion: Frequency		Evaluation Criterion: Geographic Distribution		Evaluation Criterion: Fiscal Risk	
Factor (Frequency of recurrences)	Rating	Factor (Size of Area Potentially Affected)	Rating	Factor (Level or Type of Risk)	Rating
10+ years	1	Site	1	Insured Loss	1
6-9 years	2	Block group	2	City	2
1-5 years	3	Census tract	3	County	3
2-12 months	4	Township, range	4	State	4
0-30 days	5	Countywide	5	Federal Disaster	5

The Steering Committee reviewed the method used to determine an overall rating by hazard for each jurisdiction. The Steering Committee confirmed the ratings which were previously calculated by adding the Frequency Rating to the Geographic Distribution Rating, and then multiplying that sum by the Fiscal Risk Rating, which totaled the Gross Rating as shown in Table 5-2.

Table 5-2 Esmeralda County Vulnerability Rating by Hazard

Hazard	Rating – Frequency (+)	Rating – Geographic Distribution (x)	Rating – Fiscal Risk (=)	Gross Rating
Avalanche	NA			
Coastal Erosion	NA			
Coastal Storm	NA			
Dam Failure	NA			
Drought	4	5	4	36
Earthquake	3	4	3	21
Expansive Soils	NA			
Extreme Heat	1	1	1	2
Flood	1	1	1	2
Flood subcategory: Flash Flood	4	5	3	27
Hailstorm	3	3	1	6
Hurricane	NA			
Land Subsidence	3	4	1	7
Landslide	NA			
Severe Winter Storm	3	4	2	14
Tsunami	NA			
Volcano	NA			
Wildfire	1	4	3	15
Windstorm	5	5	1	10
Windstorm subcategory: Tornado	1	1	1	2
Epidemic	1	3	2	8
Hazardous Materials	3	2	4	20
Terrorism	1	3	5	20
Abandoned Hardrock Mines	NA			

Table 5-3 summarizes the ranking of hazards as low, moderate, or high based on the overall ranking calculated in Table 5-2. The Steering Committee determined that three natural hazards pose the greatest potential risk to Esmeralda County: drought, earthquake, and flood (particularly flash flooding). The Steering Committee also recognized concerns about two technological or human-caused hazards: hazardous materials (particularly their transport along transportation corridors) and terrorism. The Steering Committee's hazard ranking results generally correspond with the ratings determined in the State of Nevada Standard Hazard Mitigation Plan.

Table 5-3 Summary of Gross Ranking Categories

High = 34- 50	Moderate = 17- 33	Low = 1-16
Drought (36)	Flood (29)	Wildfire (15)
	Earthquake (21)	Severe Winter Storm (14)
	Hazardous Materials (20)	Wind (12)
	Terrorism (20)	Epidemic (8)
		Land Subsidence (7)
		Hail (6)
		Extreme Heat (2)

The final results of the screening process are presented in Table 5-4. Of the 22 hazards considered throughout the screening process, 8 are profiled. The hazards that are profiled include hazards that received high or moderate rankings through the Steering Committee's evaluation process, with the exception of terrorism. Terrorism is not profiled because it is an area that is addressed by dedicated Federal and State agencies, and there are not historic events in Esmeralda County that suggest that there is a probability of an occurrence. Of the hazards with a low ranking, hazards with historic events are profiled, and those that are not documented as having occurred within the County previously are not. Should the risk from other hazards increase in the future, the LHMP may be updated to incorporate vulnerability analyses for additional hazards.

Table 5-4 Identification and Screening of Hazards

Hazard Type	Should It Be Profiled?	Explanation
Avalanche	No	No recorded events
Coastal Erosion	No	Regional event, does not occur in NV
Coastal Storm	No	Regional event, does not occur in NV
Dam Failure	No	No recorded events
Drought	Yes	State currently in drought
Earthquake	Yes	Southeastern section of county vulnerable. Need to evaluate unreinforced masonry buildings.
Expansive Soils	No	No historical issues
Extreme Heat	No	No recorded events
Flood	Yes	No state or federal declarations, not mapped by FEMA, no known flood plains. However, there have been 10 flash flood events, but no declarations have been made and recorded damages did not exceed \$40K. Roads have been washed out and debris needed to be removed repeatedly, these costs have not been recorded.
Hailstorm	No	No recorded events
Hurricane	No	Regional event, does not occur in NV
Land Subsidence	No	No recorded events
Landslide	No	No recorded events
Severe Winter Storm	Yes	Typically snow not a problem, high levels have occurred in the past. One event in Silver Peak area 30 years ago.
Tsunami	No	Regional event, does not occur in NV
Volcano	No	No evaluated threat. There is an extinct volcano west of Silver Peak; steam is regularly seen coming from the ground just north of town. The presence of steam supports the presence of active hot springs and wells, but not an active volcano. Through tectonic movement the location of the original extinct volcano could be elsewhere.
Wildfire	Yes	No Fire Management Assistance Declarations are recorded. Infrequent wildfire and ignition patterns coincide with typically low fuel hazards throughout most of Esmeralda County. However, special consideration should be noted for the Goldfield Historic District due to many wooden structures.
Windstorm (includes tornado)	Yes	Wind events in excess of 58 miles per hour have been recorded. One tornado event, no declaration, no damages reported.
Other Hazards for Consideration		
Epidemic	Yes	Has affected the state of Nevada historically. Only preparedness measures can be implemented, no specific mitigation projects.
Hazardous Materials	Yes	There are no Extremely Hazardous Substances (EHS) facilities; there is one facility with reportable quantities of chemicals; as such, this hazard will be generally limited to transport of substances along transportation routes.
Terrorism	No	Currently addressed by other agencies and committees
Abandoned Hardrock Mines	No	No recorded events

5.3 HAZARD PROFILES

The requirements for hazard profiles, as stipulated in 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 Steering Committee for profiling have been examined in a methodical manner based on the following factors:

- Nature
- History
- Location
- Extent (magnitude and severity of the hazard)
- Impact (general impacts associated with each hazard are described in the following profiles – detailed impacts to Esmeralda County’s residents and critical facilities are further described in Section 6 as part of the vulnerability analysis for each hazard)
- Probability of future events

Each hazard was reviewed for climate change and to the extent each hazard was affected, information was added to the Location, Extent, and Probability of Future Events section of each hazard.

Throughout the profiles, each hazard is characterized by a rating based on the criteria for probability and magnitude/severity identified in Tables 5-5 and 5-6. Probability is determined based on historic events, using the criteria identified in Table 5-5, to assess the likelihood of future events. The magnitude and severity of impacts are also characterized based on historic events using the criteria identified in Table 5-6.

Table 5-5 Hazard Probability Criteria

Probability	Criteria
Highly Likely	- Event is probable within the calendar year. - Event has up to 1 in 1 year chance of occurring (1/1=100%). - History of events is greater than 33 percent likely per year. - Event is "Highly Likely" to occur.
Likely	- Event is probable within the next 3 years. - Event has up to 1 in 3 years chance of occurring (1/3=33%). - History of events is greater than 20 percent but less than or equal to 33 percent likely per year. - Event is "Likely" to occur.
Possible	- Event is probable within the next 5 years. - Event has up to 1 in 5 years chance of occurring (1/5=20%). - History of events is greater than 10 percent but less than or equal to 20 percent likely per year. - Event could "Possibly" occur.
Unlikely	- Event is possible within the next 10 years. - Event has up to 1 in 10 years chance of occurring (1/10=10%). - History of events is less than or equal to 10 percent likely per year. - Event is "Unlikely" but is possible of occurring.

Table 5-6 Hazard Magnitude/Severity Criteria

Magnitude / Severity	Criteria
Catastrophic	- Multiple deaths. - Complete shutdown of facilities for 30 or more days. - More than 50 percent of property is severely damaged.
Critical	- Injuries and/or illnesses result in permanent disability. - Complete shutdown of critical facilities for at least two weeks. - More than 25 percent of property is severely damaged.
Limited	- Injuries and/or illnesses do not result in permanent disability. - Complete shutdown of critical facilities for more than one week. - More than 10 percent of property is severely damaged.
Negligible	- Injuries and/or illnesses are treatable with first aid. - Minor quality of life lost. - Shutdown of critical facilities and services for 24 hours or less. - Less than 10 percent of property is severely damaged.

The eight hazards identified through the screening process (see Table 5-4) are profiled below in alphabetical order. The order of presentation does not signify the level of importance or risk.

5.3.1 Drought

Planning Significance: High

5.3.1.1 Nature

Drought is an extended period of dryness where below average precipitation occurs in a geographic location. Climatic characteristics, such as high temperature, high wind, and low relative humidity impact the severity of drought conditions. These characteristics vary significantly from one region to another. Despite all the unpredictable calamities droughts have caused, it is a normal, recurrent feature of all climatic zones.

Droughts are caused by physical and social effects. Drought can be meteorological, or caused by low precipitation; agricultural, which is a deficiency in soil moisture relative to water demands of plant life; hydrological, which refers to below-normal stream flow or depleted reservoir storage; economic, which is associated with supply and demand of economic goods; or induced drought, which is a condition aggravated by negative precipitation experience and below normal stream flow or recharge. It is caused by introducing agricultural, recreational, industrial or residential consumption into an area that cannot naturally support them.

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. Drought is difficult to define in exact terms due to its multi-dimensional nature and a lack of a universally accepted definition. Drought also poses difficulties in terms of comprehensive risk assessments; drought is not a distinct event and is often the result of many complex factors action on and interacting within the environment. Understanding drought as a recurring feature of climate is a first step toward creating management practices that effectively mitigate its effects.

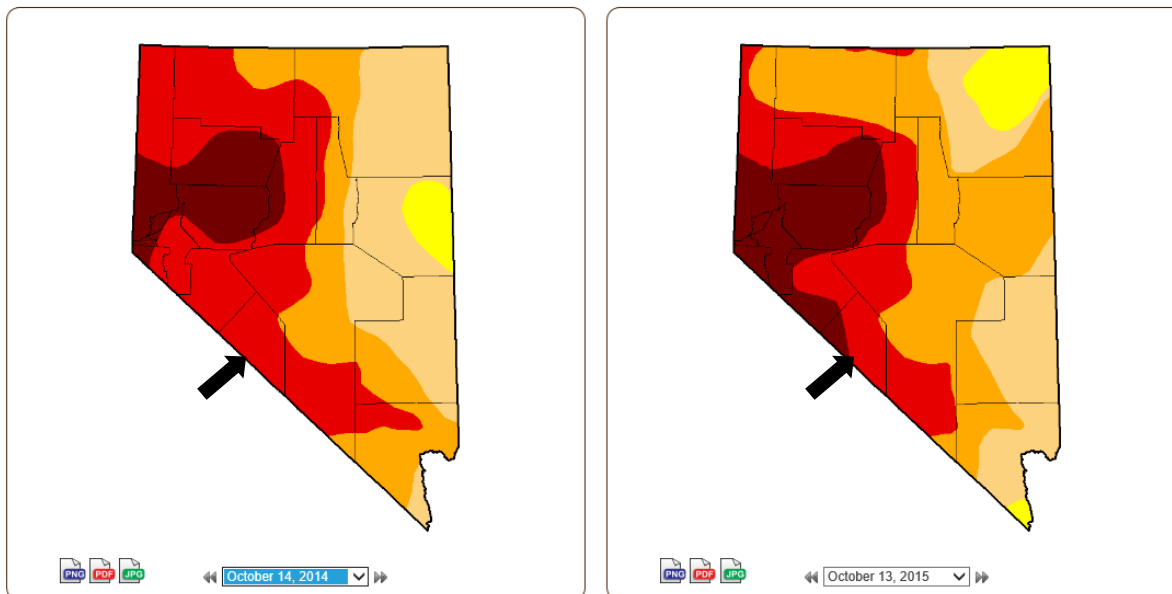
5.3.1.2 History

In 2002, 2004, and for the period of 2005 through 2009 the U.S. Department of Agriculture designated all seventeen counties in Nevada as drought-affected. By 2009, the U.S. Department of Agriculture had identified all of Nevada as being within multiple Secretarial Designation drought declarations.

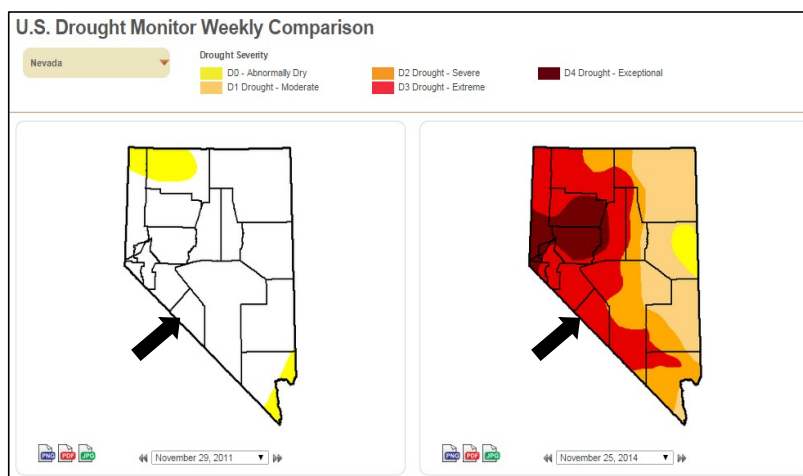
The US Drought Monitor (USDM) produced weekly since 2000 can be used to visualize trends in drought over the region. The map, which rates drought from D0 (abnormally dry) to D4 (exceptional drought), is based on measurements of climatic, hydrologic and soil conditions as well as reported impacts and observations from more than 350 contributors around the country.

According to information from the USDM, Nevada has been, for the most part, in some degree of drought since 2000, as seen in Figures 5-1, 5-2, and 5-3.

**Figure 5-1. Drought Severity Comparison
October 14, 2014 vs October 13, 2015**



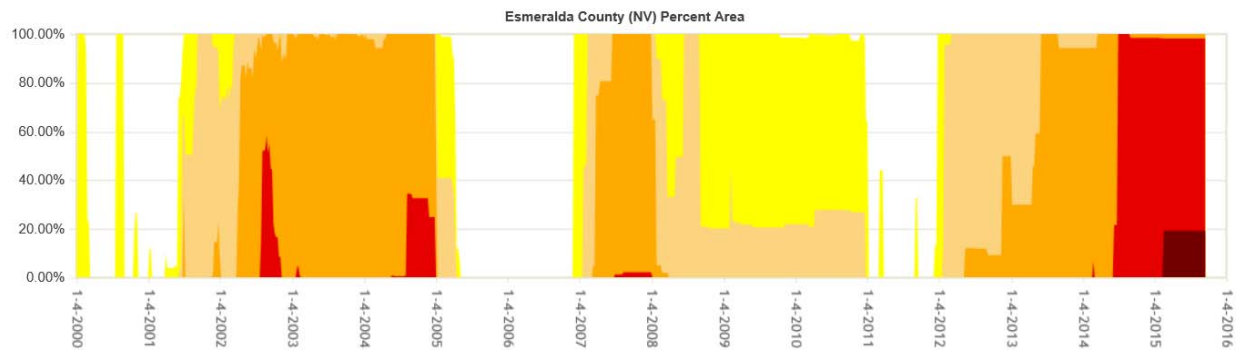
**Figure 5-2. Drought Severity Comparison
November 29, 2011 vs November 25, 2014**



In historical drought data compiled by the National Climatic Data Center (NCDC), Esmeralda County lies within Nevada's South Central climate division 3 where the data is reported from 1895 to the present. In the South Central division there were 31 observed months in the time span from 1895-2006 that rated as Extreme Drought. The major drought years in this division were 1928, 1934, 1959, 1960, and 2002.

Figure 5-3 shows the percentage of Esmeralda County suffering from a given drought level (D0-yellow, D1-tan, D2-orange, D3-red, D4-dark red). The ongoing drought since 2012 is the most severe the region has seen since at least 2000, exacerbated by abnormally warm temperatures year-round, below average numbers of winter storms, and the resultant meager snowpack.

Figure 5-3. Nevada Percent Area



Since December of 2001, Esmeralda County has experienced eight periods greater than classification D1, including the current drought. Maximum intensity of these droughts ranged from severe to extreme and averaged 12 months in duration. The time interval between these droughts averaged 15 months. Following is a list of recent drought periods extracted from data supplied by the U.S. Drought Monitor.

Table 5-7 History of Drought

Drought Period	Duration	Intensity
December 4, 2001 – January 1, 2002	1 month	Severe
April 2, 2002 – July 23, 2002	3 months	Severe
July 30, 2002 – November 5, 2002	3 months	Extreme
November 12, 2002 – January 1, 2004	14 months	Severe
August 8, 2004 – December 28, 2004	5 months	Extreme
March 27, 2007 – January 2, 2008	9 months	Severe
November 20, 2012 – June 24, 2014	19 months	Severe
July 1, 2014 – Present	15 months	Extreme

5.3.1.3 Location, Extent, and Probability of Future Events

The possibility of a prolonged drought exists throughout the State of Nevada and can affect the entire state. Drought, by its nature, is regional in scope. According to US Drought Monitor data, the southwestern portion of the state, which includes Esmeralda County, typically experiences higher levels of drought compared to the northern and eastern portions of Nevada. Therefore, drought may affect all or any portion of Esmeralda County. However, the Steering Committee noted that Fish Lake Valley potentially is the most affected area of Esmeralda County due to the wells.

Of the major drought years noted in the History discussion above, the worst drought years occurred in 1928 and 1934 when seven out of twelve months were below a -4 rating, peaking at -6.3 in May 1934. [For purposes of measuring drought severity, drought conditions are indicated by minus numbers, with -4 indicating Extreme Drought.]

Measuring the extent of drought is a difficult process because of its diverse geographical and temporal nature. Despite these difficulties, various indices for measuring and characterizing drought can be useful. The Palmer Drought Indices and the Standardized Precipitation Index are the most commonly used. The Palmer Indices describe water balance—looking at water supply (precipitation), demand (evapotranspiration), and loss (runoff)—on three scales: weekly during the growing season, monthly to assess long-term cumulative effects, and on another long-term scale that takes into account hydrological factors such as reservoir and groundwater levels. These are the Crop Moisture Index, the Palmer Drought Severity Index, and the Palmer Hydrological Drought Index, respectively. The Standardized Precipitation Index considers precipitation alone, comparing the probability of a region's receiving a given amount of precipitation in a given time period based on historical levels and actual precipitation records.

Esmeralda County is rural in nature and drought conditions could impact surface water and groundwater availability in the community. Direct impacts are expected to be negligible to properties or individuals, and more likely to affect the costs associated with water use and industries dependent on existing water resources, and/or long-term water resource planning on a regional level. The Nevada State Hazard Mitigation Plan (October 2007) considers drought as a hazard in a "special risk category" because its effects are mitigated through the statewide drought plan originally handled by the Department of Conservation and Natural Resources, Division of Water Resources. This responsibility has been transferred to the State Climate Office. The aquifer in Esmeralda County benefits from snowpack more than rain. However, moisture even if in the form of rain instead of snow in the mountains will end up in the aquifer. Due to the rain events this past summer and cooler temperatures, Esmeralda County has not seen any significant impacts from the drought.

The Objective Long Term Indicator Drought Percentiles, which analyzes various six to sixty month precipitation, moisture, and hydrologic models, shows that as of October 10, 2015, Esmeralda County is not expected to be a drought watch area (NCDC 2015). In addition, the U.S. Seasonal Drought Outlook identifies the portion of the State of Nevada that includes Esmeralda County as having ongoing drought-like conditions but showing signs of improvement. The probability of future drought is dependent on many factors but is possible to likely to occur in Esmeralda County, based on the patterns of previous events.

Climate Change

Warmer and drier climatic conditions during the last decade have come on the heels of wetter and cooler conditions that had favored increases in fuel accumulation. Whatever its cause, a warm climatic cycle can contribute in any year to earlier snowmelt, drought, and heavy, isolated rainstorms. The early loss of snow cover, patchy rainfall, and low soil water absorption during intense rainstorms may contribute to lower live and dead fuel moisture during the summer months.

5.3.2 Earthquake

Planning Significance: Moderate
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5.3.2.1 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.

Ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. It causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. Two kinds of seismic waves occur: P (primary) waves are longitudinal or compression waves similar in character to sound waves that cause back-and-forth oscillation along the direction of travel (vertical motion), and S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side to side (horizontal motion). Also two kinds of surface waves occur: Rayleigh 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 natural hazards can occur from earthquakes, such as the following:

- **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.
- **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. Pore water 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.
- **Landslides/Debris Flows** occur as a result of horizontal seismic inertia forces induced in the slopes by the ground shaking. The most common earthquake-induced landslides include shallow, disrupted landslides such as rock falls, rockslides, and soil slides. Debris flows are created when surface soil on steep slopes becomes totally saturated with water. Once the soil liquefies, it loses the ability to hold together and can flow downhill at very high speeds, taking vegetation and/or structures with it. Slide risks increase after an earthquake during a wet winter.

5.3.2.2 History

The State of Nevada ranks in the top three states subject to the largest earthquakes over the last 150 years. Only Alaska and California have had more large (magnitude 7 or greater) earthquakes. Geological young faults, which are located around the State, are sources of earthquakes. Historically, there has been a magnitude 7 or greater earthquake about every thirty years somewhere in Nevada; the last one was in 1954, over 50 years ago. Earthquake activity in Nevada is clustered primarily in the western-central part of the state (Nevada Seismological Laboratory 2009b). Table 5-8 lists earthquakes since 1973 with magnitudes that exceeded 5.0 in Esmeralda County and immediately surrounding areas. The events listed in Table 5-8 occurred within 37.0 to 38.5 latitude and (-117.2) to (-118.2) longitude, an area that encompasses Esmeralda County. No damages were recorded as a result of these earthquakes.

Table 5-8 Earthquakes Greater than 5 M in Esmeralda County

CAT	YEAR	MO	DAY	ORIG TIME	LAT	LONG	DEPTH (miles)	MAGNITUDE
PDE	1980	12	28	225808.70	38.14	-118.26	23	5.0 MLBRK
PDE	1982	09	24	074024.30	37.85	-118.12	5	5.4 MLBRK
PDE	1982	12	28	190624	38.03	-118.35	18	5.2 MLPAS
PDE	1986	07	20	142945.5	37.58	-118.45	8	5.9 MLPAS
PDE	1986	07	21	144226.6	37.54	-118.45	9	6.2 Mw01023
PDE	1986	07	21	145111	37.52	-118.41	10	5.7 MLBRK
PDE	1986	07	21	220718	37.50	-118.40	9	5.6 MLBRK
PDE	1986	07	22	133359.57	37.53	-118.43	10	5.0 MLPAS
PDE	1986	07	22	134859.68	37.51	-118.47	10	5.2 MLPAS
PDE	1986	07	31	072240.21	37.46	-118.37	5	5.9 MLPAS
PDE	1990	01	15	052903.45	37.99	-118.21	5	5.0 MLBRK
PDE	1993	05	17	232049.22	37.17	-117.78	6	6.1 MwGS
PDE	1993	05	17	233609.90	37.15	-117.78	13	5.1 MDPAS
PDE	1993	05	18	010306.43	37.15	-117.76	2	5.3 MLBRK
PDE	1993	05	18	234853.91	37.06	-117.78	3	5.2 MLBRK
PDE	1993	05	19	141322.58	37.14	-117.77	0	5.2 MLBRK
PDE	1997	11	02	085154.23	37.80	-118.14	5	5.4 MwHRV
PDE	1997	11	15	060019.83	37.18	-117.79	5	5.0 MwBRK
PDE	2013	02	13	001014	38.02	-118.05	12.4	5.2 ML

SOURCE: USGS 2009, 2015

Esmeralda County has no history of recorded damages from earthquakes. Since 1973, thousands earthquakes have been recorded in Esmeralda County and the immediate surrounding area. Only 19 recorded over a magnitude of 5.0, with the largest in 1986, measuring M6.2. For comparison, North America's strongest recorded earthquake occurred in 1964, measuring M9.2.

5.3.2.3 Location, Extent, and Probability of Future Events

Earthquake sources are located throughout Esmeralda County, and earthquakes have been known to occur in areas where the probabilities were considered low. Fault lines are present throughout Esmeralda County (Nevada Seismological Laboratory 2009a). Historic information for Esmeralda County and Nevada suggests earthquakes will continue to occur, and mitigating for both safety and protection is appropriate.

A map of a fault lines and seismic hazard model is provided as Figure 3 and Figure 4 (see Appendix B), which suggests that the western portion of Esmeralda County is at greater risk of experiencing severe or very strong shaking. According to the Steering Committee, Verdis Creek Fault line is second largest to the San Andreas Fault in California.

The severity of an earthquake can be expressed in terms of intensity and magnitude. Intensity is based on the damage and observed effects on people and the natural and built environment. It varies from place to place depending on the location with respect to the earthquake epicenter, which is the point on the earth's surface that is directly above where the earthquake occurred. The severity of intensity generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. The scale most often used in the U.S. to measure intensity is the Modified Mercalli (MM) Intensity Scale. As shown in Table 5-9, the MM Intensity Scale consists of 12 increasing levels of intensity that range from imperceptible to catastrophic destruction. Peak ground acceleration (PGA) is also used to measure earthquake intensity by quantifying how hard the earth shakes in a given location. PGA can be measured as acceleration due to gravity (*g*) (see Table 5-9) (MMI 2006).

Magnitude (*M*) is a measure of earthquake strength. The magnitude scale measures the seismic energy released at the earthquake's hypocenter, the actual location of the energy released inside the earth. It is based on the amplitude of the earthquake waves recorded on instruments, known as the Richter magnitude test scales, which have a common calibration (see Table 5-9).

Table 5-9 Magnitude/Intensity/Ground-Shaking Comparisons

Magnitude	Intensity	PGA (% <i>g</i>)	Perceived Shaking
0 – 4.3	I	<0.17	Not Felt
	II-III	0.17 – 1.4	Weak
4.3 – 4.8	IV	1.4 – 3.9	Light
	V	3.9 – 9.2	Moderate
4.8 – 6.2	VI	9.2 – 18	Strong
	VII	18 – 34	Very Strong
6.2 – 7.3	VIII	34 – 65	Severe
	IX	65 – 124	Violent
	X	124 +	Extreme
7.3 – 8.9	XI		
	XII		

SOURCE: MMI 2006

Historically, earthquakes in Esmeralda County have rarely exceeded M6.0. Damage has never been reported due to an earthquake event. Based on historic earthquake events and the criteria identified in Table 5-4, the magnitude and severity of low magnitude earthquake impacts in Esmeralda County are considered negligible with minor injuries, the potential for critical facilities to be shut down for less than 24 hours, less than 10 percent of property or critical infrastructure being severely damaged, and little to no permanent damage to transportation or infrastructure or the economy.

The entire State of Nevada is considered at risk for earthquake occurrences. Impacts to Esmeralda County such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt, based on past events. Impacts to future populations, residences, community facilities, and infrastructure are anticipated to remain the same for historic low magnitude events.

There are two historically designated places in Esmeralda County which are at risk to impacts from earthquakes. The Goldfield Historic District and the Goldfield Hotel were constructed between 1904 and 1909 and could be susceptible to damage from earthquake occurrences. The Bureau of Mines and Geology has completed a database containing an inventory of unreinforced masonry (URM) buildings statewide. There are 24 URM buildings in Esmeralda County.

A map of a seismic hazard model is provided as Figure 4 (see Appendix B). This map shows the level of ground motion that has an annual probability of 1 in 475 of being exceeded every year, which is equal to a 10 percent probability of being exceeded in 50 years. This information suggests that the western parts of Esmeralda County are most susceptible to very strong or severe shaking.

Table 5-10 shows the probability of experiencing an earthquake of a magnitude of 5 or greater over a 50-year period within 50 kilometers (31 miles) of Goldfield in Esmeralda County, Nevada. The table assesses four magnitude thresholds: $M \geq 5.0$, $M \geq 6.0$, $M \geq 6.5$, and $M \geq 7.0$ using the U.S. Geological Survey (USGS) Probabilistic Seismic Hazard Analysis (PSHA) Model. The USGS model suggests that the communities of Goldfield, Tonopah, and Beatty are within the 80 to 90 percent probability range of an event of at least 5 M.

Table 5-10 Estimated Probabilities of Earthquakes

County	Town	% Probability of Magnitude Greater Than			
		5	6	6.5	7
Esmeralda	Goldfield	80-90%	20-30%	5-10%	<1%

SOURCE: Nevada Bureau of Mines and Geology, 2014

5.3.3 Epidemic

Planning Significance: Low

5.3.3.1 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. A disease can affect any living organism, including people, animals, and plants, and directly (via infection) and indirectly (via secondary impacts) harm these living things. An epidemic is a disease that affects an unexpected number of people or sentinel animals at one time.

Infectious diseases are caused by the entry and growth of microorganisms in humans. Most, but not all, infectious diseases are communicable, as 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). Infectious diseases are the leading cause of death in humans worldwide and the third leading cause of death in humans in the U.S.

The State of Nevada has established a list of over 60 reportable diseases, including 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; Severe Acute Respiratory Syndrome (SARS); syphilis (also congenital); tetanus; toxic-shock syndrome; trichinosis, tuberculosis, and typhoid fever. These diseases are monitored by the Nevada Department of Health & Human Services Nevada State Health Division via the presence of a public health nurse.

5.3.3.2 History

Throughout history, the State of Nevada has experienced cases of reportable diseases including the West Nile Virus, Norovirus, and the Spanish Flu in the early 20th century. Recently, the nation has experienced an outbreak of the H1N1 flu virus. In the past 25 years, emerging diseases have included: HIV/AIDS, Hepatitis C, Ebola, Lyme disease, Hantavirus, SARS, MERS, Enterovirus D68 and Chikunguny virus. Airlines now carry an estimated 1.6 billion passengers every year. Additionally, some “old-school” diseases are now re-emerging as the disease becomes resistant to anti-microbial medications and vaccines. These diseases include things such as: measles, TB, pertussis (whooping cough) and bacterial pneumonia. In 2009, Esmeralda County had an outbreak of pertussis (whooping cough) in 3 or 4 adults in Fish Lake Valley. In 2015, there was a measles outbreak scare; however, it did not progress further.

5.3.3.3 Location, Extent, and Probability of Future Events

An epidemic outbreak in Nevada could potentially affect any or all areas of Esmeralda County. Based upon review of the impact of the 1918-1919 pandemic flu events and the more recent H1N1 flu outbreak and the recent Ebola scare, Nevada communities that are located along transportation corridors have the greatest likelihood of being impacted. Communities located

along these corridors are more accessible to people who travel through the County and could spread viruses. The largest community in Esmeralda County, the Town of Goldfield, is located along a major transportation corridor (Interstate 95) connecting Las Vegas to Reno. Locations where many people gather are more susceptible to spreading viruses, such as schools, workplaces, and community centers.

Historically, Esmeralda County has not experienced major impacts from epidemics. The County's rural location and low population numbers may limit susceptibility to major events. However, the two largest concerns are the Hantavirus, due to a large number of abandoned shacks which could house infected rodents, and the West Nile Virus. The wet weather and mild temperatures has led to increase in mosquito populations which could increase the probability of West Nile Virus.

Impacts from epidemics result from the spread of communicable diseases, and the effects on the populace may range from limited to catastrophic, depending on the illness. Planning to mobilize prevention efforts, such as the vaccination efforts for H1N1, in coordination with State or Federal organizations is a mitigation strategy for limiting the impact of epidemics.

Esmeralda County has no official record of epidemic outbreaks. While it is not possible to predict such events, history and the County's low population suggest that an epidemic outbreak in the future is unlikely, which is defined in Table 5-5 as possible within the next 10 years.

Climate Change:

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.

5.3.4 Flood

Planning Significance: Moderate
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5.3.4.1 Nature

Flooding is the accumulation of water where there is usually none or the overflow of excess water from a stream, river, lake, reservoir, or coastal body of water onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods.

Floods also occur along streams and arroyos (stream channels that are normally dry) that do not have classic floodplains. These include flash floods in mountains (sometimes with rapidly rising water several tens of feet deep) and on alluvial fans, which are typically fan-shaped, gently sloping areas between the steep parts of mountain ranges and the nearly flat valley floors. Because much of Nevada is part of the Great Basin (an area of internal drainage, in which streams are not connected to rivers that flow to the oceans), flood waters will commonly drain into interior lakes (e.g., Walker Lake at the terminus of the Walker River, Pyramid Lake at the terminus of the Truckee River), wetland areas (e.g., Carson Sink at the terminus of both the Carson and Humboldt Rivers), or playas (normally dry lake beds, such as Roach Lake, south of Las Vegas).

Floods are natural events that are considered hazards only when people and property are affected. Nationwide, on an annual basis, floods have resulted in more property damage 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 severed.

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

In addition to typical flood events, flash floods also are hazardous throughout the State of Nevada. Flash floods originate quickly from slow-moving storms and can generate a rapid rise in water levels. The flash floods quickly reach high velocities, and often carry debris. Flash floods can strike a community with little to no warning within 6 hours of heavy rain or rain and snowmelt, dam or levee failure and may bring 10 to 20 feet of water. These events can move

boulders the size of small cars, uproot trees, destroy structures and facilities, erode roadways, sweep away vehicles and create new water channels. An erodibility index (soils sensitivity to the effects of wind and water on the soil structure) can determine water and wind erosion potential due to heavy rains and flash floods. Flash flood intensity is proportionate to rainfall intensity and duration, and is affected by watershed steepness and vegetation, stream gradient, natural and artificial flood storage areas, and streambed and floodplain configurations. Urban areas are more vulnerable to flash flooding because of development, land clearing, drainage system construction, and unobstructed channels such as roads, parking lots and ditches. Wildfires may also contribute to flash floods and landslides by removing vegetation and altering soil conditions.

5.3.4.2 History

Historically, the greatest flooding threat to Esmeralda County is caused by flash floods. According to the Nevada State Floodplain Manager, Esmeralda County does not have any SFHAs. The NFIP is not able to map this hazard because there are no distinguishable floodplains within the County. Esmeralda County is not a participant in NFIP.

Table 5-11 lists flood events recorded as occurring within Esmeralda County. Figure 5, Flash Flood Occurrences (see Appendix B) illustrates the locations of historic flash flood events in Esmeralda County through 2015.

Table 5-11 Esmeralda County – Historical Flood/Flash Flood Events

Year	Location	Description
1913	Goldfield	Heavy rains in the hills to the west of Goldfield caused a wall of water to pour into Goldfield, sweeping away hundreds of buildings.
1983-84	Goldfield	Heavy rains in the hills to the west of Goldfield caused a flash flood through wash. Water covered part of US 95 from Tonopah. US 95 closed for several hours. No damage, just debris. No declaration, local or county.
1980-89	Silver Peak	During the 1980's flashflood causing roads to be impassable until debris could be cleared causing no one being able to leave or enter town for a short time. No declaration, local or county.
1992	Fish Lake Valley	Flash flood out of Indian Creek Canyon flooded Smith Ranch leaving approximately 2-feet of mud and debris in the house and barn and flooded all of the hay fields. No declaration, local or county.
1997	Goldfield	State Route 66 was blocked due to water running over the road. Also, winds estimated at 50 to 60 mph were reported. No declaration, local or county.
1998	West-Central Portion of County	\$40K in damages reported. No declaration, local or county. Strong thunderstorms with very heavy rain produced significant flooding which washed out several roads including Highway 266, between Lida and Palmetto, and Highway 264 in the Fish Lake Valley. Twelve people were rescued from stranded vehicles and at least three cars were swept away by floodwaters.
2000-01	Gold Point	Washed out the beginning of Hwy 774 at Hwy 266 by moving a section over. The road in that area was blocked with debris. No structures were damages. No declaration, local or county.
July 23, 2005	10 mi west of Goldfield in Dyer	Alkali Road and State Highway 264 impassable. No declaration, local or county.
Seasonal	Silver Peak	There have been multiple, almost seasonal flash floods that cover the streets with dirt and debris. No declaration, local or county.
July 12, 2008	Lida Junction Airport	A push of monsoon moisture from the southeast brought severe storms and flash flooding to portions of the Mojave Desert and southern Great Basin. Water, mud, debris and boulders were crossing U.S. Highway 95 at Esmeralda County mile marker 7. No declaration, local or county.
July 31, 2011	Lida	Another push of monsoon moisture fueled more thunderstorms across the Mojave Desert and southern Great Basin. Several storms produced flash flooding, and there was also isolated severe weather. Rocks, mud, and a lot of water were on Highway 266 near Lida. Took the road out. \$5,000 in property damage. No declaration.
July 23, 2012	Gilbert – Northern Esmeralda County	Remnant monsoon moisture continued to fuel scattered thunderstorms over the Mojave Desert and southern Great Basin, with isolated flash flooding. Highway 6 was flooded with water and debris. \$2,000 in property damage. No declaration.
August 22, 2012	Lida	Another surge of monsoon moisture led to an outbreak of thunderstorms over the Mojave Desert and southern Great Basin. A low pressure system further enhanced the storms on the 22 nd . A four mile section of Highway 266 near Lida Summit was washed out. There was \$50,000 in property damage. No declaration.

September 11, 2012	Silver Peak Airport	A low pressure system interacted with deep monsoon moisture to produce widespread thunderstorms and flash flooding. A few storms also produced severe weather. Flash flooding washed mud and debris over Highway 265 near Silver Peak as well as Highway 95 in eastern Esmeralda County. \$5,000 in property damage was reported. No declaration.
July 22, 2013	Lida	A large push of monsoon moisture triggered an extended period of thunderstorms across the Mojave Desert and southern Great Basin. Many storms produced flash flooding and severe weather. \$10,000 in property damage. No declaration.
July 22, 2013	Dyer	Same event as above washed out Highway 264 at mile marker 8.
August 31, 2013	Lida	Another surge of monsoon moisture fueled widespread thunderstorms over the Mojave Desert and southern Great Basin. Many storms produced flash flooding, and isolated severe weather also occurred. Two feet of mud covered Highway 266 near Lida Pass. \$5,000 property damage. No declaration.
August 4, 2014	Blair Junction	A major surge of monsoon moisture brought an outbreak of thunderstorms to the Mojave Desert and southern Great Basin, with the most activity on the 3rd and 4th. Widespread flash flooding and severe weather occurred. \$2,000 in property damage. No declaration.
May 25, 2015	Lida	An unseasonable upper low east of the area helped fuel showers and thunderstorms over the southern Great Basin and Mojave Desert. Isolated flash flooding occurred. Rocks and mud washed over Highway 266 11 miles W of Lida. \$1,000 in damage. No declaration.
June 11, 2015	Dyer	An unusually late-season low pressure system combined with unusually early season deep subtropical moisture to fuel scattered thunderstorms over the Mojave Desert and southern Great Basin. Some storms produced flash flooding, and isolated wind damage also occurred. \$2,000 in damage. No declaration. 23 miles of road flooding occurred,
August 2015	Dyer; Fish Lake Valley	A flash flood occurred which caused closure of Highway 264 for several hours and resulted in a vehicle accident. The event caused flooding of agricultural fields, severe damage to surface streets, and flooding of one residence.

Several privately owned dams are located within Esmeralda County. Fish Lake Dam is rated as a significant-hazard dam (S); although the inundation area is currently uninhabited and the owners indicate that no one is expected to live there, this ranking is retained in the event that the area is inhabited in the future. B&B Mine Dam is currently ranked as a significant hazard dam, and is being considered for downgrading to low. This dam is located on land managed by USFS and roadways are located downstream. There are also four low hazard dams (L) in the County: two are irrigation dams (Chiatovich and McAfee) and two are tailings dams (at Silver Peak) (Nevada Department of Public Safety 2007). The characteristics and rating of each dam within Esmeralda County are identified in Table 5-12.

Table 5-12 Esmeralda County – Dam Characteristics

State ID	Name	Height	Storage	Tributary Area	Hazard Rating
J-182	Silver Peak 16 to 1 Tails Dam	102	1040	0.1	L
J-338	Silver Peak 16 to 1 Tails #2	30	131	0.4	L
J-111	B and B Mine Dam	17	1	6.1	S
J-042	Chiatovich Creek Dam	9	24	0.1	L
J-195	Fish Lake Dam	16	0	430	S
J-044	Mcafee Creek Dam	9	22	0.1	L

Source: 2013 State of Nevada Enhanced Hazard Mitigation Plan

Hazard designations for dams are defined by the downstream hazard potential in the event of dam failure. The State of Nevada HMP defines the ratings for dam hazard potential as follows:

High Hazard Designation (H) – Assigned to a dam if there is reasonable potential for loss of life and/or extreme economic loss.

Significant Hazard Designation (S) – Assigned to a dam if there is a low potential for loss of life but an appreciable economic loss.

Low Hazard Designation (L) – Assigned to a dam if there is a vanishingly small potential for loss of life and the economic loss is minor or confined entirely to the dam owner's own property.

According to the Nevada HMP, dam failure is considered a “high hazard.” Because the dams in Esmeralda County are not rated as “high hazard,” the likelihood of dam failure is remote. There have been no recorded events of dam failure in the past. In addition, the identified dams within Esmeralda County are located in undeveloped areas where if dam failure should occur the negative impact on the population and economy would not be expected to be significant.

5.3.4.3 Location, Extent, and Probability of Future Events

Flash flooding events have occurred throughout the County since 1913. The most frequent events over that timeframe occurred in the Town of Goldfield, where intense rainfall would take place in over the hills west of the town limits causing flash flooding throughout Goldfield, impacting I-95 and residences. In 1997, Fish Lake Valley, located in the southwestern portion of the County, was flooded out of Indian Creek Canyon causing impacts to hay fields in the area. In addition to these events, seasonal flooding occurs in the area surrounding Silver Peak in the central portion of the County. These events compromise streets and infrastructure covering them with dirt and debris. Additionally, the County is still dealing with severe surface street damages as a result of the most recent event in August 2015 in Dyer/Fish Lake Valley.

Historically, flash flood events in Esmeralda County have primarily compromised roadways by making them impassable. There is no FEMA Flood Insurance Rate Map (FIRM) available to depict the flood threat extent for the County.

Based on past flash flood events, the extent of flood impacts in Esmeralda County are considered limited because injuries do not result in permanent disability and more than 10 percent of property in the County may be damaged.

Nationwide, floods result in more deaths than any other natural hazard. Floods also result in economic losses through business and government facility closure, and/or communications, utilities, and transportation disruptions. Floods may result in expenditures for emergency response, and generally disrupt the normal function of a community.

Esmeralda County has experienced flooding events (see Table 5-11) with impacts that range from negligible to limited. The largest reported damages occurred in 1998; \$40,000 in damages were reported when strong thunderstorms and heavy rain produced significant flooding that washed out several roads including Highway 266 between Lida and Palmetto and Highway 264 in the Fish Lake Valley.

Of the recorded flash flood event locations, thirteen have occurred in the central communities of Esmeralda County including the Towns of Goldfield, Silver Peak, Dyer, and Fish Lake Valley. The central portion of the County has experienced recurring flash floods over the last 100 years and the Town of Silver Peak is known to have seasonal flash floods. Based on historical evidence, it is highly likely a flooding/flash flooding event is probable within a calendar year.

Future development is not expected to affect the probability of future flooding within the County due to the low rate of expected development. This status will be reviewed by the Steering Committee during their annual review of the LHMP.

Climate Change:

Recent studies state that 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.

5.3.5 Hazardous Materials

Planning Significance: Moderate
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5.3.5.1 Nature

Hazardous materials include hundreds of substances that pose a significant risk to humans. These substances may be highly toxic, reactive, corrosive, flammable, radioactive, or infectious.

Hazardous material releases can occur from any of the following:

- Fixed facilities (such as refineries, chemical plants, storage facilities, manufacturing facilities, warehouses, wastewater treatment plants, swimming pools, dry cleaners, automotive sales/repair, and gas stations)
- Highway and rail transportation (such as tanker trucks and railcars transporting hazardous materials)
- Maritime transportation (including transportation of petroleum products by barges and ocean-going tankers and spills associated with petroleum terminals)
- Air transportation (such as cargo packages)
- Pipeline transportation (petroleum products, natural gas, and other chemicals)

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 of the Federal Superfund Amendments and Reauthorization Act (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). The U.S. Environmental Protection Agency identifies these chemicals in the List of Lists—Consolidated List of Chemicals Subject to EPCRA and Section 112 of the Clean Air Act. Releases of EHSs can occur during transport to and from fixed facilities. Transportation-related releases are generally more troublesome because they can 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 during and immediately after an earthquake may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cut-off of response personnel and equipment. Also, 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.

5.3.5.2 History

The National Response Center (NRC) Web-based query system of non-Privacy Act data identifies that, since November 1990, there have been several chemical-related incidents throughout Esmeralda County with the majority of the incidents occurring during transport. Table 5-13 describes these incidents.

Table 5-13 Hazardous Materials Events

Date	Type	Location	Description
11/22/90	Mobile	Lida Junction	Tractor trailer/munitions shipment ignited.
11/21/90	Mobile	South of Goldfield	Explosion of truck filled with Class A explosives.
05/15/91	Mobile	Hwy 6 & 95 MP 16	Tank truck transportation accident.
1992-93	Mobile	Goldfield	Load of Quick Lime was released through the Town of Goldfield, north of US 95 for 4 miles and for 5 miles over Silver Peak-Alkali Road. Over 30,000 pounds of the product was released.
3/30/93	Fixed	Fish Lake Valley	Elementary School. Storage tank struck by a bus.
5/28/94	Fixed	Hwy 264 near Dyer	Above ground storage tank rolled over, spilled diesel fuel.
12/23/94	Fixed	Near Tonopah	Illegal dumping of broiler with asbestos wrap.
1994	Mobile	Goldfield	A classified military explosive load had a brake/tire fire that consumed the trailer. This display was seen as far as 70 miles away.
09/14/02	Mobile	US 95 south	Release of diesel & oil from tractor-trailer truck due head on collision.
11/01/02	Storage	US 95 MP 40	Material released from storage tank due operator error.
2003-05	Mobile	Goldfield	On five separate occasions, tractor-trailer vehicles overturned on the Goldfield Curve.
06/27/05	Mobile	Hwy 95 North, MM 93	Accident between vehicle and tractor-trailer truck, both vehicles caught on fire.
2000-07	Mobile	Goldfield	Heavy Petroleum oil tanker overturned on highway with severe damage. Sill in excess of 2,000 gallons.
3/8/2010	Mobile	Goldfield	Diesel spill, 5' x 50' area. US 95 between MM 18 & 19, N 1 mile south of Goldfield, west side of road.
9/26/2011	Mobile	Gold Point	Lead and assay waste; unknown quantity. State Highway 774, to the right of the stop sign in the town.
4/24/2013	Fixed	Not listed	Petroleum, mercury and process water; unknown quantity. 1. In front of the administrative office (front office) 2. Mercury scrubber refinery 3. Reclaim pond.
5/20/2013	Fixed	Not listed	Hazardous waste and air emissions; unknown quantity. Esmeralda Mine, landfill and refinery.
7/9/2013	Mobile	Silver Peak	Water with hydrochloric acid; 100 gallons. Highway 265, Main Street.

SOURCE: NRC, 2009; NDEP 2015

5.3.5.3 Location, Extent, and Probability of Future Events

In Esmeralda County, a hazardous materials event is most likely to occur along the major transportation corridor that connects Las Vegas and Reno, US 95. Trucks on this route

commonly use a shortcut through downtown Goldfield to shorten their route through Esmeralda County that includes high risk curves for transport trucks. These trucks may carry a variety of hazardous materials, including gasoline, other petroleum products, and other chemicals known to cause human health problems.

Facilities containing EHS also pose a risk to the residents and critical facilities in Esmeralda County. There is one such facility within the County; the location of this facility and the area within a 0.5 mile buffer from transportation routes are shown on Figure 6 in Appendix B.

The magnitude and severity of a hazardous material event is based on type and amount of materials exposed to the environment and proximity to community facilities or residences. Past events in Esmeralda County have ranged from negligible to limited, but more significant impacts are possible if the same type of event were to occur in a more populated location or busier road.

Impacts from hazardous materials events include potential health problems to residents, injury or death, water supply degradation, and damage to structures or residences. In addition, there are economic impacts associated with clean-up efforts as well as the treatment of potential health issues.

The presence of I-95 in Esmeralda County and its location through the Town of Goldfield, the County's largest population center, and the use of this route for transport of hazardous materials suggests that future events are likely to occur. As noted in Table 5-13, there have been 18 recorded events since 1990. Based on historical trends, there is a 72% chance of a hazardous materials incident in any given year.

5.3.6 Severe Winter Storm

Planning Significance: Low

5.3.6.1 Nature

Winter storms can bring heavy rain or snow, high winds, extreme cold, and ice storms. In Nevada, winter storms begin with cyclonic weather systems in the North Pacific Ocean or the Aleutian Islands that can cause massive low-pressure storm systems to sweep across the western states. Winter storms plunge southward from arctic regions and produce heavy amounts of snow and ice. However, a heavy accumulation of 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.

5.3.6.2 History

The severe winter storm hazard was reviewed during the 2015 update by both the Steering Committee and NOAA representatives, and there were no new occurrences for this update. The data that follows was compiled during the 2010 plan.

An assessment of snowfall in Esmeralda County was conducted by the State Climatologist. The data are not relevant to state declarations but will assist Esmeralda County in its preparedness and response planning. Four stations were used as representatives within the county: Coaldale Junction, Dyer, Silver Peak and Goldfield. The 15th percentile varied from 1.10 inches at Goldfield to anything above 0.00 inches at Silver Peak. 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 0.57 inches in one day. The summary of the snowfall events above the 15th percentile is as follows:

- **Coaldale Junction:** Days > 15th Percentile: 42; *Freq = 2.76 days/year*
- **Dyer:** Days > 15th Percentile: 182; *Freq = 2.72 days/year*
- **Goldfield:** Days > 15th Percentile: 195; *Freq = 2.64 days/year*
- **Silver Peak:** Days > 15th Percentile: 60; *Freq = 1.65 days/year*

The severity of winter storms in Esmeralda County is generally minor, with fewer than three days (on average) per year with snowfall greater than the 15th percentile for the area.

However, in January of 2006, Dyer received 8 inches of snow. During the early morning hours of January 3rd, icy roads contributed to three separate car crashes on Highways 95 and 6 in Esmeralda County, resulting in one fatality (indirect) and six injuries. On March 17, 2006, Goldfield (5700') received 7-8" of snow. No injuries or property damage was reported.

5.3.6.3 Location, Extent, and Probability of Future Events

The areas of Esmeralda County that are located at higher elevations are most susceptible to severe winter weather. One recorded snow event occurred in Silver Peak over 30 years ago and did not affect the population of the County.

The County's lone recorded event in Silver Peak did not result in injury or damages. Based on past severe winter weather events, the extent of winter weather in Esmeralda County is considered negligible because there have been no injuries, loss of quality of life, shut down of facilities, and less than 10 percent of the county is severely damaged.

The intensity, location, and the land's topography influence the impact of severe weather conditions on a community. Severe winter storms can cause significant damage to structures that have not been built to meet current building codes. The most damaging effects, however, are related to the floods that can be caused when the storms bring large amounts of rain or warm rain on top of already heavy snow packs. Historical evidence shows that the event in Esmeralda County resulted in no recorded damages.

The probability of future events is considered unlikely (less than 10 percent chance of occurring) because of the historic infrequency of events. If development occurs in higher elevation locations such as Silver Peak, it may result in greater potential for damages if an event does occur. This possibility will be reviewed by the Steering Committee when they conduct the annual LHMP review.

5.3.7 Wildfire

Planning Significance: Low

5.3.7.1 Nature

A wildfire is a type of fire that spreads by consumption of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildfires can be caused by human activities such as arson or campfires or by natural events such as lightning. Wildfires are not confined to forests but can easily ignite in other areas with ample vegetation such as sagebrush or cheat grass. Wildfires can be classified as urban fires, interface or intermix fires, and prescribed fires.

Nevada is susceptible to wildfires due to weather that may range from prolonged periods of drought to periods that are marked by above average precipitation. This weather variability produces millions of acres of dead or dying vegetation, which rapidly dries out under normal summer weather conditions. The dry, hot conditions and windy weather patterns characteristic of Nevada summers combine with vegetation conditions to fuel fast-moving, high intensity wild land fires.

The indirect effects of wildfires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, 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, increasing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards.

5.3.7.2 History

In Nevada, particularly in Northern Nevada, wildfires are a common yearly event. Nevada's fire season starts in May and ends in October, but wildfires can occur at any time of the year depending on fire and weather conditions.

Nevada's fire regime is outside the range of historical variation, allowing wildland fires to become larger, more destructive, and more frequent. In the past fifty years there have been eight large fire seasons in Nevada. Five of these fire seasons have occurred in the past eight years. Since the record fire season of 1999, over five million acres of Nevada's forest, watersheds and rangelands have burned. These fires have devastated ranches, watersheds and wildlife habitat. With each fire more native plant communities are lost, causing cheat grass and red brome to spread. The spread of these invasive annual plants perpetuates the cycle of destructive fires and the loss of native plant communities.

Throughout history, numerous significant destructive wildfires have occurred throughout the State of Nevada. There has been one recorded fire event in Esmeralda County, occurring in the Town of Goldfield in 2000. There were no reported injuries, fatalities, or losses and damages were minor. According to the Nevada Division of Forestry, in the last ten years, 3 County owned acres and 65 federal land acres within Esmeralda County have burned as a result of

wildfire. Table 5-14 shows BLM data for wildfire history in Esmeralda County, which includes vast areas of undeveloped federally managed land.

Table 5-14 Summary of Fire History Data in Esmeralda County 1980 – 2003

Year	Number of Fire Ignitions	Total Fire Acreage
1980	1	12
1981	1	30
1982	0	0
1983	0	0
1984	1	0
1985	0	0
1986	1	1
1987	0	0
1988	1	0
1989	0	0
1990	1	0
1991	0	0
1992	1	0
1993	0	0
1994	0	0
1995	2	0
1996	4	1401
1997	0	0
1998	0	0
1999	4	773
2000	2	0
2001	0	0
2002	0	0
2003	1	0
2015	1	3
TOTAL	21	2220

SOURCE: Resource Concepts 2005

5.3.7.3 Location, Extent, and Probability of Future Events

There is higher risk for wildfire events to cause damages or injury in forested areas or the wildland-urban interface where development is located adjacent to extensive undeveloped areas, such as federally managed land within Esmeralda County. Since information on the distribution of fuels is not readily available, all of Esmeralda County is considered vulnerable to wildfire. One study of developed land within wildland interface areas concluded that Esmeralda County includes 48 homes within the wildland interface, 15 percent of which are second homes

(Headwaters Economics 2007). Lida is considered to be at a higher risk than other communities based on more hazardous fuel conditions and the lack of local fire protection services according to the 2005 Esmeralda County Fire Plan (Resource Concepts 2005). In addition, the plan also rates Goldfield, Gold Point, and Silver Peak at a moderate risk and the Dyer/Fish Lake Valley area at a low risk.

The magnitude and severity of impacts from wildlife could vary, but are dependent upon fuel, weather conditions, and topography. Fuel determines how much energy the fire releases, how quickly the fire spreads, and how much effort is needed to contain the fire. Weather is the most variable factor. High temperatures and low humidity encourage fire activity while low temperatures and high humidity retard fire spread. Wind affects the speed and direction of fire spread. Topography directs the movement of air, which also affects fire behavior. When the terrain funnels air, as happens in a canyon, it can lead to faster spreading. Fire also spreads up slope faster than down slope.

Table 5-14 shows the number of ignitions and acres affected by wildfire over the last 22 years. The only recorded fire event in a developed area (Town of Goldfield in 2000) did not result in recorded damages or injury. Based on past wildland fire events and the criteria identified in Table 5-6, the magnitude and severity of impacts within Esmeralda County are considered negligible where minor injuries and/or illnesses are treatable with first aid, minor quality of life loss, critical facilities and services shutdown for less than 24 hours, and less than 10 percent of property or critical infrastructure being severely damaged.

Impacts of a wildland fire that reaches the population centers of Esmeralda County could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter.

Indirect impacts 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, thus increasing flood potential, harming aquatic life, and degrading water quality.

The Town of Goldfield has several specially designated resources that would be susceptible to fire: Goldfield Historic District is on the National Register of Historic Places, and the Goldfield Hotel is listed on the Nevada Register of Historic Places.

The Esmeralda County Fire Plan concludes that the County is at a low risk of catastrophic fire due to sparse vegetation (fuels), flat terrain, and natural fire barriers such as alkali flats (Resource Concepts 2005). Wildfire activity is likely to occur (i.e., an event is probable within the next 3 years) within Esmeralda County due to the extensive undeveloped land. However, the probability of impacts on communities is not expected to significantly change in the future unless substantial development occurs in higher risk locations such as Lida. The Steering Committee will review potential changes to the potential risk during the annual LHMP review.

Climate Change

Warmer and drier climatic conditions during the last decade have come on the heels of wetter and cooler conditions that had favored increases in fuel accumulation. Whatever its cause, a warm climatic cycle can contribute in any year to earlier snowmelt, drought, and heavy, isolated rainstorms. The early loss of snow cover, patchy rainfall, and low soil water absorption during intense rainstorms may contribute to lower live and dead fuel moisture during the summer months.

5.3.8 Wind

Planning Significance: Low

5.3.8.1 Nature

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 steep pressure gradient causing strong winds can result from a large pressure difference or a short distance between a high- and low-pressure system.

Strong and/or severe winds often precede or follow frontal activity, including cold fronts, warm fronts, and drylines. Generally, in the southwestern United States, frontal winds can remain at 20-30 mph for several hours and reach peak speeds of more than 60 mph. Winds equal to or greater than 58 mph are referred to as severe winds. NOAA generally refers to winds as severe when associated with convective (thunderstorm) wind events. They refer to them as high wind events when they are driven by pressure gradients. They also define high wind differently at higher elevation. Above 7000 feet, high wind are considered to be gusts of 70 mph or greater.

In addition to strong and/or severe winds caused by large regional frontal systems, local thermal winds are caused by the differential heating and cooling of the regional topography. In a valley/mountain system, as the rising ground air warms, it continues upslope as wind and is replaced by inflow from outside the valley. The intensity of the resulting wind depends on a number of factors, including the shape of the valley, amount of sunlight, and presence of a prevailing wind.

In addition to typical wind events, tornadoes also occur within the State. Tornadoes are one of nature's most violent storms. A tornado can be 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 in excess of 250 mph, are capable of tremendous destruction. Damage paths can be more than one 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 also produce large hail and strong winds.

5.3.8.2 History

The wind hazard was reviewed during the 2015 update by both the Steering Committee and NOAA representatives, and there were no new occurrences for this update. The data that follows was compiled during the 2010 plan. According to NOAA, high wind events are more widespread and occur more often than this data would suggest. Wind data in Esmeralda county is quite

sparse as there are few sensors. Strong wind occurs commonly during the winter, particularly at higher elevations.

Wind and windstorms are common events in Nevada. The National Climatic Data Center reported 61 wind events in the Esmeralda/Central Nye County Zone since 1985. While there were damages reported on several events, specific location was not included. The Sierra Nevada Mountain Range and the other ranges of Nevada are exposed to the upper-air winds and therefore experience maximum wind power in winter. Where the mountain ranges and ridgelines are oriented perpendicular to the free-air flow, these winds may be further enhanced. Additionally, these ranges are large enough to separate adjacent air basins. The unequal heating of these basins during spring and summer produces airflow over some of these barriers. This flow results in wind speeds that are higher than those that would be found if only the upper-air winds produced the wind resource of the mountains.

Although tornadoes are rare in Nevada, they have occurred. Nevada ranks 44th out of 50 states with only one touchdown incident recorded in an average year. Between 1947 and 1973 in Nevada and the Sierras, thirteen confirmed touchdowns were recorded with thirty-three confirmed funnel clouds.

There are two locations identified by the State Climatologist in Esmeralda County that have experienced winds in excess of 58 miles per hour. The first, Oriental Wash, is located 14 miles southwest of Gold Point where there are no structures. Oriental Wash has had nine wind events in excess of 58 miles per hour with an annual average of 0.47 events per year. The second series of events was in Royston Hills, located roughly 15 miles northwest of Tonopah, where there are no structures. Royston Hills has had 28 wind events in excess of 58 miles per hour with an annual average of 2.80 events per year.

There has only been one recorded wind event in a populated area of Esmeralda County, on September 2, 1997 in the Town of Goldfield. No injuries or fatalities were reported and only minor damages experienced as described by the NCDC. According to NOAA, high wind events may be even more widespread and occur more frequently than this data would suggest. Wind data in Esmeralda County is quite sparse as there are few sensors. Strong winds occur commonly during the winter, particularly at higher elevations.

5.3.8.3 Location, Extent, and Probability of Future Events

Wind and tornado events could occur throughout all of Esmeralda County.

The majority of wind events have occurred in undeveloped areas of the County, and therefore no property damages or injury has occurred.

Wind events and tornadoes that occur in Nevada tend to vary in intensity. Few are reported each year anywhere in the State, and usually occur in unpopulated areas. 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 most events.

As historical data shows, wind and tornado events in populated areas of Esmeralda County are rare. The probability an event will occur in a populated area is unlikely as chance of a wind event occurring is less than 10 percent each year.

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This section provides an overview of the vulnerability analysis and describes the five specific steps: asset inventory, methodology, data limitations, exposure analysis for current assets, and areas of future development.

6.1 OVERVIEW OF A VULNERABILITY ANALYSIS

A vulnerability analysis predicts the extent of exposure that may result from a hazard event of a given intensity in a particular 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 is divided into five steps: asset inventory, methodology, data limitations, exposure analysis for current assets, and areas of future development.

The requirements for a vulnerability analysis as stipulated in DMA 2000 and its implementing regulations are described here.

- A summary of the community's vulnerability to each hazard that addresses the impact of each hazard on the community.

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 new or updated the plan address the impact of each hazard on the jurisdiction?

Source: FEMA, July 2008.

- Identification of the types and numbers of repetitive loss properties in the identified hazard areas.

DMA 2000 Requirements: Risk Assessment, Assessing Vulnerability, Addressing Repetitive Loss Properties

Assessing Vulnerability: Addressing Repetitive Loss Properties

Requirement §201.6(c)(2)(ii): [The risk assessment] **must** also address National Flood Insurance Program (NFIP) Insured structures that have been repetitively damaged floods.

Element

- Does the new or updated plan describe vulnerability in terms of the types and numbers of repetitive loss properties in the identified hazard areas?

Source: FEMA, July 2008.

- An identification of the types and numbers of existing vulnerable buildings, infrastructure, and critical facilities and, *if possible*, the types and numbers of vulnerable future development.

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, July 2008.

- Estimate of potential dollar losses to vulnerable structures and the methodology used to prepare the estimate.

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)(ii)(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 describe the methodology used to prepare the estimate?

Source: FEMA, July 2008.

6.2 VULNERABILITY ANALYSIS: SPECIFIC STEPS

6.2.1 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 (for community-wide hazards), residential and nonresidential buildings (where data are available), and critical facilities and infrastructure. Assets and insured values throughout the County are identified and discussed in detail below.

6.2.1.1 Population and Building Stock

Population data for Esmeralda County were obtained from the 2010 U.S. Census. Estimated numbers and replacement values for residential, nonresidential, commercial, industrial, and agricultural building, as shown in Table 6-1, were obtained from the County and HAZUS-MH by census block. A total of 629 residential buildings were considered in this analysis, including single-family dwellings, mobile homes, multi-family dwellings, temporary lodgings, institutional dormitory facilities, and care facilities.

A total of 39 nonresidential buildings were analyzed, including retail trade, wholesale trade, personal and repair services, professional and technical services, banks, medical offices, religious centers, entertainment and recreational facilities, theaters, and parking facilities. The HAZUS-MH software presents a data limitation, as this software identifies nonresidential

buildings by square footage resulting in some non-residential buildings not being counted. The actual number and value at risk could be higher if some nonresidential buildings are not being counted. However, in previous applications the HAZUS-MH software has accurately captured the total value of nonresidential buildings even though the building count is lacking. Although the building count may not be precise, this analysis meets the intention of DMA 2000 by providing Esmeralda County with an accurate visual representation of their community's risk by hazard. These data are the most complete data set available at the time of this plan and will be updated in future versions of the LHMP. Please Section 6.2.2 for the methodology used for this update.

In addition, there are two historically designated places in Esmeralda County which are considered vulnerable to hazard impacts, the Goldfield Historic District and the Goldfield Hotel. The NBMG has completed an inventory of unreinforced masonry (URM) buildings statewide. There are 24 URM buildings in Esmeralda County.

Table 6-1 Estimated Population and Building Inventory

	US Census Population Count ¹	Residential		Non-Residential	
		Total Building Count	Total Building Value ²	Total Building Count	Total Building Value ²
Esmeralda County	979	629	\$27,098	39	\$11,528

¹ 2009-2013 American Community Survey 5-Year

² In millions

Estimated numbers of population were obtained from the U.S. Census. Information on buildings and replacement values for those structures, as shown in Table 6-1, were obtained from Esmeralda County.

6.2.1.2 Repetitive Loss Properties

Esmeralda County does not currently participate in the NFIP and is therefore not eligible to participate in the insurance program.

The State is required to identify strategies that encourage local communities to mitigate severe repetitive loss properties, including the development of local mitigation plans. At a minimum, the State must include severe repetitive loss in the description of its process for providing funding and technical assistance to prepare mitigation plans (§201.4(c)(4)(i)), and in its criteria for prioritizing communities that have such properties for planning and project grant assistance (§201.4(c)(4)(iii)). Other strategies for encouraging local communities to mitigate severe repetitive loss properties should be demonstrated through specific actions identified in the Mitigation Strategy (Chapter 8).

There have been no coordination efforts in Esmeralda County because it does not have any recorded repetitive losses.

6.2.1.3 Existing Critical Facilities and Infrastructure

A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, such as preserving the quality of life in the county and fulfilling important public safety, emergency response, and disaster recovery functions. During the LHMP update, the critical facilities and infrastructure inventory and cost estimates were updated. Critical facilities and infrastructure included in the LHMP are shown in Figure 7 (Appendix B) and include the following:

Table 6-2: Critical Facilities and Infrastructure

Category	Type	Number	Estimated Value Total Structure/Mile (millions of \$)
Goldfield			
Critical Facilities	Courthouse/Jail	1	25
	Fire Stations/EOC	1	2.5
	Government Buildings (Road Shop, Library, Maintenance Shop, Sheriff Shop)	4	4.35
	Public Primary and Secondary Schools	1	N/A
	Community Center	1	1.5
	Utilities –		
	Wells	1	1
	Water Lines	45 mi	13
	Booster Station	2	1
	Services (Meter & Sets)	N/A	.4
	Water Treatment & Tanks	1	3
	Sewer Plant	1	2
	Sewer Collection System Pipe	N/A	8.7
Manholes	N/A	.5	
Fish Lake Valley			
	Fire Stations & Ambulance Barn	2	2.5
	Government Buildings (Library, Road Shop)	2	2.5
	Public Primary and Secondary Schools	1	N/A
	Community Center	1	2
Critical Infrastructure	Airport Facilities	1	.005
	Utilities - Wells	1	2
Silver Peak			
	Government Buildings (Library, Road/Water Building)	2	3
	Public Primary and Secondary Schools	1	N/A
	Community Center	1	2
	Utilities - Wells	N/A	1.5
	Tank	1	.5
	Pipe	N/A	3
County-wide			
Critical Infrastructure	Communication Facilities (County Owned)	5	2.5
	Airport (Lida Junction)	1	.05
	State and Federal Highways (segments)	21	1,804

Source: FEMA HAZUS-MH, Esmeralda County Public Works

6.2.1.4 Future Critical Facilities and Infrastructure

Esmeralda County's Master Plan was updated in 2011. Private land available for development is limited due to extensive Federal land management within the County. Future growth, if any, should be limited by the amount of water available. Future infrastructure and other development may be more vulnerable to impacts from hazards such as earthquake, wildfire, or flooding depending on the location of future facilities.

Since the 2010 update, there have been several new construction projects in the County. These include the expansion to the Goldfield Fire Station, the Community Center in Fish Valley, and the Welcome Center in Goldfield. These projects were inspected by the State Fire Marshall for building code compliance and incorporated appropriate mitigation measures, and therefore do not pose a significant vulnerability.

The Nevada State Demographer projects population increase from 2015 to 2019 (ranging from 1.5% to 5.1%) based on the on the 2014 estimate. No major facility or infrastructure projects are planned in the County at this time.

6.2.2 Methodology

During the 2010 update, a conservative exposure-level analysis was conducted to assess the risks of the identified hazards, as data was available. Due to no significant growth in the last 5 years, the data and values from the 2010 plan were reviewed and used for residential and non-residential building stock. The critical facility inventory was updated to include a new community center, a welcome center and a new fire station. Additionally, this update added information regarding climate change to the applicable hazards. The critical facilities and infrastructure inventory was updated in Table 6-2 above. The following analysis was reviewed and updated where applicable. This analysis is a simplified assessment of the potential effects of the hazards on values at risk without consideration of probability or level of damage. To conduct this analysis, critical facilities were compared to locations where hazards are likely to occur using GIS. If any portion of the critical facility fell within a hazard area, it was counted as being exposed and vulnerable to the particular hazard. 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 a hazard area were determined to be vulnerable in their entirety.

Replacement values or insurance coverage were developed for physical assets. These values were obtained from HAZUS-MH or provided by the County. For facilities that did not have specific values per building in a multi-building scenario (i.e., 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 of 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.

GIS data were not readily available for some hazards, and a descriptive assessment was conducted based on past occurrences and the probability of future events.

6.2.3 Data Limitations

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 the use of approximations and simplifications that are necessary for a comprehensive analysis.

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 the identified hazards. While the 2010 plan contemplated 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) during this update, due to no significant growth in the last 5 years, it was determined that the data and values from the 2010 plan would be sufficient. Such impacts may be addressed with future updates of the LHMP.

6.3 EXPOSURE ANALYSIS

The results of the exposure analysis for loss estimations in Esmeralda County are summarized in Table 6-3 and in the following discussion.

6.3.1 Drought

Droughts have been a cause of economic loss and environmental damage throughout the history of the State of Nevada and future reoccurrence is probable. All people, critical facilities, and residential structure are equally vulnerable to this hazard.

Impacts on the community may be economic or associated with the relationship between drought and other natural hazards. Prolonged drought has caused crop failures and grazing restrictions on livestock, which may cause economic impacts in the community. If drought impacts groundwater levels, community water supplies could be affected. Additionally, drought may cause or accelerate insect infestations and dust storms. The drying impact of drought on vegetation may increase the frequency and intensity of wildfires (see Section 6.3.5). Continued drought and impacts attributed to global climate change can cause the loss of entire stands of pinyon pine to pathogens, for example, and set in motion a series of events ranging from a change in fire behavior to habitat conversion to a decline in many of the bird and terrestrial species that depend on pinyon pine.

6.3.2 Earthquake

Based on earthquake probability maps produced by the USGS, all of Esmeralda County is at risk of experiencing the impacts of an earthquake, but the western portion of the County has a higher probability of experiencing perceived shaking (refer to Figure 4 in Appendix B). About 47% the County is located within a perceived severe (10%) or very strong (37%) shaking area. The

County is sparsely populated and most of the land is under Federal management; only 10.7% of the land within perceived severe or strong shaking areas is under private ownership.

Table 6-3 Esmeralda County Potential Hazard Exposure Analysis

Hazard	Methodology	Population	Residential and Nonresidential Structures		Critical Facilities		Total	
			Number	Value	Number	Value	Structure	Value
Drought ^{1, 2}	Descriptive	979	0	0	0	0	0	0
Earthquake ³	Simplified exposure-level analysis	979	668	\$38,626,000	33	\$84,505,000	701	\$123,131,000
Flood ¹	Descriptive	979	668	\$38,626,000	33	\$84,505,000	701	\$123,131,000
Severe Winter Storm ¹	Descriptive	979	668	\$38,626,000	33	\$84,505,000	701	\$123,131,000
Wildfire ¹	Descriptive	979	668	\$38,626,000	33	\$84,505,000	701	\$123,131,000
Windstorm ¹	Descriptive	979	668	\$38,626,000	33	\$84,505,000	701	\$123,131,000
Epidemic ^{1, 2}	Descriptive	979	0	0	0	0	0	0
Hazardous Materials ³	Simplified exposure-level analysis	979	668	\$38,626,000	27	\$5,108,905	695	\$43,767.549

¹ All people, critical facilities, and residential structure are equally vulnerable to this hazard.

² Damage to structures not anticipated as an impact of this hazard.

³ Some population and structures have higher probability to experience impacts as described in Sections 6.3.2 and 6.3.8.

The majority of the overall county population is located in the Town of Goldfield and has the potential for strong ground shaking intensity. Vulnerable structures include 629 residential buildings (worth \$27,098,000), two nonresidential buildings (worth \$5,456), and 33 critical facilities (worth \$84,505,000 million). In most earthquakes, weaker masonry or wood buildings would be the most vulnerable to damage.

Tables 6-3 and 6-4 identify the critical facilities and infrastructure with probabilities of experiencing perceived severe or very strong shaking. There are numerous critical facilities at risk to perceived severe shaking, including:

- 2 airports or landing strips, Fish Lake Valley air strip (valued at \$5,643) and the Lida Junction (valued at \$51,809)
- 1 communications tower at Mustang Mountain (valued at \$400,000)
- 3 local or Federal government offices or services, including the Dyer post office (\$20,040), County Road Department and Shop in Dyer (\$54,477), and Fish Lake Valley Library (\$262,811)
- Dyer school, valued at \$310,349
- 3 first responder/emergency services including the Fish Lake Valley Fire Department (\$396,512), new Fish Lake Valley Fire Department (\$396,512), and Fish Lake Valley Ambulance Barn (\$143,914)

In addition, about four miles of pipelines and utilities are within the perceived severe shaking area. One communication tower at Palmetto Mountain (valued at \$400,000) is located within the area at risk to perceived very strong shaking.

Table 6-2 Critical Facilities – Potential Exposure to Earthquake Hazard

	Earthquake Shaking Potential		
	Strong	Very Strong	Severe
Airport (#)	1		3
Airport (\$)	\$5,643		\$63,094
Communications (#)	1	1	1
Communications (\$)	\$400,000	\$400,000	\$400,000
Fire Stations/EOC (#)	2		3
Fire Stations/EOC (\$)	\$531,127		\$936,938
Government/Sheriff (#)	9		2
Government/Sheriff (\$)	\$1,207,508		\$317,288
School (#)	4		1
School (\$)	\$698,700		\$310,348
Water/Waste Water Treatment Facilities (#)	3		
Water/Waste Water Treatment Facilities (\$)	\$84,623		
Federal: Post Office (#)	2		1
Federal: Post Office (\$)	\$69,909		\$26,040
State: NDOT (#)	1		
State: NDOT (\$)	\$1,076,783		

Table 6-3 Infrastructure – Potential Exposure to Earthquake Hazard

	Earthquake Shaking Potential		
	Strong	Very Strong	Severe
Bridges (#)	2	-	-
Bridges (\$)	\$450,000	-	-
Pipeline/Sewer (mi)	-	-	-
Pipeline/Sewer (\$)	-	-	-
Pipeline/Utility (mi)	158.34 mi	39.6 mi	3.63 mi
Rail Road (mi)	-	-	-
Rail Road (\$)	-	-	-
Roads (mi)	142.55 mi	90.51mi	29.03 mi
Wells (#)	2	-	-
Wells (\$)	\$500,000	-	-

The Nevada Bureau of Mines and Geology also ran FEMA's loss-estimation model, HAZUS-MH, in August 2014. Loss estimates were provided, using five earthquake scenarios located at

an epicenter in Goldfield at magnitudes of 5.0, 5.5, 6.0, 6.5, and 7.0. The analysis estimates that an earthquake having a magnitude 6.5 will result results in a total economic loss of \$6 Million.

6.3.3 Epidemic

Due to the nature of epidemics, the entire existing and future County population are equally exposed to the effects of a potential epidemic.

Impacts on the community are less likely to be associated with economic losses. Impacts may be mitigated through emergency response planning and coordination with State agencies to manage more widespread epidemics.

6.3.4 Flood

Based on local knowledge and past occurrences, flash flooding is the primary flood hazard that is likely to occur within Esmeralda County. All people, critical facilities, and residential structure are equally vulnerable to this hazard.

Impacts associated with flash flooding in Esmeralda County include water damage to structures and contents, roadbed erosion, areas of standing water in roadways, and damage or displacement of fuel tanks, power lines, or other infrastructure. Buildings on slab foundations, not constructed on raised foundations, and/or not constructed with materials designed to withstand flooding events are more vulnerable to the impacts of flooding (e.g., cross vents to allow water to pass through an open area under the main floor of a building).

Impacts to future populations, residences, critical facilities, and infrastructure are anticipated at the same impact level. Esmeralda County does not have floodplain mapping to guide future development; however flash flooding does not necessarily correspond with floodplain boundaries.

The impacts to the environment from a major flood could include: erosion of stream or creek banks; loss of plants and animals; and contamination from chemicals or sewage picked up, transported and deposited by the flood. The contamination of both the streams and the flooded landscape from the various chemicals and debris picked up from farms, homes, and businesses along the streams could be a serious problem. Industrial chemicals, oil and gas, sewage, old tires, etc. can all pollute the landscape where they come to rest as the water recedes. Some of these materials may take years, decades or even longer to break down and become harmless. Until that happens they can continue to degrade the environment where they have come to rest, in some cases leaching back into the water course or into ground water spreading contamination away from the site. Without cleanup, this may continue for years.

6.3.5 Hazardous Materials

Exposure to hazardous materials in Esmeralda County is based on proximity to an extremely hazardous substance facility in Silver Peak and to county roads that may serve as transportation corridors for hazardous materials including high-level radioactive waste to the proposed Yucca Mountain facility in neighboring Nye County. These transportation corridors cross the most populous portion of the county (Goldfield) as well as the smaller communities of Dyer and Silver

Peak. Tables 6-5 and 6-6 list the critical facilities that are within a quarter-mile and a half-mile of transportation corridors. These facilities include:

- 4 school facilities, including the Esmeralda County School Buildings A & B, gym, and superintendent's office and the Silver Peak School District and School buildings
- Goldfield Pumping Stations #1 and #2
- First responder/emergency services such as the Fish Lake Valley Fire Department, new Fish Lake Valley Fire Department, Esmeralda County Fire/EMS, and Silver Peak Fire/EMS

In addition, numerous county services and buildings are within a quarter-mile of transportation corridors that may carry hazardous materials, such as the Esmeralda County courthouse and community center.

Table 6-4 Critical Facilities – Potential Exposure to Hazardous Materials

	Distance from Transportation Corridor		
	¼ mile radius	½ mile radius	1 mile radius (EHSF)
Airport (#)	-	1	-
Airport (\$)	-	\$5,643	-
Communications (#)	-	-	-
Fire Stations/EOC (#)	4	-	-
Fire Stations/EOC (\$)	\$1,324,152	-	-
Government/Sheriff (#)	11	-	-
Government/Sheriff (\$)	\$1,524,796	-	-
School (#)	4	1	-
School (\$)	\$698,700	\$310,348	-
Water/Waste Water Treatment Facilities (#)	2	-	-
Water/Waste Water Treatment Facilities (\$)	\$72,534	-	-
Federal: Post Office (#)	2	1	-
Federal: Post Office (\$)	\$69,909	\$26,040	-
State: NDOT (#)	-	1	-
State: NDOT (\$)	-	\$1,076,783	-

Table 6-5 Infrastructure – Potential Exposure to Hazardous Materials

	Distance from Transportation Corridor		
	¼ mile radius	½ mile radius	1 mile radius (EHSF)
Bridges (#)	-	-	-
Pipeline/Sewer (mi)	-	-	-
Pipeline/Utility (mi)	22.36 mi	28.05 mi	2.48 mi
Rail Road (mi)	-	-	-
Roads (mi)	-	-	-
Wells (#)	-	-	-

There is one Extremely Hazardous Substance Facility within the County, near Silver Peak as shown in Figure 6 in Appendix B. No critical facilities are identified within a mile of this facility, but about 2.5 miles of utility pipeline does cross the area within a mile.

Impacts on the community from a hazardous materials event could include human illness due to exposure to chemicals, contamination of groundwater supplies, and damage to or contamination of structures. Hazardous materials incidents may pose long-term threats to public health, property, or the environment. The proximity of a hazardous materials release to streams and ground water sources signifies a potential threat to the water system. Environmental damage, including the potential for wildland fire, is an additional consideration.

Impacts to future populations, residences, critical facilities, and infrastructure are anticipated at the same impact level, contingent upon the development of the Yucca Mountain facility in neighboring Nye County, which would constitute a key source of materials being transported through Esmeralda County.

6.3.6 Severe Winter Storm

Using information provided by Esmeralda County and the State Climatologist, the entire existing and future County population, residences, and critical facilities are equally exposed to the effects of a severe weather event. This includes 979 people in 629 residential buildings (worth \$27,098,000), two nonresidential buildings (worth \$5,456), and 35 critical facilities (worth \$6.5 million).

Impacts associated with severe weather events include injury and death resulting from the presence of ice, or heavy precipitation that causes flooding. In the infrequent but possible event of heavy snow, County emergency services may not have the appropriate equipment to respond immediately due to the unusual nature of these events.

Impacts to future populations, residences, critical facilities, and infrastructure are anticipated at the same impact level.

Light snowstorms have very little impact on the environment. The plants and animals that are endemic to the area are used to this type of winter weather. With a heavy snowfall, broken limbs from trees will be one of the most visible signs of damage. If the snow remains deep for an

extended period of time, some large animals may starve to death being unable in deep snow to cover enough terrain to find food. Regardless of the initial damage done by the storm, the scars on the environment will usually disappear in a matter of months.

6.3.7 Wildfire

There is potential for wildland fire to interface with the population centers within the County. For the purposes of this exposure and vulnerability assessment, it is assumed that all structures within the County are equally exposed to the impacts of a wildland fire event. This includes 979 people in 629 residential buildings (worth \$27,098,000), two nonresidential buildings (worth \$5,456), and 33 critical facilities (worth \$84,505,000 million).

Impacts associated with a wildland fire event include the potential for loss of life and property. It can also impact livestock and pets and destroy forest resources and contaminate water supplies. Buildings outside of the primary population centers, those with extensive vegetation surrounding the structure, and those constructed with wood are some of the buildings that are more vulnerable to the impacts of wildland fire.

Impacts to future populations, residences, critical facilities, and infrastructure are anticipated at the same impact level. Community education, building materials, and prepared response personnel are some things that could lessen future impacts. Given the extensive Federal land management within the County, coordination with the Bureau of Land Management and U.S. Forest Service could also reduce future impacts through improved planning for the urban-wildland interface.

Environmental impacts from a major wilderness fire can be extreme, and may be exacerbated even further if the fire becomes a wildland fire. Normal environmental damage includes deforestation, death of animals, pollution of streams and rivers with burnt material, increased erosion and later landslides. This damage may take decades to reverse. If the fire happens in an area of old growth forest, which may have been in existence for hundreds of years, it could take centuries for the environment to regain its original form and biodiversity. However, even with the damage done, not everything about the damage is detrimental. The damage done to the environment and the destruction of the forest opens up areas for colonization by new plants and animals. These burned areas allow sunlight to reach the ground. In doing so, plants that have not been able to survive in the heavily shaded understory that normally exist in old growth forests will thrive. As they do so, they will attract animals that thrive on them. Over time, the remnants of the original forest will encroach on the open area and it will once again return to forest.

6.3.8 Wind

Using information provided by Esmeralda County and the National Climate Data Center (NCDC), the entire existing and future County population, residences, and critical facilities are equally exposed to the effects of a high wind event. This includes 979 people in 629 residential buildings (worth \$27,098,000), two nonresidential buildings (worth \$5,456), and 33 critical facilities (worth \$84,505,000 million).

Impacts on the community from wind events may include damages to structures and dust storms. Impacts to future populations, residences, critical facilities, and infrastructure are anticipated at the same impact level.

The environmental impacts include downed trees and limbs. In some cases, entire stands of trees can blow down in a single windstorm. A single tree falling at any one point is a very minor environmental problem that will not even be noticed. However, a full stand of trees falling together leaves a scar that will take decades to regrow. Loss of forest increases erosion, and increased erosion leads to more silt in the rivers. Fallen trees can block streams or cause log jams on rivers that can cause the water to back up with possible flood consequences.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Analyzing Development Trends Assessing Vulnerability: Analyzing Development Trends Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions. Element ■ Does the new or updated plan describe land uses and development trends? <i>Source: FEMA, July 2008.</i>
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6.4 LAND USE AND DEVELOPMENT TRENDS

Esmeralda County controls less than four percent of the total acreage within its limits and therefore is extremely hesitant to embrace formalized land use planning structures. The County adopted their Master Plan in 1986, which was updated in 2011. The Master Plan states that the BLM and other government (federal or state) agencies must include Esmeralda County as a participating or cooperating, as applicable, local government agency in any decisions or plans regarding the use of land, e.g., grazing, mining rights, renewable energy resource utilization. The overwhelming stance the residents of Esmeralda County have taken is to not establish regulatory methods that would define zoning, building codes, building permits, land use management, and overall county planning.

Future development trends in Esmeralda County will likely remain relatively flat as its population appears to have only a slight increase from 2010 to 2014. The County is not expected to appreciably vary from its current rural and sparsely populated character in the future. Any future development will incorporate existing or future building codes and regulations that include mitigation measures. Therefore, future development will not pose a significant vulnerability.

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While not required by the DMA of 2000, an important component of the Mitigation Strategy is a review of each jurisdiction's resources to identify, evaluate, and enhance the capacity to mitigate the effects of hazards. Esmeralda County has prepared a capability assessment, which is provided in Tables 7-1 through 7-4. The capability assessment entails a review of legal and regulatory capabilities, administrative and technical capabilities, and financial capabilities.

The Steering Committee reviewed the capabilities as listed in the 2010 plan update. Since the last plan update, there have been several changes in the County's capabilities. For legal and regulatory capabilities, the County has implemented subdivision ordinances and regulations in the Silver Peak and in Goldfield for wildland fire mitigation. Building codes for commercial and community facilities are regulated by the State Fire Marshall and therefore incorporate disaster resistant regulations for construction. Additionally, the Master Plan has been updated and includes discussion on flood, earthquake and hazard materials. Financial capabilities were also update to include water and sewer impact fees for homebuyers or developers for new developments/homes.

7.1 LEGAL AND REGULATORY CAPABILITIES

Typical legal and regulatory capabilities include building codes, zoning ordinances, subdivision regulations, capital improvement plans, and other regulatory development guides. Esmeralda County does not have a zoning ordinance, but has implemented subdivision regulations in the Silver Peak and in Goldfield for wildland fire mitigation. Building codes for commercial and community facilities are regulated by the State Fire Marshall and therefore incorporate disaster resistant regulations for construction. Proposed development is reviewed by the County Board of Commissioners. The County also has convened a County Land Use Advisory Committee to provide a forum on land use issues and coordinate with federal landowners in the County.

The County maintains a Repository Oversight Program to address potential concerns as part of planning for the proposed Yucca Mountain Project in neighboring Nye County. Potential transportation routes for high-level radioactive waste traverse Esmeralda County, and the County is involved in the siting process for the Yucca Mountain facility.

Table 7-1 Esmeralda County Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)	Higher Level Jurisdiction Authority (Y/N)	Comments
A. Building code	N	N	Y- State Fire Marshall	Community leadership and members do not support and will not implement these regulatory tools.
B. Zoning ordinance	N	N	N	
C. Subdivision ordinance or regulations	Y	N	N	
D. Special purpose ordinances (floodplain management, storm-water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y- in Silver Peak and Goldfield for Wildfire Ordinances	N	N	

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)	Higher Level Jurisdiction Authority (Y/N)	Comments
E. Growth management ordinances (also called “smart growth” or anti-sprawl programs)	N	N	N	
F. Site plan review requirements	N	N	N	
G. Master Plan	Y	N	N	
H. Capital Improvements Plan	Y	N	N	
I. Economic Development Plan	Y	N	N	
J. Emergency Response Plan	Y	N	N	
K. Post-Disaster Recovery Plan	N	N	N	
L. Post-Disaster Recovery Ordinance	N	N	N	
M. Real Estate Disclosure Requirements	N	N	N	

7.2 ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capability of the County provides an identification of the staff, personnel, and department resources available to expedite the actions identified in the Mitigation Strategy. Specific resources reviewed include those involving technical personnel that can apply GIS and other services needed to facilitate hazard mitigation actions throughout Esmeralda County.

Table 7-2 Esmeralda County Administrative and Technical Capability

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	N	Contract as needed.
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Public Works Dept.; contract engineer as needed.
C. Planners or Engineer(s) with an understanding of natural and/or human-caused hazards	N	Contract as needed.
D. Floodplain manager	N	Does not participate in NFIP, county is not mapped
E. Surveyors	N	Contract as needed
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Sheriff's Office, Emergency Management Office

G. Personnel skilled in GIS and/or HAZUS	Y	Economic Development Dept; Transportation Dept; Community Development/Planning Dept
H. Scientists familiar with the hazards of the community	N	Contract as needed
I. Emergency manager	Y	Emergency Management Department: 2 x part-time
J. Grant writers	Y	Varied department locations or on contract

7.3 FINANCIAL CAPABILITIES

Specific financial and budgetary tools available to each jurisdiction for hazard mitigation include federal entitlements, general fund monies, secondary sales and property taxes, user fees for infrastructure, impact fees applied to new development, and various unique debt service techniques including bonding indebtedness.

Table 7-3 Esmeralda County Fiscal Capability

Financial Resources	Accessible or Eligible to Use
Community Development Block Grants (CDBG)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes - Must be voted upon to do so.
Fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers for new developments/homes	Yes; water and sewer hookups
Incur debt through general obligation bonds	Yes - Must be voted upon to do so.
Incur debt through special tax and revenue bonds	Yes - Must be voted upon to do so.
Incur debt through private activity bonds	Yes
Withhold spending in hazard-prone areas	Yes
Other	No

7.4 CURRENT MITIGATION CAPABILITIES

Esmeralda County's current mitigation programs, projects, and plans are identified in Table 7-4.

Table 7-4 Esmeralda County Local Mitigation Capability Assessment

Agency Name (Mission/Function)	Programs, Plans, Policies, Regulations, Funding, or Practices	Point of Contact Name, Address, Phone, Email	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Public Works/Utilities	Provide safe and cost effective public infrastructure and related services. Manage department's operating budget; report to County Commissioners.	Esmeralda County Public Works/Utilities Supervisor Mike Anderson PO Box 145 Goldfield, NV 89013 Phone: 775-485-3483 Fax: 775-485-3704 Email: escopw@frontiernet.net	✓	✓		Identifies hazards affecting public infrastructure; responds to disaster caused events impacting public infrastructure.
County Roads	Responsible for the maintenance and upkeep of County roads as well as for some state highways.	Esmeralda County Road Supervisor Ed Rannells PO Box 129 Goldfield, NV 89013 Phone: 775-485-3448 Fax: 775-485-3457 Email: ecrd@frontiernet.net	✓	✓		Identifies hazards affecting county-maintained roads; responds to disaster caused events impacting county-maintained roads.
County Commissioners	Responsible to ensure that roads and bridges are built and maintained; that County property is maintained and cared for; that county officials under their authority are appointed and directed; and that the annual county budget is prepared and implemented.	Commissioners: Nancy Boland, Chair Michelle Bates, Vice-Chairman Ralph Keyes, Commissioner P.O. Box 517 Goldfield, NV 89013 775-485-3406 Email: sjesco@citlink.net	✓	✓		Ensures adequate budget to mitigate, respond, and recover from disaster events.

This section outlines the four-step process for preparing a mitigation strategy, which includes: developing mitigation goals, identifying mitigation actions, evaluating mitigation actions, and implementing the mitigation action plan.

8.1 DEVELOPING MITIGATION GOALS

The requirements for the local hazard mitigation goals, as stipulated in 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.	

During the October 2015 meeting, the Steering Committee worked together as a group to review the 2010 goals and mitigation actions and provided the status as shown in Appendix F. 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. As such, the Steering Committee confirmed six goals to reduce or eliminate long-term vulnerabilities to the identified hazards (Table 8-1).

Table 8-1 Mitigation Goals

Goal Number	Goal Description
1	Promote increased and ongoing county involvement in hazard mitigation planning and projects.
2	Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire.
3	Reduce the possibility of damage and losses due to drought.
4	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.
5	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.
6	Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.

Source: Esmeralda County Steering Committee, 2009.

8.2 IDENTIFYING MITIGATION ACTIONS

The requirements for the identification and analysis of mitigation actions, as stipulated in 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?	
<i>Source: FEMA, March 2008.</i>	

Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. After confirming the mitigation goals, the Steering Committee assessed and revised a list of potential mitigation actions. Mitigation actions usually fall into six broad categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. Mitigation actions were considered for public utilities only; no private utility company actions were discussed. Table 8-2 lists the mitigation goals and potential actions that have been developed for this LHMP. As shown in Appendix F, all mitigation actions from the 2010 plan have been transferred to this updated 2015 plan as ongoing actions. There are no new mitigation actions for this update.

To support Goals 1, 2, 3, and 6, proposed mitigation actions are targeted towards increasing community outreach and awareness and improving regional coordination and data-sharing. The actions associated with Goals 4 and 5 are intended to address the reduction of effects on hazards on existing and new buildings. These include the adoption and enforcement of a building code; gathering data on existing building conditions; and generating further hydrological information on the characteristics of flash flooding in the County. All hazards identified by the County have a specific goal except for Epidemic. This hazard is rated as low for the County and will be addressed under Goals One and Two.

Table 8-2 Mitigation Goals and Potential Actions

Goal	Action Number	New or Existing Bldgs	Action
Goal 1: Promote increased and ongoing county involvement in hazard mitigation planning and projects.	1.A	N/E	Esmeralda County Hazard Mitigation Plan Steering Committee will remain active through the LEPC and will conduct and complete an annual review of the LHMP.
	1.B	N/E	The Steering Committee will seek regional mitigation projects with adjacent Nye County, NV and Mineral County, NV.
	1.C	N/E	Enhance the County's GIS capabilities to include updated hazard and asset figures as it becomes available. Also, develop GIS data-sharing agreements with appropriate state agencies and state/regional governmental agencies to allow for the sharing/utilizing of existing and new GIS hazard and asset information, including epidemics.
Goal 2: Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire	2.A	N/E	Work with school district to develop a program that teaches children about the hazards in their community, including epidemics, and what they can do to mitigate, prevent, and prepare for these hazard events.
	2.B	N/E	Establish community program to educate residents and visitors about mitigation measures they can take during drought conditions, winter months and severe winter storm events. In addition, community programs will also educate about mitigating spontaneous events to minimize potentially life-threatening conditions such as an epidemic, earthquake, flash flood, or hazardous materials events. This program will provide the platform for standardized and consistent county hazard mitigation content.
	2.C	N/E	Develop outreach program that will teach adults how to anchor parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if items were to fall or break during an earthquake or wind event.
	2.D	N/E	Update the existing local community wildfire protection plan.
Goal 3: Reduce the possibility of damage and losses due to drought.	3.A	N/E	Develop closer working relationship with the State of Nevada Department of Conservation and Natural Resources, Division of Water Resources to understand the actions that can be implemented at the County level in advance of drought to reduce long-term exposure.
	3.B	E	Through public education, encourage all residents and visitors to follow water conservation measures when drought conditions exist.
Goal 4: Reduce the possibility of damage and losses on new and existing	4.A	N	Encourage County Commissioner to adopt and fund the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards for critical facilities and infrastructure and new industry.

Goal	Action Number	New or Existing Bldgs	Action
	4.B	E	Verify public and private unreinforced masonry buildings in the county and add to the list any additional buildings.
	4.C	E	Retrofit any critical assets within strong shaking areas that do not meet the IBC requirements for seismic safety. Priority for retrofitting should be given to emergency response facilities, schools, and shelters.
	4.D	E	Work with all industry to evaluate the seismic risk to their vulnerable components such as storage tanks, transmission lines, etc and recommend appropriate mitigation measures, such as automatic shut-off valves.
	4.E	N/E	Develop a county-sponsored website and/or social media venues for homes, businesses, schools, and critical facilities and infrastructure owner/operators to follow a checklist to identify weak or poorly anchored parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if it were to fall or break during an earthquake. Develop a list of actions and local resources to possibly correct identified problems.
	4.F	N	Evaluate methods for backing up records at the County Courthouse in order to for continuity of government in the event of an earthquake.
Goal 5: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.	5.A	N/E	Complete hydrology analysis to determine the location, impact, and characteristics of flash flooding in the central belt of the County to include the communities of Goldfield, Silver Peak, Dyer/Fish Lake Valley, and Gold Point. The analysis will include mitigation recommendations for each community.
	5.B	N/E	Prioritize and implement flood management projects that would reduce the impact of flash flooding (e.g., stabilizing stream banks, replacing existing culverts and bridges, creating debris or flood/storm water retention basins in small watersheds.) Projects to include: Fish Lake Valley highway and other areas to be identified by the County.
Goal 6: Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.	6.A	N/E	Notify businesses that use, store, or transport hazardous materials to develop and implement measures to protect public health and safety and that these measures are submitted to the Local Emergency Planning Committee (LEPC) for annual review.
	6.B	N/E	Develop Shelter-In-Place program to educate all residents and businesses within the identified ¼, ½, and 1-mile transportation corridors of actions to take when advised to "Shelter-In-Place".

DMA 2000 Requirements: Mitigation Strategy - Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance

Identification and Analysis of Mitigation Actions: NFIP Compliance

Requirement §201.6(c)(3)(ii): [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 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, July 2008.

Esmeralda County does not participate in the NFIP and has not been mapped by FEMA.

8.3 EVALUATING AND PRIORITIZING MITIGATION ACTIONS

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 finalized and approved by the Steering Committee. The Committee then evaluated and prioritized each of the mitigation actions to determine which would be included in the final Mitigation Action Plan. In order to finalize this plan, the Steering Committee reviewed the simplified STAPLEE evaluation criteria (shown in Table 8-3) to consider the opportunities and constraints of implementing each particular mitigation action.

Table 8-3 Evaluation Criteria for Mitigation Actions

Evaluation Category	Discussion	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.

8.4 IMPLEMENTING A MITIGATION ACTION PLAN

Upon review by the Steering Committee, following the STAPLEE guidance, mitigation actions were identified for Esmeralda County that best fulfilled the goals set forth by this LHMP. In addition to selecting mitigation actions, the Steering Committee prioritized each mitigation action as low, moderate or high priority level based on the following criteria:

- 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 benefits (which are the reduction in expected future damages and losses) are greater than the costs considered as necessary to implement the specific action; and
- Actions that either address multi-hazard scenarios or address hazards that presents the greatest risk to the jurisdiction.

Table 8-4 Esmeralda County Mitigation Action Plan Matrix*

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
1.A	Esmeralda County Hazard Mitigation Plan Steering Committee will remain active through the LEPC and will conduct and complete an annual review of the LHMP.	Esmeralda County Emergency Management	Local General Fund, EMPG, SERC, PDM	Ongoing Staff Time	Life Safety, Protection of property due to pre-planning	High
1.B	The Steering Committee will seek regional mitigation projects with adjacent Nye County, NV and Mineral County, NV.	Esmeralda County Emergency Management	Local General Fund, EMPG, SERC, PDM	24-48 months Staff Time	Life Safety, Protection of property	High
1.C	Enhance the County's GIS capabilities to include updated hazard and asset figures as it becomes available. Also, develop GIS data-sharing agreements with appropriate state agencies and state/regional governmental agencies to allow for the sharing/utilizing of existing and new GIS hazard and asset information, including epidemics.	Esmeralda County Emergency Management; Public Works; Assessor's Office	Local General Fund	Ongoing New Staff Personnel \$100,000/year	Life Safety, Protection of property due to pre-planning	Low
2.A	Work with school district to develop a program that teaches children about the hazards in their community, including epidemics, and what they can do to mitigate, prevent, and prepare for these hazard events.	Esmeralda County Emergency Management: School Dist., Sheriff Dept., Fire Dept.,	Integrate into current budget and staffing structure, EMPG, SERC, HMGP, NV Health & Human Services, CDC, USFS	Immediate and on-going Staff Time	Life Safety, Protection of property due to pre-planning	High

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
2.B	Establish community program to educate residents and visitors about mitigation measures they can take during drought conditions, winter months and severe winter storm events. In addition, community programs will also educate about mitigating spontaneous events to minimize potentially life-threatening conditions such as an epidemic, earthquake, flash flood, or hazardous materials events. This program will provide the platform for standardized and consistent county hazard mitigation content.	Esmeralda County Emergency Management	Integrate into current budget and staffing structure; EMPG, HMGP, NOAA, NV Health & Human Services, CDC, USFS	1 year to initiate, then on-going Staff Time (may require new staff)	Life Safety, Protection of property due to pre-planning	High
2.C	Develop outreach program that will teach adults how to anchor parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if items were to fall or break during an earthquake or wind event.	Esmeralda County Emergency Management; Public Works; Fire Departments	Integrate into current budget and staffing structure; HMGP or PDM grant	24- 48 months Staff Time (may require new staff)	Life Safety, Protection of property due to pre-planning	High

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
2.D	Update the existing local community wildfire protection plan.	Esmeralda County Emergency Management; Fire Departments	Local General Fund, UNR Living with Fire, BLM, NDF, USFS	48-60 months \$100,000	Life Safety, Protection of property due to pre-planning	Low
3.A	Develop closer working relationship with the State of Nevada Department of Conservation and Natural Resources, Division of Water Resources to understand the actions that can be implemented at the County level in advance of drought to reduce long-term exposure.	Esmeralda County Emergency Management; Public Works; Fire Departments	Local General Fund	Ongoing Staff Time	Protection of homes, businesses, infrastructure, and critical facilities.	Low
3.B	Through public education, encourage all residents and visitors to follow water conservation measures when drought conditions exist.	Esmeralda County Emergency Management; Public Works	Local Utility Charge; Local General Fund; NDEP	24 months Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities	High

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
4.A	Encourage County Commissioner to adopt and fund the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards for critical facilities and infrastructure and new industry.	Esmeralda County Emergency Management; Public Works; Fire Departments	Local General Funds; HMGP, PDM	24 months Staff Time	Protection of lives and property due to pre-planning	High
4.B	Verify public and private unreinforced masonry buildings in the county and add to the list any additional buildings so that information is available for Goal 4.C, as well as for emergency response.	Esmeralda County Emergency Management; Public Works; Fire Departments	Local General Funds; HMGP, PDM	24 months Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities	Low
4.C	Retrofit any critical assets within strong shaking areas that do not meet the IBC requirements for seismic safety. Priority for retrofitting should be given to emergency response facilities, schools, and shelters.	Esmeralda County Emergency Management; Public Works; Fire Departments; School District	Local General Funds; HMGP, PDM	Schedule annual projects to be completed during funding cycle \$200,000 - \$1,000,000	Protection of lives, homes, businesses, infrastructure, and critical facilities	Low

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
4.D	Work with all industry to evaluate the seismic risk to their vulnerable components such as storage tanks, transmission lines, etc and recommend appropriate mitigation measures, such as automatic shut-off valves.	Esmeralda County Emergency Management; Private Partners; Fire Departments; Sheriff Department	Hazmat grants, NDEP, SERC	6 months to initiate program then establish an annual review schedule Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities	High
4.E	Develop a county-sponsored website and/or social media venues for homes, businesses, schools, and critical facilities and infrastructure owner/operators to follow a checklist to identify weak or poorly anchored parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if it were to fall or break during an earthquake. Develop a list of actions and local resources to possibly correct identified problems.	Esmeralda County Emergency Management; Private Partners; Fire Departments; Sheriff Department	Local General Funds	36-48 months Staff Time \$50,000	Provide information to the community in their effort to protect lives and property	Moderate
4.F	Evaluate methods for backing up records at the County Courthouse in order to for continuity of government in the event of an earthquake.	Esmeralda County Emergency Management; County Clerk's Office	Local General Funds	Ongoing Staff Time \$50,000	Provide continuity of operations	High
5.A	Complete hydrology analysis to determine the location, impact, and characteristics of flash flooding in the central belt of the County to include the communities of Goldfield, Silver Peak, Dyer/ Fish Lake Valley, and Gold Point. The analysis will include mitigation recommendations for each community.	Esmeralda County Emergency Management; Public Works; County Roads Department	PDM, HMGP, FMA, USDA, NDEP, NRCS	24- 48 months \$300,000-\$600,000	Protection of lives, homes, businesses, infrastructure, and critical facilities	Low

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
5.B	Prioritize and implement flood management projects that would reduce the impact of flash flooding (e.g., stabilizing stream banks, replacing existing culverts and bridges, creating debris or flood/storm water retention basins in small watersheds.) Projects to include: Fish Lake Valley highway and other areas to be identified by the County.	Esmeralda County Emergency Management; Public Works; County Roads Department	HMGP grant, PDM grant, NDOT, BLM, BOR, USDA, USEPA, general fund	24 months, review annually Fish Lake Hwy Culvert \$250,000	Protection of lives, homes, businesses, infrastructure, and critical facilities	Moderate
6.A	Notify businesses that use, store, or transport hazardous materials to develop and implement measures to protect public health and safety and that these measures are submitted to the Local Emergency Planning Committee (LEPC) for annual review.	Esmeralda County Emergency Management; Private Partners; Fire Departments; Sheriff Department	Local General Fund, NDEP, USEPA	12- 24 months Staff Time	Protection of lives, homes, businesses, infrastructure, and critical facilities	High
6.B	Develop Shelter-In-Place program to educate all residents and businesses within the identified ¼, ½, and 1-mile transportation corridors of actions to take when advised to "Shelter-In-Place".	Esmeralda County Emergency Management; Private Partners; Fire Departments; Sheriff Department	Local General Fund, EMPG	12- 24 months Staff Time	Protection of lives by pre-planning	High

BLM= Bureau of Land Management
BOR=Bureau of Reclamation
CDC=Center for Disease Control and Prevention
EMPG = Emergency Management Performance Grant

FMA=Flood Mitigation Assistance
HMGP = Hazard Mitigation Grant Program
NDEP = Nevada Division of Environmental Protection
NDF = Nevada Department of Forestry
NOAA= National Oceanic and Atmospheric Administration

PDM = Pre-Disaster Mitigation
SERC = State Emergency Response Commission
USDA = U.S. Department of Agriculture
USEPA = U.S. Environmental Protection Agency
USFS = U.S. Fire Service

*Timeline starts from 2016.

Action Number	Action Item	Department/Division	Potential Funding Source	Implementation Timeline & Cost	Economic Justification	Priority Level
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This section describes a formal plan maintenance process to ensure that the LHMP remains an active and applicable document. It includes an explanation of how the State and Steering Committee intend to organize their efforts to ensure that improvements and revisions to the LHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail below:

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

9.1 MONITORING, EVALUATING, AND UPDATING THE MITIGATION PLAN

The requirements for monitoring, evaluating, and updating the LHMP as stipulated in the DMA 2000 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.

During the 5 years since the previous plan was adopted, there was no plan maintenance performed. A NHMPC meeting was held in Tonopah on May 7, 2013, which discussed the hazards for both Esmeralda and Nye County. Ken Aldrich, Esmeralda County Sheriff's Office, gave a presentation on Esmeralda County hazards. An earthquake hazards evaluation was presented by Craig de Polo from the Nevada Bureau of Mines and Geology. There was discussion on mitigation actions taken and planned regarding wildfire during the update of the Community Wildfire Protection Plan. However other than wildfire all information on mitigation action accomplishments and new public input was derived during the planning process. There has been a change in Emergency Management leadership within Esmeralda County and with this new plan and the new plan maintenance section methods for updating the plan annually will be incorporated.

The Steering Committee recognizes the need for plan maintenance and wants to implement the tools as previously outlined in the plan for improved maintenance. The LHMP was prepared as a collaborative effort among the State of Nevada and the Esmeralda County Steering Committee. The Steering Committee will be responsible for implementing the Mitigation Action Plan. The

State of Nevada Hazard Mitigation Officer, in coordination with the Esmeralda County Emergency Manager, will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and revise the LHMP. Since the last plan update, the State has implemented an annual table top exercise program to assist communities with annual review of their HMPs.

During this table top exercise, each member of the Steering Committee will conduct an annual review to monitor the progress in implementing the LHMP, particularly the Mitigation Action Plan. As shown in Appendix E and F, the Annual Review Questionnaire and the Mitigation Action Progress Report will provide the basis for possible changes in the to the overall LHMP 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 LHMP implementation. The Esmeralda County Emergency Manager will initiate the annual review 1 month prior to the anniversary date of adoption. The findings from these reviews will be presented at the annual Steering Committee meeting. Each review, as shown on the Annual Review Questionnaire, will include an evaluation of the following:

- Participation in the LHMP implementation
- Notable changes in the County's risk of natural or human-caused hazards
- Impacts of land development activities and related programs on hazard mitigation
- Progress made with the Mitigation Action Plan (identify problems and suggest improvements as necessary)
- The adequacy of county resources for implementation of the LHMP

The review of the progress on achieving the mitigation goals and implementing the Mitigation Action Plan activities and projects will also be accomplished during the annual review. Throughout the review process, each community that is involved in administering a current mitigation project will submit a Mitigation Action Progress Report to the Steering Committee. As shown in Appendix E, the report will include the current status of the mitigation project, any changes made, any implementation problems and appropriate resolution strategies, and a statement describing the effectiveness the project has had on achieving the pre-identified goals from the Mitigation Action Plan.

The Steering Committee will also update the LHMP every 5 years. To ensure that this update occurs, in the fourth year following adoption of the LHMP, the Steering Committee will undertake the following activities:

- Analyze and update the risk of natural and human-made hazards countywide.
- Provide a new annual review (as noted above), plus develop a consolidated review of the three previous annual reviews.
- Provide a detailed review and revision of the mitigation strategy.
- Prepare a new Mitigation Action Plan for Esmeralda County including all unincorporated jurisdictions.

- Prepare a new draft LHMP and submit it to the each appropriate governing body for adoption.
- Submit an updated LHMP to the State of Nevada and FEMA for approval.
- Apply to the State for grant funding to update the LHMP.

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.

After the adoption of the LHMP, each Steering Committee member will ensure that the LHMP, in particular each Mitigation Action Plan, is incorporated into existing programs as identified in Table 8-4 as well as the regulations and ordinances as mentioned in Table 7-1. While the overwhelming stance the residents of Esmeralda County have taken is to not establish regulatory methods that would define zoning, building codes, building permits, land use management, and overall county planning, the County has incorporated the LHMP into several existing programs over the past five years. These include:

- Master Plan, Esmeralda County, Nevada (2011)
- Esmeralda County Water Resource Plan (2012)
- Town Ordinances in Silver Peak and Goldfield for wildland fire mitigation
- Building Codes for commercial and community facilities as regulated by the State Fire Marshall

As Action Number 4.A states, the Steering Committee will encourage local county officials to adopt policies such as building codes to better prepare communities for potential hazards. In addition, each member of the Steering Committee will conduct the following activities in order to ensure the LHMP is properly updated. The Steering Committee implementation process includes the following:

- Conduct a review of the community-specific regulatory tools to assess the integration of the mitigation strategy. These regulatory tools are identified in Section 7, *Capability Assessment*.
- Work with applicable community departments to increase awareness of the LHMP and provide assistance in integrating the mitigation strategy (including the Mitigation Action Plan) into relevant planning methods. Implementation of these requirements may require updating or amending specific planning methods including acknowledging the importance of planning tools in local hazard mitigation.

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.	

Esmeralda County is dedicated to involving the public in the effort to continuously reshape and update the LHMP. Electronic and hard copies of the LHMP will be provided to Esmeralda County and each town. In addition, a downloadable copy of the LHMP and any proposed changes will be posted on the Esmeralda County Web site. This site will also contain contact information to which residents can direct their comments or concerns.

SERC requires that LEPC's meet at least once per quarter. Esmeralda County LEPC 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 LHMP will be collected and included in the annual report and considered during future LHMP updates.

Additionally, the Steering Committee will identify opportunities to raise community awareness about the LHMP and the hazards that affect the county. This effort could include attendance and provision of materials at county and city-sponsored events, Red Cross programs, and public mailings. The plan will be placed in a publicly available location, such as a library, for public review.

The following websites or documents were accessed between September 2015 and December 2015.

- Alpert, PhD, Holly; Crall, J.D., Heather; Drew, PhD, Mark; Hatfield, Janet; and Kattlemann, PhD, Rick. 2014. Inyo-Mono Integrated Regional Water Management Plan. http://www.water.ca.gov/irwm/grants/docs/PlanReviewProcess/Inyo_Mono_IRWM_Plan/IM_PhaseIIPlan_Chapter3_ClimateChange_20141007_ha.pdf Department of Conservation and Natural Resources, Division of Water Resources. 2012. *State of Nevada Drought Response Plan*. <http://water.nv.gov/programs/planning/StateDroughtResponsePlan2012.pdf>
- Esmeralda County. 2013. *Esmeralda County Public Lands Policy Plan*.
- Esmeralda County Land Use Advisory Committee. 2011. *Master Plan, Esmeralda, County*.
- Esmeralda County web site. 2015. <http://www.accessesmeralda.com>.
- Farr West Engineering, *Esmeralda County Water Resource Plan*. 2012
- FEMA. 2002a. 44 CFR Parts 201 and 206, RIN 3067-AD22, Hazard Mitigation Planning and Hazard Mitigation Grant Program, Interim Final Rule. In Federal Register 67, No. 38. U.S. Department of Homeland Security, Federal Emergency Management Agency. <https://www.federalregister.gov/articles/2007/10/31/E7-21264/hazard-mitigation-planning-and-hazard-mitigation-grant-program>
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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 ____ day of _____, 2016.

_____	_____
Commission Chair, <i>insert name</i>	Date

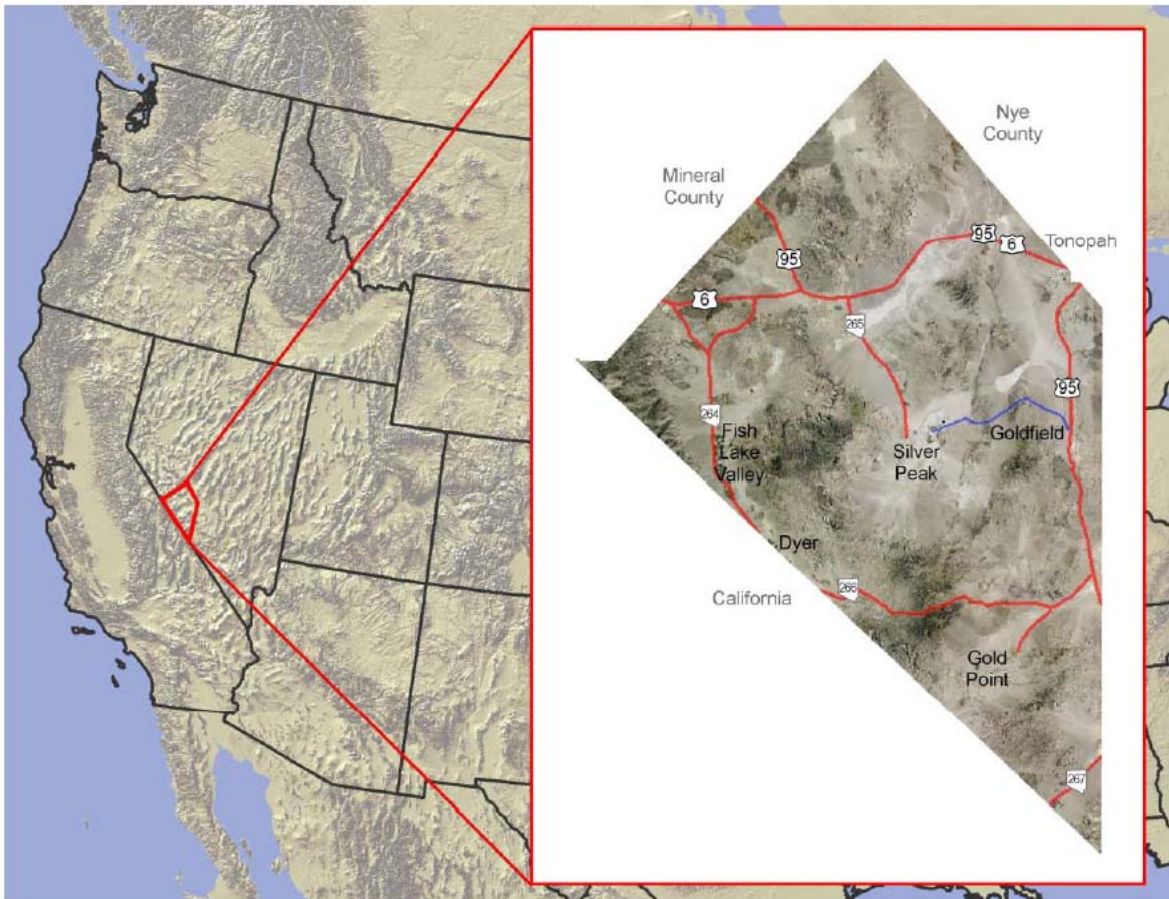
_____	_____
Commissioner, <i>insert name</i>	Date

_____	_____
Commissioner, <i>insert name</i>	Date

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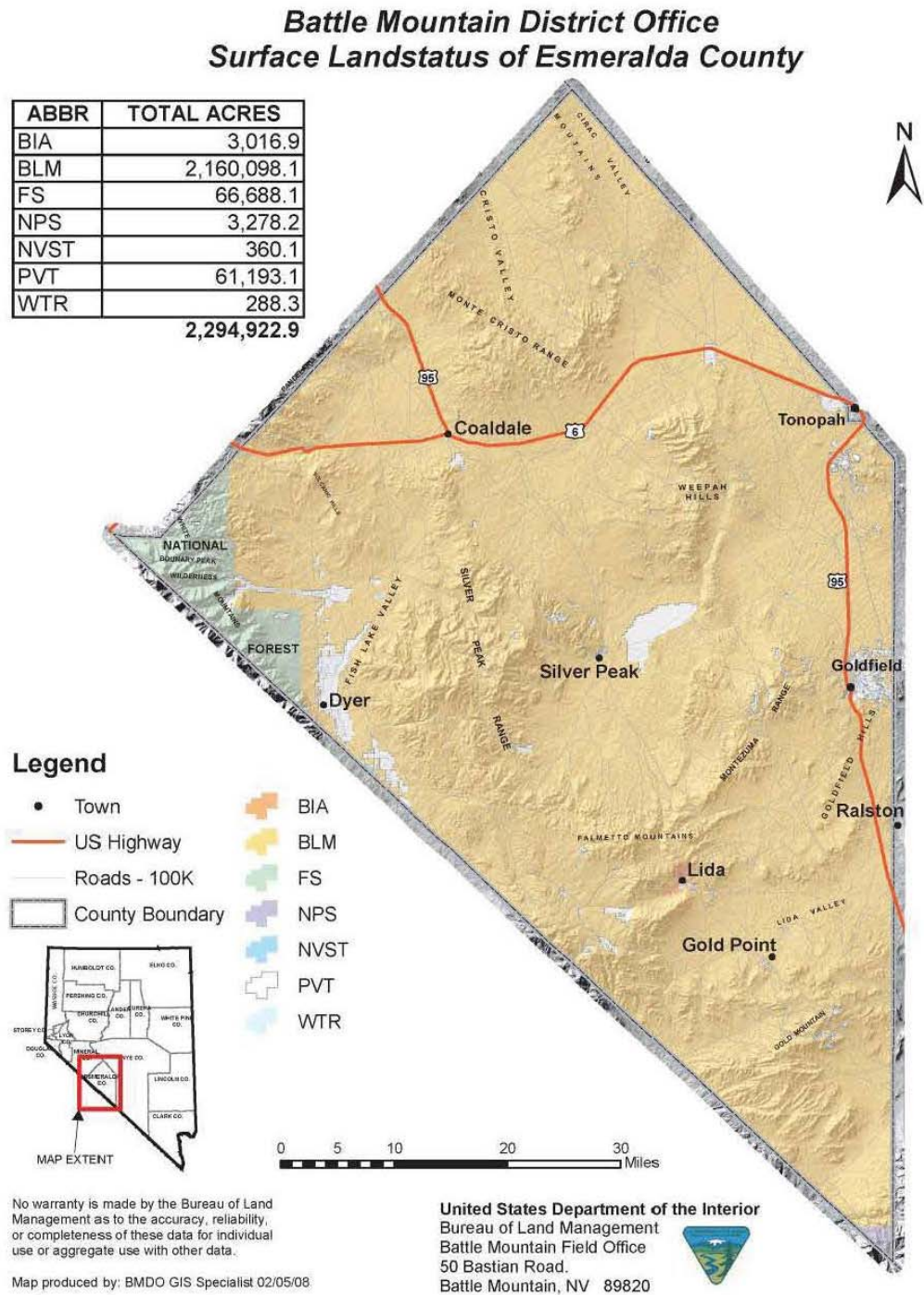
Appendix B
Figures

Figure 1: Esmeralda County Location Map



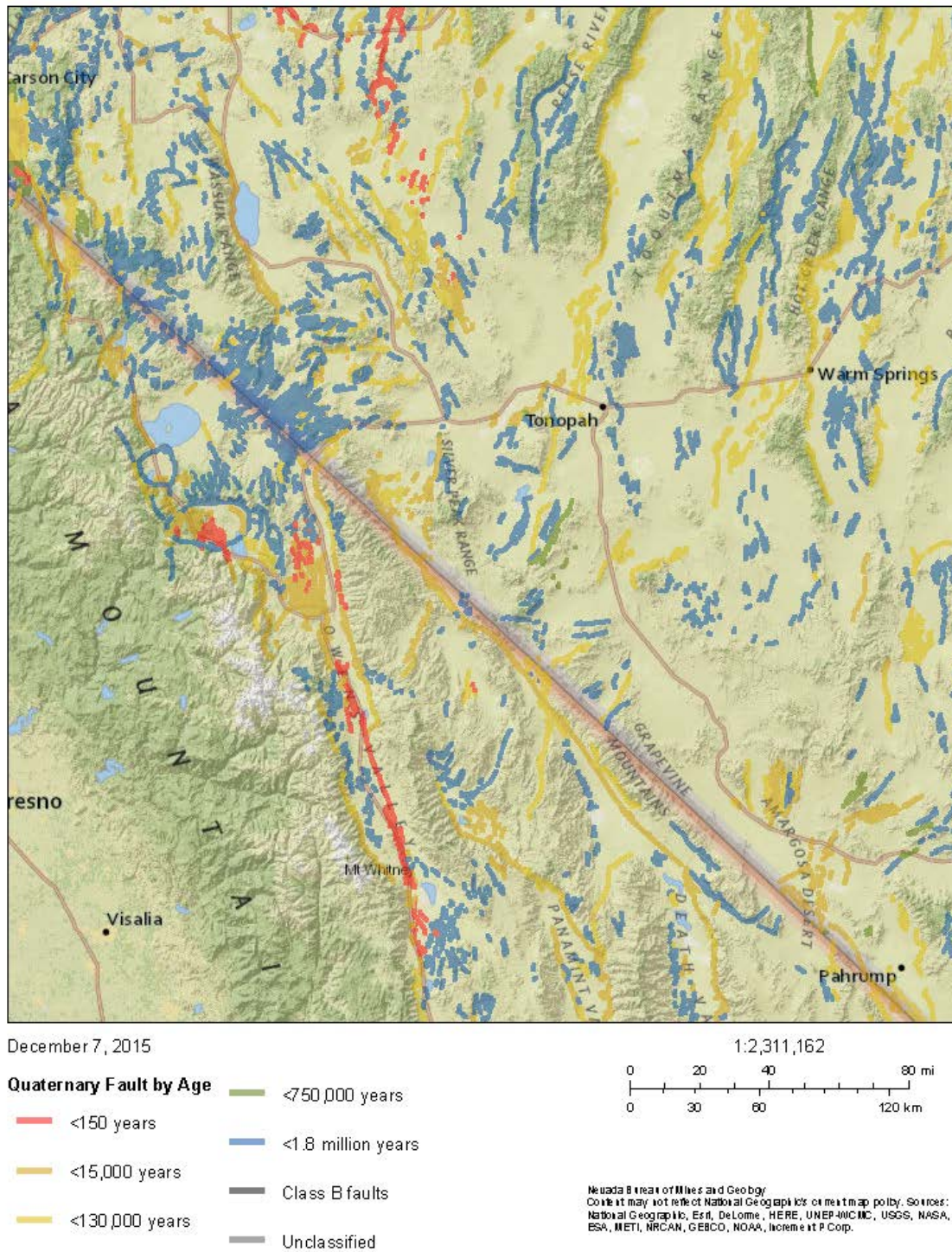
Source: Esmeralda County Master Plan

Figure 2: Land Status Map



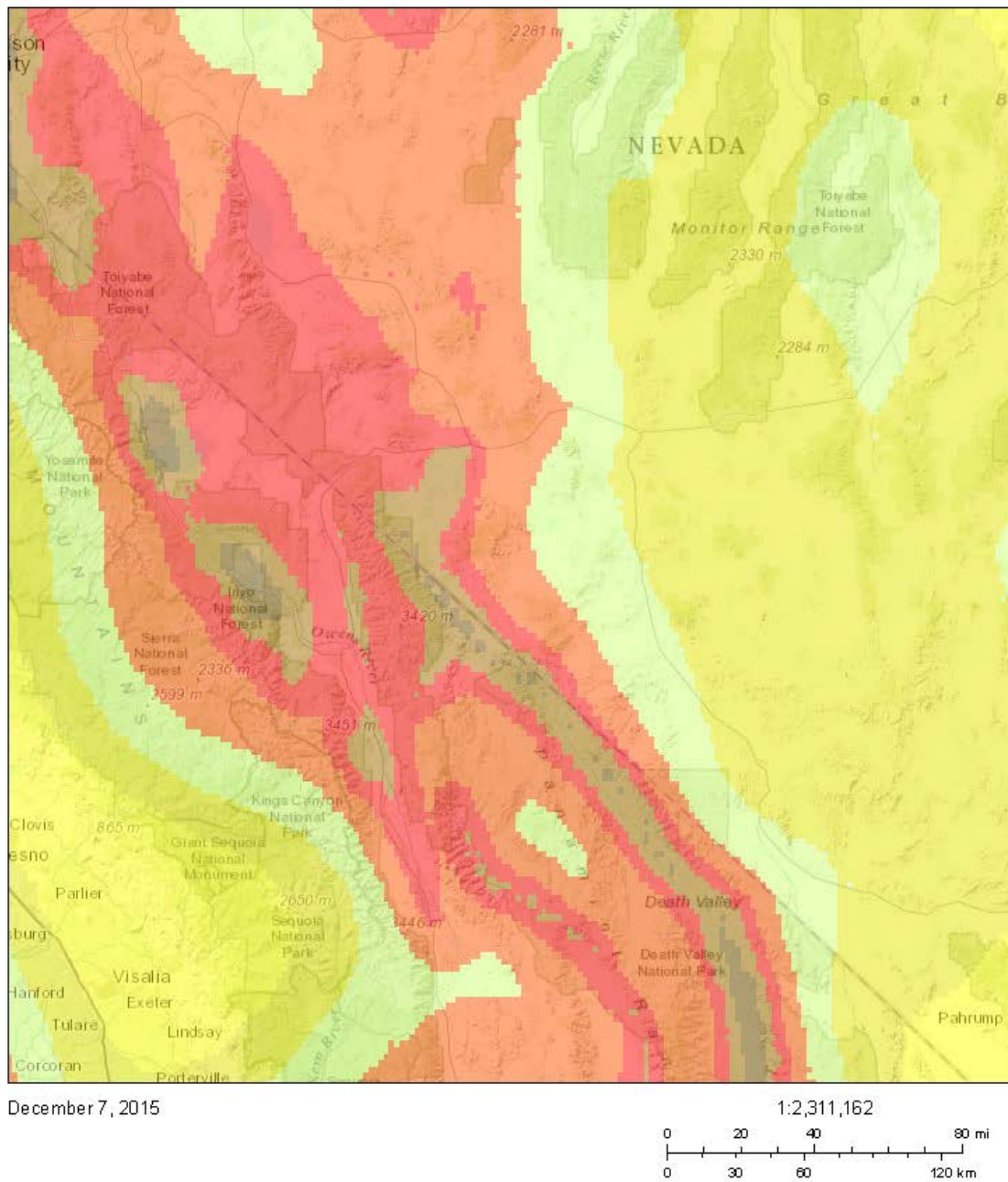
Source: Esmeralda County Master Plan

Figure 3: Esmeralda County Earthquake Fault Line



Source: MyHAZARDS Nevada Map

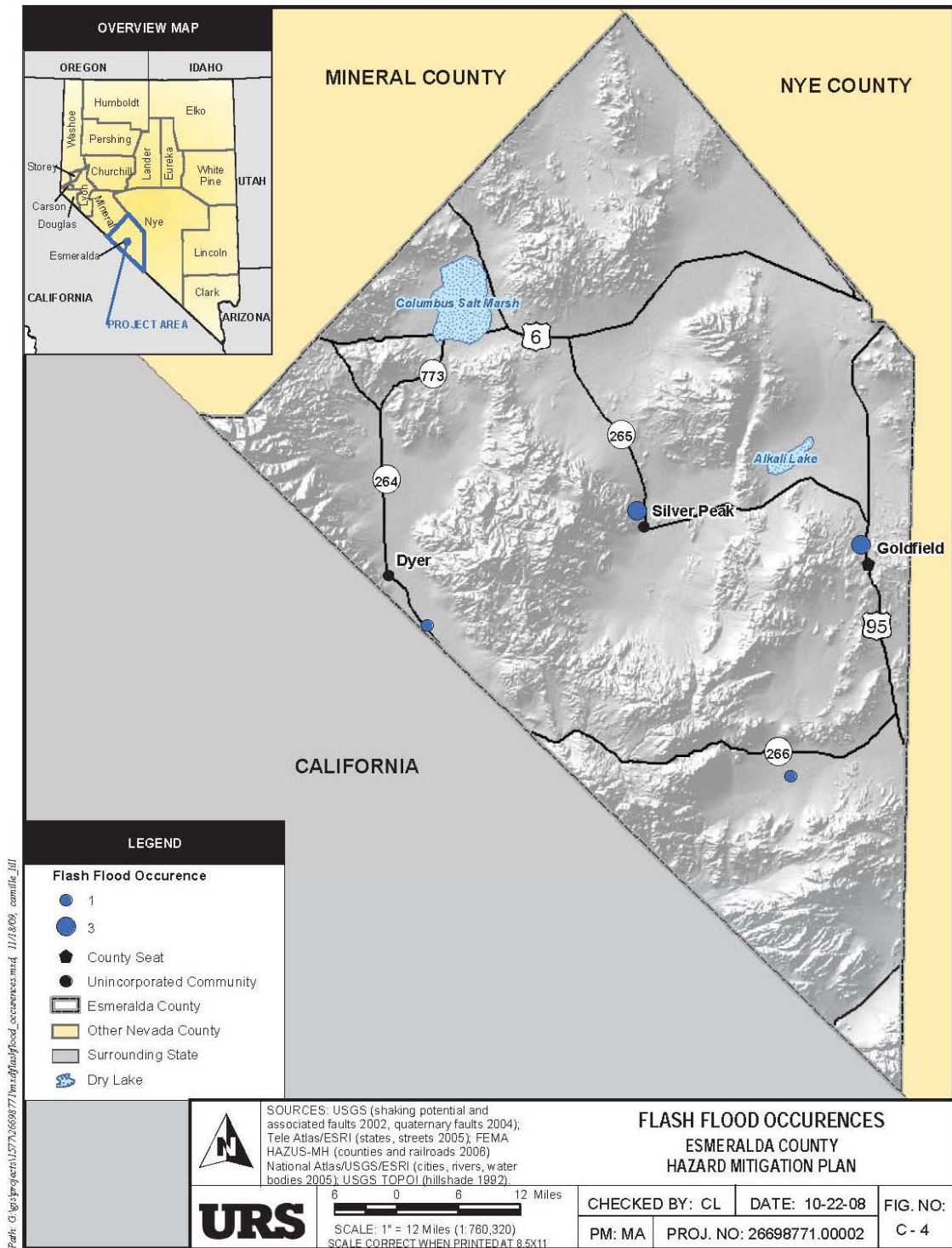
Figure 4: Esmeralda County Earthquake Hazards Map



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geoscience, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, © OpenStreetMap contributors, and the GIS User Community
Nevada Bureau of Mines and Geology

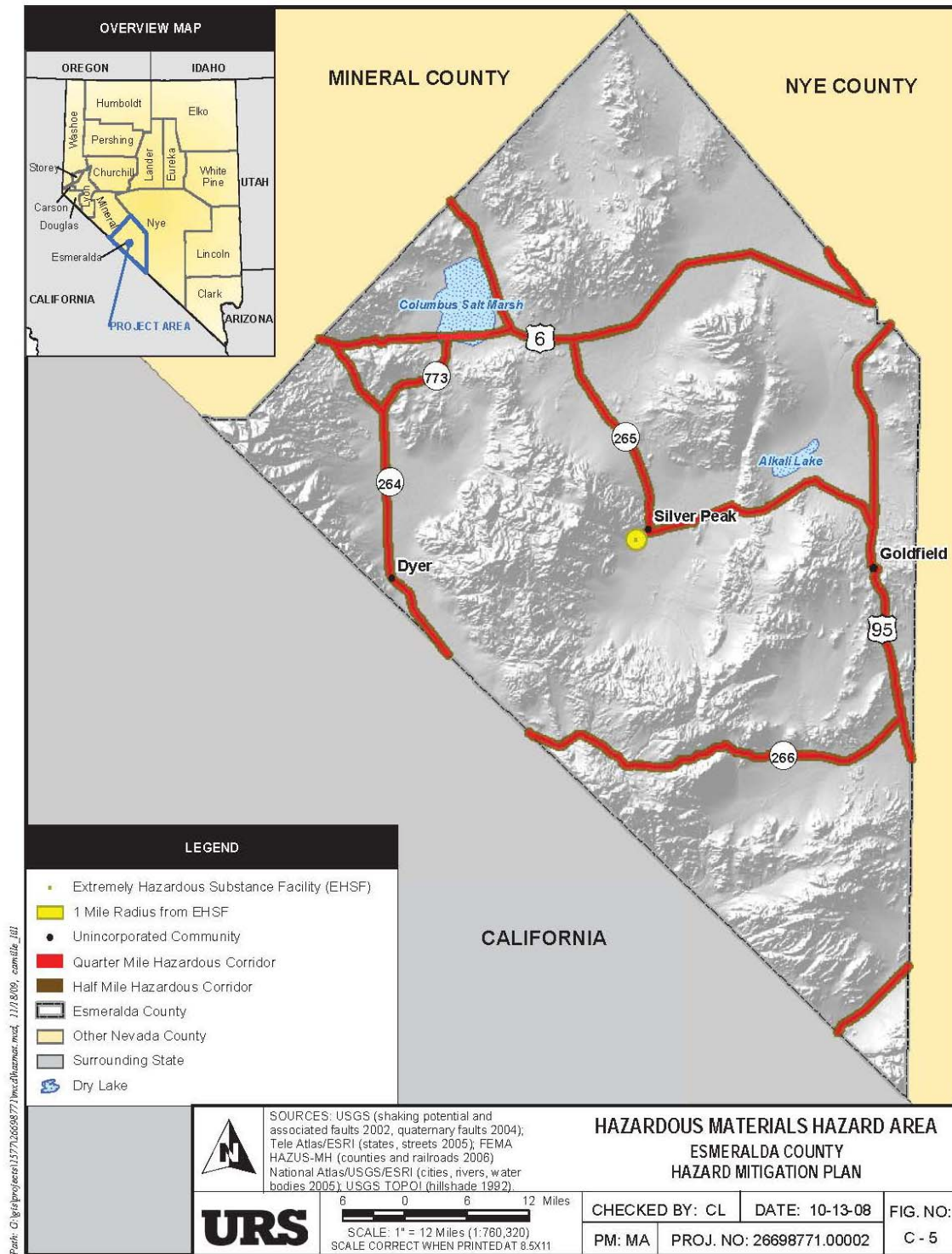
Source: MyHAZARDS Nevada Map

Figure 5: Esmeralda County Flash Flood Occurrences from 2010 HMP



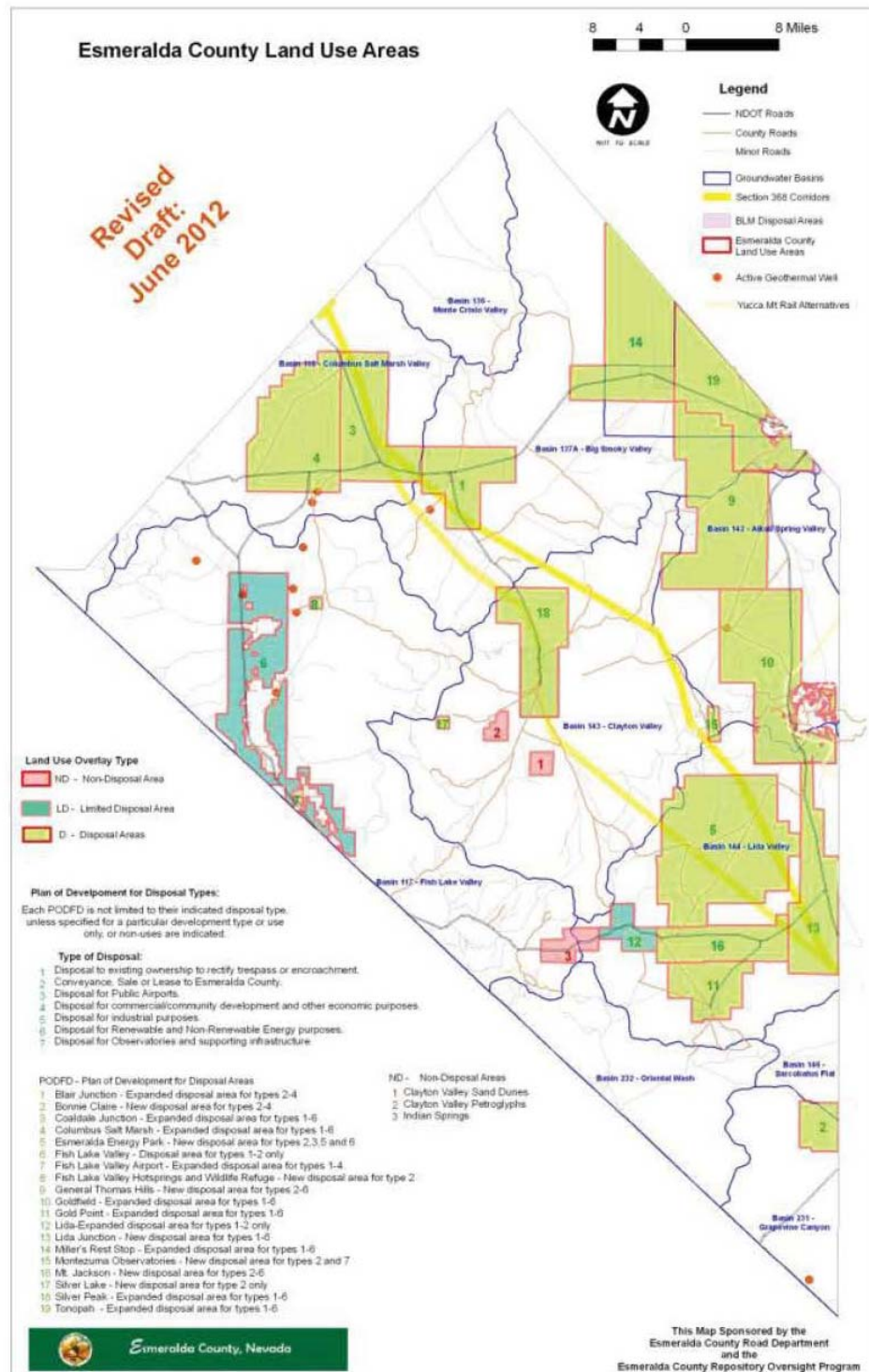
Source: Esmeralda County HMP 2010

Figure 6: Esmeralda County Hazardous Materials Hazard Areas from 2010 HMP



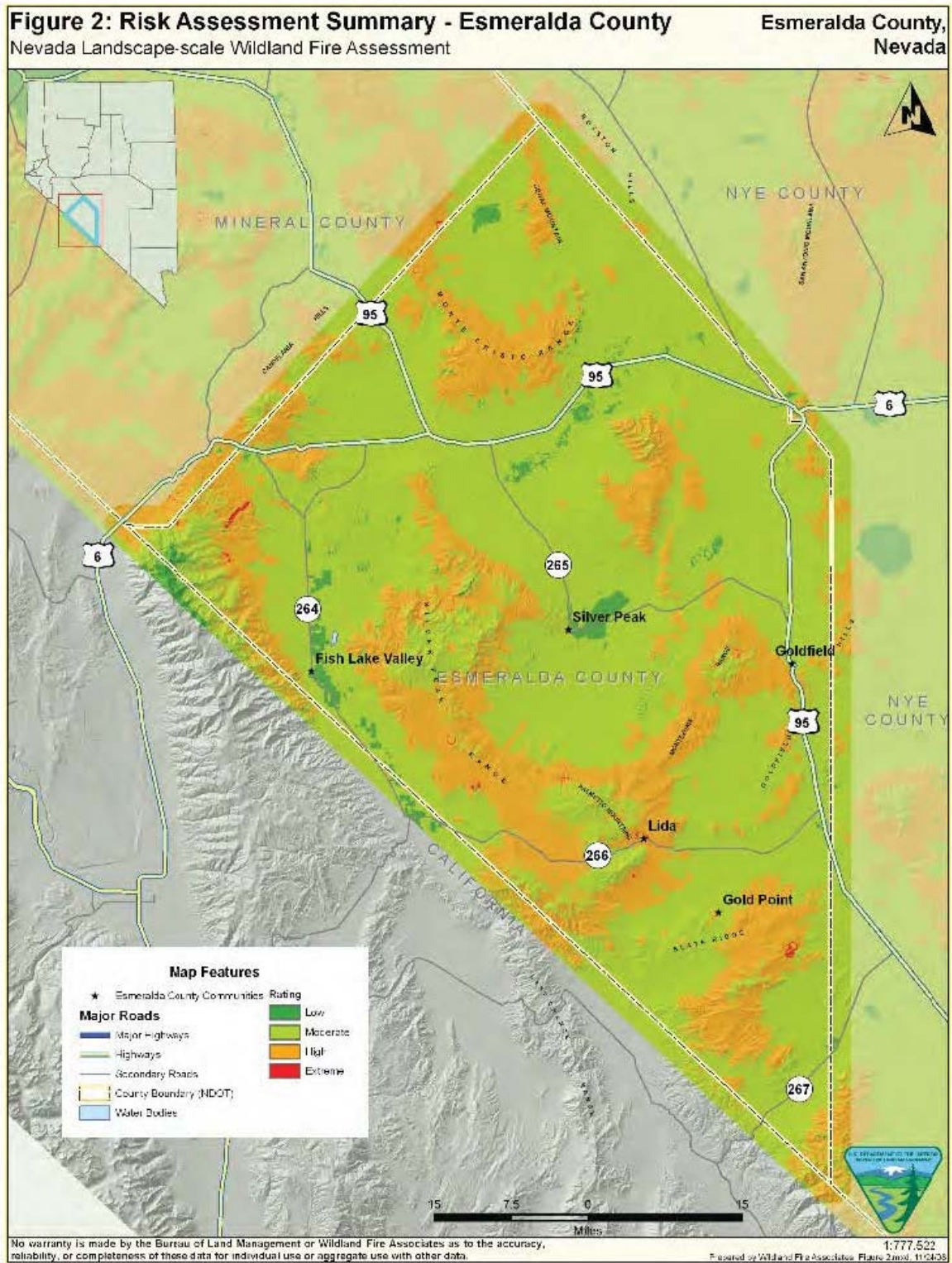
Source: Esmeralda County HMP 2010

Figure 8: Esmeralda County Land Use Areas



Source: 2013 Esmeralda County Public Lands Policy Plan

Figure 9: Esmeralda County Wildland Fire Risk



Source: Landscape-Scale Wildland Fire Risk/Hazard/Value Assessment 2009

Appendix C
Meeting Notes and Handouts

**AGENDA OF PUBLIC MEETING
ESMERALDA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)**

DATE & TIME:
Thursday, October 29, 2015 at 7pm

LOCATION:
Via video or teleconference between Goldfield Elementary School, 233 Ramsey St, Goldfield, Nevada; Dyer Elementary School, Mile Marker 11, State Route 264 Dyer, Nevada; Silver Peak Elementary School, 500 Galena St. Silver Peak, NV 89047

NOTE: The LEPC may take action on items marked "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 LEPC at the discretion of the chairperson. Items may be pulled or removed from the agenda at any time.

- I. CALL TO ORDER & ROLL CALL—Ken Elgan
- II. PUBLIC COMMENT-- (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
- III. *APPROVAL OF MINUTES OF LAST MEETING (Discussion For Possible Action)
- IV. AGENDA ITEMS:
 1. *DISCUSSION/DECISION: REVIEW AND UPDATE HAZARD MITIGATION PLAN.
 2. *DISCUSSION/DECISION: REVIEW AND UPDATE HAZMAT PLAN INCLUDING TRAINING & EXERCISE SCHEDULE AND NRT-1.
 3. *DISCUSSION/DECISION: REVIEW AND UPDATE LEPC MEMBERSHIP LIST.
 4. *DISCUSSION/DECISION: REVIEW AND UPDATE EMERGENCY CONTACTS LIST.
 5. *DISCUSSION/DECISION: *TRAINING UPDATE-- (Discussion/For Possible Action)
 6. *DISCUSSION/DECISION: *GRANT UPDATE-- (Discussion/For Possible Action)
 7. PUBLIC COMMENT – (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
 8. *SET TENTATIVE DATE AND TIME FOR NEXT MEETING -- (Discussion/For Possible Action)
 9. *ADJOURN (Discussion/For Possible Action)

NOTE: * DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

A person with disabilities who may require special accommodations or assistance (e.g. sign language or assistive listening devices) should notify the County Commissioner's office 48 hours prior to the meeting (775) 485-3406; P.O. Box 517 Goldfield, Nevada 89013, TDD Relay Service #800-326-6868 (Rural Nevada)

This is a public meeting. In conformance with the Nevada Public Meeting Law, this agenda was posted or caused to be posted three days prior to the scheduled meeting at the following locations: Dyer, Nevada at the Esmeralda Market, Post Office, Boonies, and Dyer Elementary; Goldfield at the Esmeralda County Court House, Post Office, Library, and Goldfield Elementary; Silver Peak at the Post Office, Library, Community Center, and Silver Peak Elementary.

Support documentation for the items on the agenda is available to members of the public at the Emergency Management Office located at the Goldfield Multi Purpose Building, Goldfield, Nevada.

Esmeralda County Local Emergency Planning Committee
Meeting Minutes

October 29, 2015

I. Call to order & Roll Call:

1. Ken Elgan called to order the regular meeting of the Esmeralda County LEPC at 7:05PM on Oct. 29, 2015 via video conferencing between Silver Peak, Goldfield, and Fish Lake Valley, Nevada.
2. Ken Elgan conducted a roll call. The following persons were present: Val Trucksa, Nancy Knighten, Ken Elgan, Doug Kyle and Ralph Keys from Fish Lake Valley, Art Merrill from Silver Peak, Carl Brownfield and Patricia Brownfield from Goldfield and Stephanie Hicks With the State of Nevada to work on the Hazard Mitigation Plan. A Quorum was not present so no decisions or votes could be completed.

II. Public Comment:

1. PUBLIC COMMENT - (discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.

III. Approval of minutes from last meeting:

2. N/A.

IV. Agenda Items:

1. *DISCUSSION/DECISION: REVIEW AND UPDATE HAZARD MITIGATION PLAN: Stephanie Hicks explained the purpose for the Hazard Mitigation Plan is to reduce risk and loss, make Esmeralda County eligible for grant funding, FEMA requires an update every 5 years, and the last review was completed in 2010. She stated that she will need an updated committee (LEPC) member list and an Agenda for this meeting. She will get an Annual Review Questionnaire to Ken to send to the rest of us.

Stephanie went through Hazard Analysis and Action Items from the 2010 report. When the IBC unreinforced masonry buildings issue was discussed she indicated she will send a list to Ken Elgan.

Hazard Materials and Hazard Profile were gone over and Stephanie added a Whooping Cough outbreak in 2012 to the Epidemic History. Floods in Lida Junction in 2011, 2012 in Gilbert on Highway 6, July 2013 in Lida and Dyer were added to the history as well as August 2014 in Blair Junction and May 2015 west of Lida. The winter table was updated to reflect an 8 inch snow in Goldfield in 2006. A wild fire was added to table 5-14 to list 3-4 acres of BLM land burned on the East side of the White Mountains in August 2015 and a wind history listed by NOAA of 61 events since 1985.

FEMA requires a press release of a Public Notice stating the planning committee is reviewing and updating the Hazard Mitigation Plan and the public is welcome to attend. She will send a sample and she will need a copy of the Posted notice. Stephanie or Karen will be attending the next couple of LEPC meetings to complete this Review Questionnaire as it is due by the end of December, 2015.

the next meeting was scheduled for November 12, 2015 at 7pm and Stephanie or Karen will attend.

Agenda items 2 through 7 could not be voted or acted due to a quorum not present at this meeting.

2. *DISCUSSION/DECISION: REVIEW AND UPDATE HAZMAT PLAN INCLUDING TRAINING & EXERCISE SHCHEDULE AND NRT-1
3. *DISCUSSION/DECISION: REVIEW AND UPDATE MEMBERSHIP LIST.
4. *DISCUSSION/DECISION: REVIEW AND UPDATE EMERGENCY CONTACTS LIST.
5. *DISCUSSION/DECISION: * TRAINING UPDATE - (Discussion For Possible Action).
6. *DISCUSSION/DECISION: *GRANT UPDATE - (Discussion for Possible Action).
7. *PUBLIC COMMENT - (discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
8. *ADJOURN - The meeting was adjourned at 8:48pm.

NOTE: *DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

A person with disabilities who may require special accommodations or assistance (e.g. sign language or assistive listening devices) should notify the County Commissioner's office 49 hours prior to the meeting (775)485-3406; P.O. Box 517 Goldfield, Nevada 89013. TDD Relay Service #800-326-6868 (Rural Nevada).

This is a public meeting. In conformance with the Nevada Public Meeting Law, this agenda was posted or caused to be posted three days prior to the scheduled meeting at the following locations: Dyer, Nevada at the Esmeralda Market, Post Office, Boonies, and Dyer Elementary; Goldfield, Nevada at the Esmeralda County Court House, Post Office, Library, and Goldfield Elementary; Silver Peak, Nevada at the Post office, Library, Community Center and Silver Peak Elementary.

Supporting documentation for the items on the agenda is available to members of the public at the Emergency Management Office located at the Goldfield Multi Purpose Building, Goldfield, Nevada.

Minutes submitted by: Patricia Brownfield 11-12-15

Esmeralda Annual Review Questionnaire 2015				
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 been 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?			

Goal Number	Goal Description
1	Promote increased and ongoing county involvement in hazard mitigation planning and projects.
2	Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire.
3	Reduce the possibility of damage and losses due to drought.
4	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.
5	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.
6	Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.

Goal	Action Number	Action	Status
Goal 1: Promote increased and ongoing county involvement in hazard mitigation planning and projects.	1.A	Esmeralda County Hazard Mitigation Plan Steering Committee will remain active through the LEPC and will conduct and complete an annual review of the LHMP.	
	1.B	The Steering Committee will seek regional mitigation projects with adjacent Nye County, NV and Mineral County, NV.	
	1.C	Enhance the County's GIS capabilities to include updated hazard and asset figures as it becomes available. Also, develop GIS data-sharing agreements with appropriate state agencies and state/regional governmental agencies to allow for the sharing/utilizing of existing and new GIS hazard and asset information.	

Goal	Action Number	Action	Status
Goal 2: Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire	2.A	Work with school district to develop a program that teaches children about the hazards in their community and what they can do to mitigate, prevent, and prepare for these hazard events.	
	2.B	Establish community program to educate residents and visitors about mitigation measures they can take during drought conditions, winter months and severe winter storm events. In addition, community programs will also educate about mitigating spontaneous events to minimize potentially life-threatening conditions such as an earthquake, flash flood, or hazardous materials events. This program will provide the platform for standardized and consistent county hazard mitigation content.	
	2.C	Develop outreach program that will teach adults how to anchor parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if items were to fall or break during an earthquake or wind event.	
	2.D	Update the existing local community wildfire protection plan.	
Goal 3: Reduce the possibility of damage and losses due to drought.	3.A	Develop closer working relationship with the State of Nevada Department of Conservation and Natural Resources, Division of Water Resources to understand the actions that can be implemented at the County level in advance of drought to reduce long-term exposure.	

Goal	Action Number	Action	Status
	3.B	Through public education, encourage all residents and visitors to follow water conservation measures when drought conditions exist.	
Goal 4: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.	4.A	Encourage County Commissioner to adopt and fund the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards for critical facilities and infrastructure and new industry.	
	4.B	Identify public and private unreinforced masonry buildings in the county.	
	4.C	Retrofit any critical assets within strong shaking areas that do not meet the IBC requirements for seismic safety. Priority for retrofitting should be given to emergency response facilities, schools, and shelters.	
	4.D	Work with all industry to evaluate the seismic risk to their vulnerable components such as storage tanks, transmission lines, etc and recommend appropriate mitigation measures, such as automatic shut-off valves.	
	4.E	Develop a county-sponsored website for homes, businesses, schools, and critical facilities and infrastructure owner/operators to follow a checklist to identify weak or poorly anchored parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if it were to fall or break during an earthquake. Develop a list of actions and local resources to possibly correct identified problems.	

Goal	Action Number	Action	Status
Goal 5: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.	5.A	Complete hydrology analysis to determine the location, impact, and characteristics of flash flooding in the central belt of the County to include the communities of Goldfield, Silver Peak, Dyer, Gold Point, and the Fish Lake Valley. The analysis will include mitigation recommendations for each community.	
	5.B	Prioritize and implement flood management projects that would reduce the impact of flash flooding (e.g., stabilizing stream banks, replacing existing culverts and bridges, creating debris or flood/storm water retention basins in small watersheds.)	
Goal 6: Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.	6.A	Notify businesses that use, store, or transport hazardous materials to develop and implement measures to protect public health and safety and that these measures are submitted to the Local Emergency Planning Committee (LEPC) for annual review.	
	6.B	Develop Shelter-In-Place program to educate all residents and businesses within the identified ¼, ½, and 1-mile transportation corridors of actions to take when advised to “Shelter-In-Place”.	

2010 Guidance used by Steering Committee for Evaluating Hazards

Evaluation Criterion: Frequency		Evaluation Criterion: Geographic Distribution		Evaluation Criterion: Fiscal Risk	
Factor (Frequency of recurrences)	Rating	Factor (Size of Area Potentially Affected)	Rating	Factor (Level or Type of Risk)	Rating
10+ years	1	Site	1	Insured Loss	1
6-9 years	2	Block group	2	City	2
1-5 years	3	Census tract	3	County	3
2-12 months	4	Township, range	4	State	4
0-30 days	5	Countywide	5	Federal Disaster	5

2010 Hazard Ranking

High Risk	Moderate Risk	Low Risk
Drought	Flood Earthquake Hazardous Materials Terrorism	Wildfire Severe Winter Storm Wind Epidemic Land Subsidence Hail Extreme Heat

DATE

Dear Community Member or Neighboring Community,

Over the next few months, Esmeralda County will conduct a planning effort to update the 2010 *Esmeralda County, Nevada Local Hazard Mitigation Plan*.

This 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 these threats. Further, the plan will help our community develop infrastructure 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 planning team. The level of commitment will involve a few meetings, plus a review of the components of the plan as they are written. I anticipate meeting two to three times over the next five months. 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 group, please RSVP to me at (email or phone).

Cordially,

News Release Esmeralda County

[Website](#)

FOR IMMEDIATE RELEASE

Esmeralda County, Nevada Local Hazard Mitigation Plan

Esmeralda County, NV – DATE

In recent years, nature has been restless in Nevada – there has been a swarm of earthquakes rattling the western portion of the state, recent flash flooding due to summer thunderstorms, and every year there are major wildland fires throughout the state. All of these emergency events demonstrate that Esmeralda County can be vulnerable to disasters. The risks from such hazards will continue to increase as the county's population continues to grow.

Esmeralda County has launched a planning effort to update their 2010 *Esmeralda County, Nevada Local Hazard Mitigation Plan*. This plan will assess and prioritize the risks posed by natural and manmade hazards and identify ways to reduce those risks. This plan is required by the Federal Disaster Mitigation Act of 2000 and is a prerequisite to acquiring federal funding for mitigation or recovery from disasters. Esmeralda County plans on submitting a draft plan to local governing board in January 2016 for their approval. The final plan will then be sent to FEMA for final approval.

Public comments and participation are welcomed and encouraged. For additional information, to volunteer, or to make comments, please contact _____, Esmeralda County Emergency Management and Homeland Security at (775) _____ or Email _____.

-End-

**AGENDA OF PUBLIC MEETING
ESMERALDA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)**

DATE & TIME:
Thursday, November 12, 2015 at 7pm

LOCATION:
Via video or teleconference between Goldfield Elementary School, 233 Ramsey St, Goldfield, Nevada; Dyer Elementary School, Mile Marker 11, State Route 264 Dyer, Nevada; Silver Peak Elementary School, 500 Galena St Silver Peak, NV 89047 Silver Peak, Nevada

NOTE: The LEPC may take action on items marked "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 LEPC at the discretion of the chairperson. Items may be pulled or removed from the agenda at any time.

- I. CALL TO ORDER & ROLL CALL—Ken Elgan
- II. PUBLIC COMMENT-- (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
- III. *APPROVAL OF MINUTES OF LAST MEETING (Discussion For Possible Action)
- IV. AGENDA ITEMS:
 1. *DISCUSSION/DECISION: REVIEW AD UPDATE HAZARD MITIGATION PLAN.
 2. *DISCUSSION/DECISION: REVIEW AND UPDATE HAZMAT PLAN INCLUDING TRAINING & EXERCISE SHCHEDULE AND NRT-1.
 3. *DISCUSSION/DECISION: REVIEW AND UPDATE MEMBERSHIP LIST.
 4. *DISCUSSION/DECISION: REVIEW AND UPDATE EMERGENCY CONTACTS LIST.
 5. *DISCUSSION/DECISION: *TRAINING UPDATE - (discussion For Possible Action).
 6. *DISCUSSION/DECISION: *GRANT UPDATE - (Discussion For Possible Action).
 7. PUBLIC COMMENT - (Discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
 8. *VOTE TO ACCEPT WINIFRED (WENDY) L. WOOD RESIGNATION AS LEPC SECRETARY.
 9. *NOMINATE PATRICIA BROWNFIELD AS LEPC SECRETARY.
 10. *SET TENTATIVE DATE AND TIME FOR NEXT MEETING -- (Discussion/For Possible Action)
 11. *ADJOURN (Discussion/For Possible Action)

NOTE: * DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

A person with disabilities who may require special accommodations or assistance (e.g. sign language or assistive listening devices) should notify the County Commissioner's office 48 hours prior to the meeting (775) 485-3406; P.O. Box 517 Goldfield, Nevada 89013, TDD Relay Service #800-326-6868 (Rural Nevada)

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Esmeralda County Local Emergency Planning Committee

Meeting Minutes

November 12, 2015

I. Call to order & Roll Call:

1. Ken Elgan called to order the regular meeting of the Esmeralda County LEPC at 7:05PM on Nov 12, 2015 via video conferencing between Silver Peak, Goldfield, and Fish Lake Valley, Nevada.
2. Ken Elgan conducted a roll call. The following persons were present: Val Trucksa, Nancy Knighten, Ken Elgan, from Fish Lake Valley, Ed Rannells from Silver Peak, Carl Brownfield and Patricia Brownfield, Mike Anderson and Dee Dee Sligar from Goldfield and Stephanie Hicks With the State of Nevada to work on the Hazard Mitigation Plan. Public Guests Bob Moss and David VonDrop were attending. A Quorum was present.

II. Public Comment:

1. PUBLIC COMMENT - (discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint. **There were no Public Comments.**

III. Approval of minutes from last meeting:

2. There was no discussion on the Oct. 29, 2015 minutes, Nancy Knighten moved and Val Trucksa seconded to approve. Carried.

IV. Agenda Items:

1. ***DISCUSSION/DECISION: REVIEW AND UPDATE HAZARD MITIGATION PLAN:**
Stephanie Hicks went over pages of the Hazard Mitigation Plan that needed changes and updates. She reviewed changes and updates to Section 3 during Oct. 29, 2015 meeting. Sections 4 and 5 and a copy of the posted Press Release will be sent to Stephanie Hicks and Karen Johnson and added to plan. Section 6 was reviewed and Mike Anderson updated current projects and last 5 years projects. Mike will provide infrastructure replacement costs and updates to Patty Brownfield which will then be sent to Stephanie Hicks and Karen Johnson. Section 7 was review, clarified and updated. Stephanie Hicks will follow up on flood insurance information and forward to Ken Elgan. Patty needs to send email invitations to Inyo, Mineral, Mono and Nye counties to attend the Dec. meeting for Hazard Mitigation Plan review.
2. ***DISCUSSION/DECISION: REVIEW AND UPDATE HAZMAT PLAN INCLUDING TRAINING & EXERCISE SCHEDULE AND NRT-1:** No Discussion. Ken requested Patty to meet with Scott Reed about this item.
3. ***DISCUSSION/DECISION: REVIEW AND UPDATE MEMBERSHIP LIST.**
4. ***DISCUSSION/DECISION: REVIEW AND UPDATE EMERGENCY CONTACTS LIST:**
It was decided to combine the CONTACT/MEMBERSHIP lists. Nancy Knighten moved and Val Trucksa seconded to approve as Corrected and motion carried.

5. *DISCUSSION/DECISION: * TRAINING UPDATE - (Discussion For Possible Action):
There was no discussion.

6. *DISCUSSION/DECISION: *GRANT UPDATE - (Discussion for Possible Action): there
was no discussion.

7. *PUBLIC COMMENT - (discussion Only) - No action may be taken upon a matter raised
under this item of the agenda until the matter itself has been specifically included on an agenda
as an item upon which action may be taken. Public comments may be limited to 3 minutes per
person at the discretion of the Chair. Comments will not be restricted based on viewpoint.

Bob Moss introduced himself as a Ham operator and Nevada Amateur Radio Emergency
Services that provides emergency connections between hospitals and agencies for
communications.

8. *VOTE TO ACCEPT WINIFRED (WENDY) WOOD RESIGNATION AS LEPC
SECRETARY: Val Trucksa moved and Nancy Knighten seconded to accept and the motion
carries.

9. *NOMINATE PATRICIA BROWNFIELD AS LEPC SECRETARY: Patricia accepted the
nomination and Val Trucksa moved and Nancy Knighten seconded and the motion carried. Ken
Elgan requested the OLD BUSINESS be added to the agendas.

10. *SET TENTATIVE DATE AND TIME FOR NEXT MEETING - (Discussion For Possible
Action): Next meeting scheduled for finishing Hazard Mitigation Plan review was set for Dec.
17, 2015 at 7pm.

11. *ADJOURN - Nancy Knighten moved and Val Trucksa seconded to adjourn at 8:05pm

NOTE: *DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

A person with disabilities who may require special accommodations or assistance (e.g. sign language or assistive listening devices) should notify the County
Commissioner's office 49 hours prior to the meeting (775)485-3406; P.O. Box 517 Goldfield, Nevada 89013, TDD Relay Service #800-326-6868 (Rural
Nevada).

This is a public meeting. In conformance with the Nevada Public Meeting Law, this agenda was posted or caused to be posted three days prior to the
scheduled meeting at the following locations: Dyer, Nevada at the Esmeralda Market, Post Office, Boonies, and Dyer Elementary; Goldfield, Nevada at the
Esmeralda County Court House, Post Office, Library, and Goldfield Elementary; Silver Peak, Nevada at the Post office, Library, Community Center and
Silver Peak Elementary.

Supporting documentation for the items on the agenda is available to members of the public at the Emergency Management Office located at the Goldfield
Multi Purpose Building, Goldfield, Nevada.

Minutes submitted by: Patricia Brownfield 12-17-15

Esmeralda Annual Review Questionnaire 2015				
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		Volunteer EMS and fire department.
	Are there procedures (e.g., meeting announcement, plan updates) that can be done more efficiently?	X		LEPC meetings have been infrequent and annual reviews since the 2010 HMP were not completed. However, meetings are being initiated again and the LEPC hopes to meet more regularly.
	Has the Steering committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?	X		Shot clinics are made available to the public and Public Service Announcements are broadcast regarding wildfire.
HAZARD PROFILES	Has a natural and/or human-caused disaster occurred in this reporting period?	X		Flash flooding.
	Are there natural and/or human-caused hazards that have not been addressed in this HMP and should be?		X	No new hazards.
	Are additional maps or new hazards studies available? If so, what have they revealed?		X	No new maps or studies have been completed since update.
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?		X	No new critical facilities or infrastructure constructed since the last update.
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?		X	None.
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		X	Esmeralda County does not have a HazMat response team anymore so they use a consultant, H2O, for hazmat clean up or Nye County.
	Are the goals still applicable?	X		Yes.
	Should new mitigation actions be added to a community's Mitigation Action Plan?		X	No new mitigation actions were identified.
	Do existing mitigation actions listed in a community's Mitigation Action Plan need to be reprioritized?		X	No.
	Are the mitigation actions listed in a community's Mitigation Action Plan appropriate for available resources?	X		Yes.

Goal Number	Goal Description
1	Promote increased and ongoing county involvement in hazard mitigation planning and projects.
2	Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire.
3	Reduce the possibility of damage and losses due to drought.
4	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.
5	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.
6	Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.

Goal	Action Number	Action	Status
Goal 1: Promote increased and ongoing county involvement in hazard mitigation planning and projects.	1.A	Esmeralda County Hazard Mitigation Plan Steering Committee will remain active through the LEPC and will conduct and complete an annual review of the LHMP.	No annual reviews were completed. The LEPC is trying to meet on a more regular basis.
	1.B	The Steering Committee will seek regional mitigation projects with adjacent Nye County, NV and Mineral County, NV.	MOU's in place with Inyo and Mono; however, no specific regional mitigation projects have been completed.
	1.C	Enhance the County's GIS capabilities to include updated hazard and asset figures as it becomes available. Also, develop GIS data-sharing agreements with appropriate state agencies and state/regional governmental agencies to allow for the sharing/utilizing of existing and new GIS hazard and asset information.	The Road Department supervisor has been working on but status is unknown. Still valid action.

Goal	Action Number	Action	Status
Goal 2: Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire	2.A	Work with school district to develop a program that teaches children about the hazards in their community and what they can do to mitigate, prevent, and prepare for these hazard events.	The Sheriff's Office is very active with the elementary school in different type of hazards. Fire Department and EMS also interact with them in each. Schools do not participate in Great Nevada Shakeout but LEPC would like to in the future.
	2.B	Establish community program to educate residents and visitors about mitigation measures they can take during drought conditions, winter months and severe winter storm events. In addition, community programs will also educate about mitigating spontaneous events to minimize potentially life-threatening conditions such as an earthquake, flash flood, or hazardous materials events. This program will provide the platform for standardized and consistent county hazard mitigation content.	Same as above.
	2.C	Develop outreach program that will teach adults how to anchor parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if items were to fall or break during an earthquake or wind event.	No progress but still valid.
	2.D	Update the existing local community wildfire protection plan.	No updates have been completed in the last 5 years, but still valid.
Goal 3: Reduce the possibility of damage and losses due to drought.	3.A	Develop closer working relationship with the State of Nevada Department of Conservation and Natural Resources, Division of Water Resources to understand the actions that can be implemented at the County level in advance of drought to reduce long-term exposure.	No progress but still valid.

Goal	Action Number	Action	Status
	3.B	Through public education, encourage all residents and visitors to follow water conservation measures when drought conditions exist.	No progress, but agricultural uses are great stewards of the land. Still valid.
Goal 4: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.	4.A	Encourage County Commissioner to adopt and fund the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards for critical facilities and infrastructure and new industry.	Esmeralda only has building code requirements for commercial buildings or public facilities. These must be approved by the State Fire Marshall. There are no building code requirements for residential. There are very few multi-story buildings within the County.
	4.B	Identify public and private unreinforced masonry buildings in the county.	URM buildings were identified by UNR. However, verification or ground trothing has not been completed.
	4.C	Retrofit any critical assets within strong shaking areas that do not meet the IBC requirements for seismic safety. Priority for retrofitting should be given to emergency response facilities, schools, and shelters.	Re-grouting of County Court house but no structural repairs or reinforcement. Old hotel and old high school are in private ownership.
	4.D	Work with all industry to evaluate the seismic risk to their vulnerable components such as storage tanks, transmission lines, etc and recommend appropriate mitigation measures, such as automatic shut-off valves.	All county facilities are above ground. Two underground facilities are being utilized. There is a third which is not be utilized and they do all have automatic shutoffs. This is still a valid action.
	4.E	Develop a county-sponsored website for homes, businesses, schools, and critical facilities and infrastructure owner/operators to follow a checklist to identify weak or poorly anchored parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if it were to fall or break during an earthquake. Develop a list of actions and local resources to possibly correct identified problems.	No progress on this action but still valid. The County's biggest fear in an earthquake would be the 250 to 300 gallon propane tanks but they have automatic shut offs.

Goal	Action Number	Action	Status
Goal 5: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.	5.A	Complete hydrology analysis to determine the location, impact, and characteristics of flash flooding in the central belt of the County to include the communities of Goldfield, Silver Peak, Dyer, Gold Point, and the Fish Lake Valley. The analysis will include mitigation recommendations for each community.	Has not been completed. Recent flash flooding on Hwy 264. NDOT is doing work, but could use some detention and retention basins.
	5.B	Prioritize and implement flood management projects that would reduce the impact of flash flooding (e.g., stabilizing stream banks, replacing existing culverts and bridges, creating debris or flood/storm water retention basins in small watersheds.)	No progress but still valid.
Goal 6: Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.	6.A	Notify businesses that use, store, or transport hazardous materials to develop and implement measures to protect public health and safety and that these measures are submitted to the Local Emergency Planning Committee (LEPC) for annual review.	This is ongoing and still valid.
	6.B	Develop Shelter-In-Place program to educate all residents and businesses within the identified ¼, ½, and 1-mile transportation corridors of actions to take when advised to “Shelter-In-Place”.	Three main transportation corridors in Esmeralda County are Highway 95, 264, and 265. A hazmat incident on the highway in town of Silver Peak this could be a problem since the highway goes right through the middle of town. Fish Lake Valley has residences close to Highway 264, as well as a market and post office. This would be the same through Goldfield.

**AGENDA OF PUBLIC MEETING
ESMERALDA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)**

DATE & TIME:
Thursday, December 17, 2015 at 7pm

LOCATION:
Via video or teleconference between Goldfield Elementary School, 233 Ramsey St, Goldfield, Nevada; Dyer Elementary School, Mile Marker 11, State Route 264 Dyer, Nevada; Silver Peak Elementary School, 500 Galena St Silver Peak, NV 89047 Silver Peak, Nevada

NOTE: The LEPC may take action on items marked "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 LEPC at the discretion of the chairperson. Items may be pulled or removed from the agenda at any time.

- I. CALL TO ORDER & ROLL CALL—Ken Elgan
- II. PUBLIC COMMENT-- (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
- III. *APPROVAL OF MINUTES OF LAST MEETING (Discussion For Possible Action)
- IV. AGENDA ITEMS:
 1. *DISCUSSION/DECISION: REVIEW AD UPDATE HAZARD MITIGATION PLAN.
 2. *DISCUSSION/DECISION: *OLD BUSINESS - (Discussion/For Possible Action)
 3. *DISCUSSION/DECISION: REVIEW AND UPDATE HAZMAT PLAN INCLUDING TRAINING & EXERCISE SHCHEDULE AND NRT-1.
 4. *DISCUSSION/DECISION: REVIEW AND APPROVE EMERGENCY CONTACTS/MEMBERSHIP LIST.
 5. *DISCUSSION/DECISION: *TRAINING UPDATE - (discussion For Possible Action).
 6. *DISCUSSION/DECISION: *GRANT UPDATE - (Discussion For Possible Action).
 7. PUBLIC COMMENT - (Discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
 8. *SET TENTATIVE DATE AND TIME FOR NEXT MEETING -- (Discussion/For Possible Action)
 9. *ADJOURN (Discussion/For Possible Action)

NOTE: * DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

A person with disabilities who may require special accommodations or assistance (e.g. sign language or assistive listening devices) should notify the County Commissioner's office 48 hours prior to the meeting (775) 485-3406; P.O. Box 517 Goldfield, Nevada 89013, TDD Relay Service #800-326-6868 (Rural Nevada)

This is a public meeting. In conformance with the Nevada Public Meeting Law, this agenda was posted or caused to be posted three days prior to the scheduled meeting at the following locations: Dyer, Nevada at the Esmeralda Market, Post Office, Boonies, and Dyer Elementary; Goldfield at the Esmeralda County Court House, Post Office, Library, and Goldfield Elementary; Silver Peak at the Post Office, Library, Community Center, and Silver Peak Elementary. Support documentation for the items on the agenda is available to members of the public at the Emergency Management Office located at the Goldfield Multi Purpose Building, Goldfield, Nevada.

Esmeralda County Local Emergency Planning Committee
Meeting Minutes

December 17, 2015

I. Call to order & Roll Call:

1. Ken Elgan called to order the regular meeting of the Esmeralda County LEPC at 7:09PM on Dec 17, 2015 via video conferencing between Silver Peak, Goldfield, and Fish Lake Valley, Nevada.
2. Ken Elgan conducted a roll call. The following persons were present: Val Trucksa, Nancy Knighten, Ken Elgan, Doug Kyle, Ralph Keyes, and Bob Moss from Fish Lake Valley, Scott Reed and Art Merrill from Silver Peak, Carl Brownfield and Patricia Brownfield, Mike Anderson and Dee Dee Sligar from Goldfield and Stephanie Hicks, Karen Johnson, Traci Pearl, and Bunny Souza With the State of Nevada to work on the Hazard Mitigation Plan. Public Guests Bob Moss Rod Palmer and Beth Ennis were attending. A Quorum was present.

II. Public Comment:

1. PUBLIC COMMENT - (discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint. **There were no Public Comments.**

III. Approval of minutes from last meeting:

2. There was no discussion on the Nov. 12, 2015 minutes, Nancy Knighten moved and Val Trucksa seconded to approve. Carried.

IV. Agenda Items:

1. ***DISCUSSION/DECISION: REVIEW AND UPDATE HAZARD MITIGATION PLAN:** Stephanie Hicks began the review. Sections 1-5 were completed last month and Section 6 review started. Stephanie clarified a note for the vulnerability assessment regarding information received from Mike Anderson on cost assessments. It was verified that there are still 3 schools in Esmeralda County and 2 airports, 1 in Fish Lake Valley and 1 at Dyer Junction. Karen Johnson verified that Sec. 6 is a tool to help with Section 8. Section 7 was noted as completed and Master Plan is updated. FEMA looks at differences between the last plan and this plan we are working on. Section 8 was reviewed, discussed and prioritized. Ken Elgan asked about building catch basins for incremental weather. Stephanie Hicks talked about Match Grants and Karen Johnson clarified that FEMA funds and controls grants that protect structures and NDOT funds and controls grants for culverts and highway work. During it was determined that the County backing up their records in Carson city is a Mitigation plan item that should be added and is High priority. Beth Ennis mentioned that Section 9 discussed previously had a small Whooping Cough outbreak in 2009 not 2012 as we had. the correction will be made for our next meeting.

We should receive the final draft the beginning of Jan. so we can review it at our next meeting. The process will be: 1) We receive the draft in January 2016. 2)LEPC and the County Commissioners will review. We will post notice at all standard locations and a 2 week press release (early January) stating the location of the draft copy in the local libraries for public

9. *ADJOURN - Scott Reed moved to adjourn and Nancy Knighten 2nd and the meeting adjourned at 9:20pm

NOTE: *DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

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Minutes submitted by: Patricia Brownfield 1-21-2016

Below is the STAPLE+E evaluation criteria developed by FEMA. Each of the potential actions will be scored by using rankings of 1 for the lowest and 5 for the highest priority, acceptance, feasibility, etc.

Please insert your numeric ranking in the separate STAPLE+E form and calculate the priority totals.

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

STAPLE + E Evaluation Table																								
	S		T			A			P			L			E				E					PT
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)					
Considerations ➡ Mitigation Actions ⬇	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 Total
1.A Esmeralda County Hazard Mitigation Plan Steering Committee will remain active																								High
1.B The Steering Committee will seek regional mitigation projects																								High
1.C Enhance the County’s GIS capabilities to include updated																								

STAPLE + E Evaluation Table																								
	S		T			A			P			L			E			E					PT	
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)			(Environmental)						
Considerations ➔ Mitigation Actions ➔	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 Total
hazard and asset figures																								
2.A Work with school district to develop a program that teaches children about the hazards																								
2.B Establish community program to educate residents and visitors about mitigation																								
2.C Develop outreach program that will teach adults how to																								

STAPLE + E Evaluation Table																								
	S		T			A			P			L			E			E					PT	
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)			(Environmental)						
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anchor parapets																								
2.D Update the existing local community wildfire protection plan.																								
3.A. Develop closer working relationship with																								
3.B. Through public education, encourage all residents and visitors																								
4.A Encourage County																								

STAPLE + E Evaluation Table																								
	S		T			A			P			L			E			E					PT	
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)			(Environmental)						
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Commissioner to adopt and fund the International Building Code (IBC) provisions																								
4.B Verify public and private unreinforced masonry buildings in the county.																								
4.C Retrofit any critical assets within strong shaking areas																								
4.D Work with all industry to																								

STAPLE + E Evaluation Table																								
	S		T			A			P			L			E				E					PT
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)					
Considerations ➡ Mitigation Actions ⬇	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 Total
evaluate the seismic risk to their vulnerable components																								
4.E Develop a county-sponsored website for homes, businesses, schools																								
5.A Complete hydrology analysis to determine the location, impact, and characteristics of flash flooding																								
5.B Prioritize																								

STAPLE + E Evaluation Table																								
	S		T			A			P			L			E				E					PT
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)					
Considerations ➡ Mitigation Actions ⬇	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 Total
and implement flood management projects that would reduce the impact of flash flooding																								
6.A Notify businesses that use, store, or transport hazardous materials to develop																								
6.B Develop Shelter-In-Place program to educate all residents and businesses																								

**AGENDA OF PUBLIC MEETING
ESMERALDA COUNTY
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)**

DATE & TIME:
Thursday, January 21, 2016 at 7pm

LOCATION:
Via video or teleconference between Goldfield Elementary School, 233 Ramsey St, Goldfield, Nevada; Dyer Elementary School, Mile Marker 11, State Route 264 Dyer, Nevada; Silver Peak Elementary School, 500 Galena St Silver Peak, NV 89047 Silver Peak, Nevada

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- I. CALL TO ORDER & ROLL CALL—Ken Elgan
- II. PUBLIC COMMENT-- (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
- III. *APPROVAL OF MINUTES OF LAST MEETING (Discussion For Possible Action)
- IV. AGENDA ITEMS:
 1. *DISCUSSION/DECISION: REVIEW HAZARD MITIGATION PLAN DRAFT FOR FINAL APPROVAL.
 2. *DISCUSSION/DECISION: *OLD BUSINESS - (Discussion/For Possible Action).
 3. *DISCUSSION/DECISION: *REVIEW AND UPDATE BYLAWS.
 4. *DISCUSSION/DECISION: *REVIEW AND UPDATE HAZMAT PLAN INCLUDING TRAINING & EXERCISE SHCHEDULE AND NRT-1.
 5. *DISCUSSION/DECISION: *SEPARATE AND APPROVE EMERGENCY CONTACTS/MEMBERSHIP LIST.
 6. *DISCUSSION/DECISION: *TRAINING UPDATE - (discussion For Possible Action).
 7. *DISCUSSION/DECISION: *GRANT UPDATE - (Discussion For Possible Action).
 8. *DISCUSSION/DECISION: *APPROVE/ALLOCATE 50% OF \$4,000.00 GRANT FOR SECRETARIAL STAFF.
 9. PUBLIC COMMENT - (Discussion Only) - No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.
 10. *SET TENTATIVE DATE AND TIME FOR NEXT MEETING -- (Discussion/For Possible Action)
 11. *ADJOURN (Discussion/For Possible Action)

NOTE: * DENOTES DISCUSSION, DECISION AND POSSIBLE ACTION

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Appendix D
Public Outreach

FOR IMMEDIATE RELEASE

**Esmeralda County, Nevada Local Hazard Mitigation Plan
Esmeralda County, NV - December 17, 2015**

In recent years, nature has been restless in Nevada -there has been a swarm of earthquakes rattling the western portion of the state, recent flash flooding due to summer thunderstorms, and every year there are major wild land fires throughout the state. All of these emergency events demonstrate that Esmeralda County can be vulnerable to disasters. The risks from such hazards will continue to increase as the county's population continues to grow.

Esmeralda County has launched a planning effort to update their 2010 *Esmeralda County, Nevada Local Hazard Mitigation Plan*. This plan will assess and prioritize the risks posed by natural and manmade hazards and identify ways to reduce those risks. This plan is required by the Federal Disaster Mitigation Act of 2000 and is a prerequisite to acquiring federal funding for mitigation or recovery from disasters. Esmeralda County plans on submitting a draft plan to local governing board in January 2016 for their approval. The final plan will then be sent to FEMA for final approval.

Public comments and participation are welcomed and encouraged. For additional information, to volunteer, or to make comments, please contact Ken Elgan, Esmeralda County Emergency Management and Homeland Security at (775) 485-6393, email ecso@frontiernet.net or Patricia Brownfield at (775) 485-9923 or pcbrownfield@gmail.com.



The Esmeralda County LEPC (Local Emergency Planning Committee) needs Your Input

Esmeralda County is seeking public comment on a draft Local Hazard Mitigation Plan (LHMP) to evaluate the risks different types of hazards pose to the County, and to engage the County and the community in dialogue to identify the steps that are most important in reducing these risks. Public input on the plan is being accepted from January 19 through February 2, 2016. Copies of the LHMP can be viewed online beginning January 19, 2016 at: www.accessesmeralda.com and logging on to the Plans & Policies page, or at www.kgfn.org (Radio Goldfield) and logging on the Events page. Both sites are for review ONLY. Any comments you may have can be emailed to: pcbrownfield@gmail.com. Copies of the plan will be available for viewing at the Goldfield, Fish Lake Valley, and Silver Peak Libraries. A public hearing before the Esmeralda County Board of Commissioners for review of the plan is scheduled for the March 2016 Board of Commissioners meeting.

Public comments and participation are welcomed and encouraged. For additional information or to make comments, please contact Patricia Brownfield at (702)493-6185, email pcbrownfield@gmail.com or Ken Elgan, Esmeralda County Emergency Management at (775)485-6393, email ecso@frontiernet.net.

Proof of Publication

STATE OF NEVADA)
COUNTY OF NYE) SS:

**ESMERALDA CO SHERIFF'S OFFICE
PO BOX 520
GOLDFIELD NV 89013-0520**

**Account # 25445
Ad Number 0000711159**

Charlotte Uyeno, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Tonopah Times-Bonanza & Goldfield News, a weekly newspaper regularly issued, published and circulated in the Town of Tonopah, County of Nye, State of Nevada, and that the advertisement, a true copy attached for, was continuously published in said Tonopah Times-Bonanza & Goldfield News in 2 edition(s) of said newspaper issued from 01/21/2016 to 01/28/2016, on the following days:

01 / 21 / 16
01 / 28 / 16

Public Comment LHMP

Esmeralda County, Nevada Local Hazard Mitigation Plan

Esmeralda County, NV - DATE

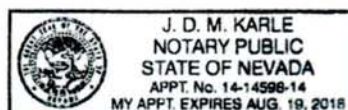
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Charlotte Uyeno
/s/ _____
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 28th day of January, 2016

Notary *J. D. M. Karle*



Appendix E
Plan Maintenance Documents

Sample Press Release for
Annual Maintenance Meeting

Esmeralda County, Nevada is meeting to review and maintain its Local Hazard Mitigation Plan to assess risks posed by natural and human caused 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 _____,
Esmeralda 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 been 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

Page 1 of 3

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 _____

*explain _____

Project Cost Status

☐ Cost unchanged

☐ Cost overrun*

☐ Cost underrun*

☐ _____ Project _____ Cancelled

*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?

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Next Steps: What are the next step(s) to be accomplished over the next reporting period?

Other Comments:

Appendix F
2010 Mitigation Action Status

Esmeralda Annual Review Questionnaire 2015				
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		Volunteer EMS and fire department.
	Are there procedures (e.g., meeting announcement, plan updates) that can be done more efficiently?	X		LEPC meetings have been infrequent and annual reviews since the 2010 HMP were not completed. However, meetings are being initiated again and the LEPC hopes to meet more regularly.
	Has the Steering committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?	X		Shot clinics are made available to the public and Public Service Announcements are broadcast regarding wildfire.
HAZARD PROFILES	Has a natural and/or human-caused disaster occurred in this reporting period?	X		Flash flooding.
	Are there natural and/or human-caused hazards that have not been addressed in this HMP and should be?		X	No new hazards.
	Are additional maps or new hazards studies available? If so, what have they revealed?		X	No new maps or studies have been completed since update.
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?		X	No new critical facilities or infrastructure constructed since the last update.
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?		X	None.
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		X	Esmeralda County does not have a HazMat response team anymore so the use a consultant, H2O, for hazmat clean up or Nye County.
	Are the goals still applicable?	X		Yes.
	Should new mitigation actions be added to a community's Mitigation Action Plan?		X	No new mitigation actions were identified.
	Do existing mitigation actions listed in a community's Mitigation Action Plan need to be reprioritized?		X	No.
	Are the mitigation actions listed in a community's Mitigation Action Plan appropriate for available resources?	X		Yes.

Goal Number	Goal Description
1	Promote increased and ongoing county involvement in hazard mitigation planning and projects.
2	Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire.
3	Reduce the possibility of damage and losses due to drought.
4	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.
5	Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.
6	Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.

Goal	Action Number	Action	Status
Goal 1: Promote increased and ongoing county involvement in hazard mitigation planning and projects.	1.A	Esmeralda County Hazard Mitigation Plan Steering Committee will remain active through the LEPC and will conduct and complete an annual review of the LHMP.	No annual reviews were completed. The LEPC is trying to meet on a more regular basis.
	1.B	The Steering Committee will seek regional mitigation projects with adjacent Nye County, NV and Mineral County, NV.	MOU's in place with Inyo and Mono; however, no specific regional mitigation projects have been completed.
	1.C	Enhance the County's GIS capabilities to include updated hazard and asset figures as it becomes available. Also, develop GIS data-sharing agreements with appropriate state agencies and state/regional governmental agencies to allow for the sharing/utilizing of existing and new GIS hazard and asset information.	The Road Department supervisor has been working on but status is unknown. Still valid action.

Goal	Action Number	Action	Status
Goal 2: Build and support local capacity to enable the public to prepare for and possibly mitigate the effects from area disasters, including severe winter storm, wind, and wildfire	2.A	Work with school district to develop a program that teaches children about the hazards in their community and what they can do to mitigate, prevent, and prepare for these hazard events.	The Sheriff's Office is very active with the elementary school in different type of hazards. Fire Department and EMS also interact with them in each. Schools do not participate in Great Nevada Shakeout but LEPC would like to in the future.
	2.B	Establish community program to educate residents and visitors about mitigation measures they can take during drought conditions, winter months and severe winter storm events. In addition, community programs will also educate about mitigating spontaneous events to minimize potentially life-threatening conditions such as an earthquake, flash flood, or hazardous materials events. This program will provide the platform for standardized and consistent county hazard mitigation content.	Same as above.
	2.C	Develop outreach program that will teach adults how to anchor parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if items were to fall or break during an earthquake or wind event.	No progress but still valid.
	2.D	Update the existing local community wildfire protection plan.	No updates have been completed in the last 5 years, but still valid.
Goal 3: Reduce the possibility of damage and losses due to drought.	3.A	Develop closer working relationship with the State of Nevada Department of Conservation and Natural Resources, Division of Water Resources to understand the actions that can be implemented at the County level in advance of drought to reduce long-term exposure.	No progress but still valid.

Goal	Action Number	Action	Status
	3.B	Through public education, encourage all residents and visitors to follow water conservation measures when drought conditions exist.	No progress, but agricultural uses are great stewards of the land. Still valid.
Goal 4: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to earthquake.	4.A	Encourage County Commissioner to adopt and fund the International Building Code (IBC) provisions pertaining to grading and construction relative to seismic hazards for critical facilities and infrastructure and new industry.	Esmeralda only has building code requirements for commercial buildings or public facilities. These must be approved by the State Fire Marshall. There are no building code requirements for residential. There are very few multi-story buildings within the County.
	4.B	Identify public and private unreinforced masonry buildings in the county.	URM buildings were identified by UNR. However, verification or ground trothing has not been completed.
	4.C	Retrofit any critical assets within strong shaking areas that do not meet the IBC requirements for seismic safety. Priority for retrofiting should be given to emergency response facilities, schools, and shelters.	Re-grouting of County Court house but no structural repairs or reinforcement. Old hotel and old high school are in private ownership.
	4.D	Work with all industry to evaluate the seismic risk to their vulnerable components such as storage tanks, transmission lines, etc and recommend appropriate mitigation measures, such as automatic shut-off valves.	All county facilities are above ground. Two underground facilities are being utilized. There is a third which is not be utilized and they do all have automatic shutoffs. This is still a valid action.
	4.E	Develop a county-sponsored website for homes, businesses, schools, and critical facilities and infrastructure owner/operators to follow a checklist to identify weak or poorly anchored parapets, signs, glass, machinery, shelving, fixtures, and other nonstructural elements or architectural detailing that might cause injury if it were to fall or break during an earthquake. Develop a list of actions and local resources to possibly correct identified problems.	No progress on this action but still valid. The County's biggest fear in an earthquake would be the 250 to 300 gallon propane tanks but they have automatic shut offs.

Goal	Action Number	Action	Status
Goal 5: Reduce the possibility of damage and losses on new and existing buildings and infrastructure due to flood.	5.A	Complete hydrology analysis to determine the location, impact, and characteristics of flash flooding in the central belt of the County to include the communities of Goldfield, Silver Peak, Dyer, Gold Point, and the Fish Lake Valley. The analysis will include mitigation recommendations for each community.	Has not been completed. Recent flash flooding on Hwy 264. NDOT is doing work, but could use some detention and retention basins.
	5.B	Prioritize and implement flood management projects that would reduce the impact of flash flooding (e.g., stabilizing stream banks, replacing existing culverts and bridges, creating debris or flood/storm water retention basins in small watersheds.)	No progress but still valid.
Goal 6: Reduce the possibility of damage and losses due to hazardous materials exposure along transportation corridors.	6.A	Notify businesses that use, store, or transport hazardous materials to develop and implement measures to protect public health and safety and that these measures are submitted to the Local Emergency Planning Committee (LEPC) for annual review.	This is ongoing and still valid.
	6.B	Develop Shelter-In-Place program to educate all residents and businesses within the identified ¼, ½, and 1-mile transportation corridors of actions to take when advised to “Shelter-In-Place”.	Three main transportation corridors in Esmeralda County are Highway 95, 264, and 265. A hazmat incident on the highway in town of Silver Peak this could be a problem since the highway goes right through the middle of town. Fish Lake Valley has residences close to Highway 264, as well as a market and post office. This would be the same through Goldfield.