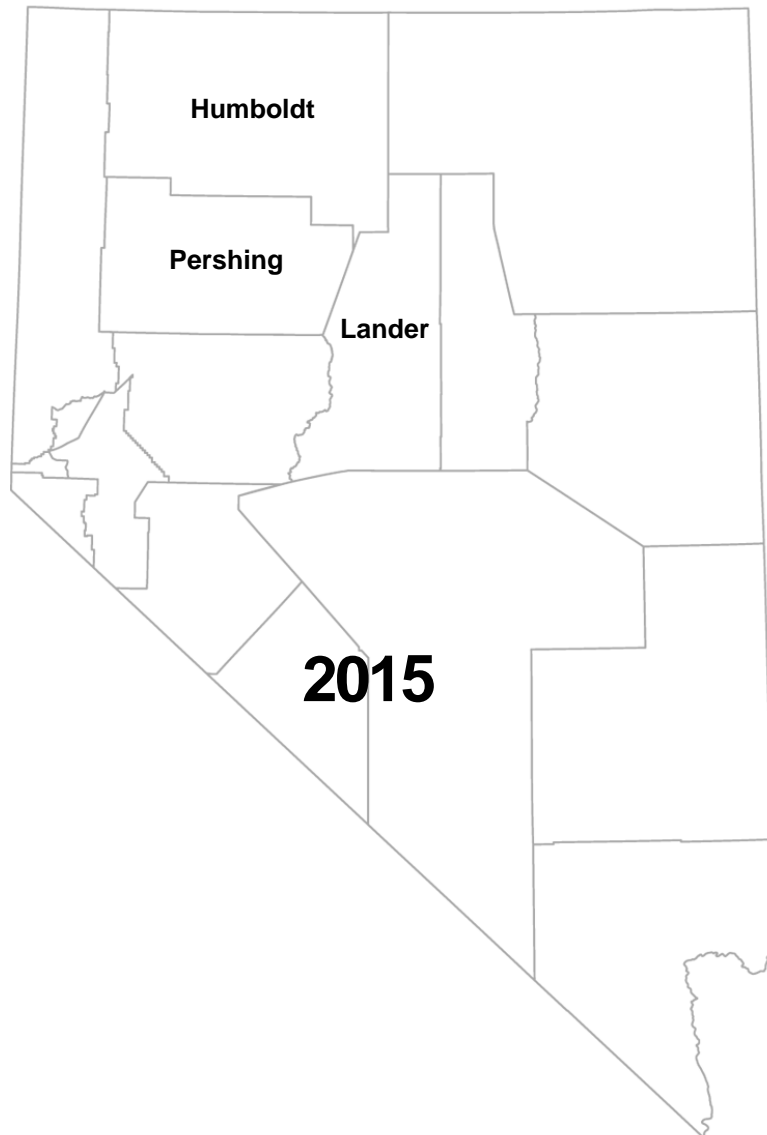


REGIONAL TRI-COUNTY

Hazard Mitigation Plan



Humboldt County
50 West 5th Street
Winnemucca, Nevada 89445

Lander County
315 South Humboldt Street
Battle Mountain, Nevada 89820

Pershing County
400 Main Street
Lovelock, Nevada 89419

Engineer:

FARR WEST

ENGINEERING
5442 Longley Lane Suite. A
Reno, Nevada 89511

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LIST OF ACRONYMS

BLM	U.S. Bureau of Land Management
CDC	Center for Disease Control
cfs	cubic feet per second
CFR	Code of Federal Regulations
DMA 2000	Disaster Mitigation Act of 2000
DOJ	Department of Justice
EMPG	Emergency Management Planning Grant
EOC	Emergency Operation Center
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
HAZUS-MH	HAZards United States
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
M	Magnitude
mph	miles per hour
NDEM	Nevada Division of Emergency Management
NDEP	Nevada Division of Environmental Protection
NDF	Nevada Division of Forestry
NDOT	Nevada Department of Transportation
NFIP	National Flood Insurance Program
NBMG	Nevada Bureau of Mines & Geology
NOAA	National Oceanic Atmospheric Administration
NWS	National Weather Service
PDM	Pre-Disaster Mitigation
SERC	State Emergency Response Commission
UBC	Uniform Building Code
UNR	University of Nevada Reno
URM	Unreinforced Masonry Buildings
USDA	U.S. Department of Agriculture
USFS	U.S. Fire Service
USGS	U.S. Geological Survey

1.0 OFFICIAL RECORD OF ADOPTION

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

Disaster Mitigation Act of 2000

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

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

Adoption by the Local Governing Body and Supporting Document

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

DMA 2000 REQUIREMENTS: PREREQUISITES

Adoption by the Local Governing Body

Requirement §201.6(c)(5): [The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).

Element

Has the local governing body adopted the plan?

Is supporting documentation, such as a resolution, included?

Source: FEMA, March 2008.

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

The local governing body of Churchill County (Churchill County Board of Commissioners) and City of Fallon (City of Fallon City Council) has adopted this HMP. The signed resolution is provided in Appendix A.

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2.0 BACKGROUND

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

2.1 PLAN PURPOSE AND AUTHORITY

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

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

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

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

For FEMA's Pre-Disaster Mitigation (PDM) grant program and Hazard Mitigation Grant Program (HMGP), a local jurisdiction must have an approved HMP to be eligible for PDM and HMGP funding for a presidentially declared disaster after November 1, 2004. Plans approved, any time after November 1, 2004, will allow communities to be eligible to receive PDM and HMGP project grants.

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

2.2 STAFFORD ACT GRANT PROGRAMS

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

2.2.1 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).

2.2.2 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).

2.2.3 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.

2.2.4 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.

2.2.5 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 HMP consists of the following sections.

Section 3 - Community Description

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

Section 4 - Planning Process

Section 4 describes the planning process, identifies Planning Committee members, and the key stakeholders within the 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 Planning Committee identified and compiled relevant data on all potential natural hazards that threaten the Counties and primary Cities and the immediately surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the Counties and Cities and how these events impacted residents and their property.

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

Section 6 – Vulnerability Analysis

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

Section 7 - Capability Assessment

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

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

Section 8- Goals, Objectives & Actions - Mitigation Strategy

As Section 8 describes, the Planning 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, the Planning 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 Planning Committee's formal plan maintenance process to ensure that the HMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the HMP; implementation through existing planning mechanisms; and continued public involvement.

Section 10 – References

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

Appendices

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

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3.0 COMMUNITY DESCRIPTION

3.1 HUMBOLDT COUNTY

3.1.1 History, Location, and Geography

Humboldt County is located in Northwestern Nevada approximately 2 hours northeast of Reno. Humboldt County is one of Nevada's original nine counties. Created in 1861 with Unionville as the first county seat, it is in northwestern Nevada in high desert country. Winnemucca, named for Chief Winnemucca of the Paiute, is the current county seat and is the only incorporated city in Humboldt County. Northern Paiute and Shoshones were the predominant tribes in Humboldt County at the time of settlement.

The county is named after the Humboldt River, which explorer John Fremont named after the German naturalist Baron Friedrich Heinrich Alexander von Humboldt. The Humboldt River runs through southeastern Humboldt County.

Humboldt County has a great variety of valley and mountain lands, suitable for agriculture, grazing, stock raising and mining. Some of the mountain peaks have an elevation of 10,000 feet above the sea level and 5,000 feet above the surrounding plains. The Humboldt River and its tributaries form the principal water supply for the irrigation of lands, though small mountain streams furnish the supply for some quite extensive individual ranches in the various parallel valleys.

Gold was discovered in 1907 in the National district, but ores were soon depleted. Other significant gold findings were found in these districts: Awakening, Dutch Flat, Gold Run, Paradise Valley, Potosi, Warm Springs and Winnemucca.

According to the U.S. Census Bureau, the county has a total area of 9,658 square miles, of which, 9,648 square miles is land and 10 square miles is water.

3.1.2 Government

The County government consists of an elected, five member board. The board members (Commissioners) represent districts within the county and are elected for terms of four years.

The Commissioners appoint a County Administrator who supervises County affairs. Key County officials and County departments are listed in Tables 3.1 and 3.2.

Table 3.1- Humboldt County Key Officials

Commissioner District 1	County Administrator	District Attorney
Commissioner District 2	Assessor	Judge
Commissioner District 3	Building Official	Planning Official
Commissioner District 4	Clerk	Public Administrator
Commissioner District 5	Comptroller	Recorder

Table 3.2- Humboldt County Departments

Assessor	Justice Court
Building	Planning and Zoning
Child Support	Public Administrator
Commissioners	Recorder's Office
Comptroller	Sheriff's Office
County Clerk	Treasurer
District Attorney	Winnemucca Events Complex

Winnemucca is the Humboldt County Seat and is the only incorporated city in the County. The City government is organized as follows:

Mayor

The Mayor is the official head of the City and is elected for a four (4) year term. The Mayor presides at all meetings of the Council and votes only in the case of a tie in ordinances, resolutions and other Council actions. The Mayor has veto power over the Council's votes but can be overridden by a 4/5 Council vote.

City Council

The City Council is the governing body of the City of Winnemucca. There are five (5) Council Seats of which all officers serve four (4) year staggered terms. Candidates run for office and are elected by the electors of the City at large. Three (3) members of the Council constitute a quorum and may conduct City business. Ordinances and Resolutions require three (3) affirmative votes to pass.

City Manager

The City Manager is the administrative head of the City government. The City Manager is appointed by the City Council for an indefinite term to supervise the administrative affairs of the City and to carry out policies set by the Council. The City Manager can also serve as the City Engineer.

City Attorney

The City Attorney provides all the non-criminal legal services for the City. The City Attorney advises the Council, City Manager, department heads, and offices of the City on matters and procedures of the City that must be in conformity with the law. The City Attorney formulates Ordinances and Resolutions according to state and local laws. The District Attorney's office, acting as the City Prosecutor, provides City criminal services.

City Clerk / Treasurer

The City Clerk / Treasurer is appointed by the Mayor with confirmation by the City Council, and is responsible for maintaining all of the Council records and proceedings, and all records of the various departments.

Table 3.3 – City of Winnemucca Key Officials

Mayor	City Clerk / Treasurer
Councilman Seat 1	City Attorney
Councilman Seat 2	Recreation Director
Councilman Seat 3	Fire Chief
Councilman Seat 4	Building Inspector
Councilman Seat 5	Police Chief
City Manager	Public Works Director

Table 3.4- City of Winnemucca Departments

Administrative	Golf Course
Building Inspector	Public Works
Cemetery	Recreation
City Clerk / Treasurer	Sewer/Water Utilities
City Parks	Volunteer Fire

The Winnemucca Indian Colony is home to the Western Band of the Western Shoshone. The governing body for the Colony is known as the Winnemucca Colony Council and is composed of five (5) members including a Chairman and a Vice Chairman selected by the council from within its own members. Council members serve a term of two (2) years or until their successors are duly elected and seated. A secretary/treasurer may be selected by the Council from within or without its own membership.

The Summit Lake Paiute Reservation is also governed by a five (5) member Council. The Council includes a Chairman, Vice Chairperson, and a Secretary/Treasurer. Due to the Reservation's remote location and primitive conditions, the Tribe's primary administrative office is located in Sparks, Nevada.

The governing body of the Fort McDermitt Paiute and Shoshone Tribe consists of a council known as the Fort McDermitt Tribal Council. The Tribal Council includes eight elected councilmen. A Chairman and Vice Chairman are selected from within the Council and a secretary and treasurer are selected from within or without the council. Council members serve four (4) year terms.

3.1.3 Demographics

According to the 2010 U.S. Census, the population of Humboldt County is 16,528. Between 2000 and 2010 the population grew 2.6%, or an average of .26 % per year. In 2010 Winnemucca, the County seat, had the largest population at 7,396, approximately 45% of the County's total population. The average household size in Humboldt County is 2.59 persons and the median household income is \$55,656. According to the American Community Survey, there are 7,109 total housing units in Humboldt County of which 4,407 are owner-occupied. The median value of owner-occupied homes is \$138,100.

The population overview for Humboldt County from 2000 to 2010 is shown in Figures 3.1 through 3.2. Employment characteristics are shown in Figure 3.3.

Figure 3.1 – Humboldt County Census Population by Gender (Source: U.S. Census)

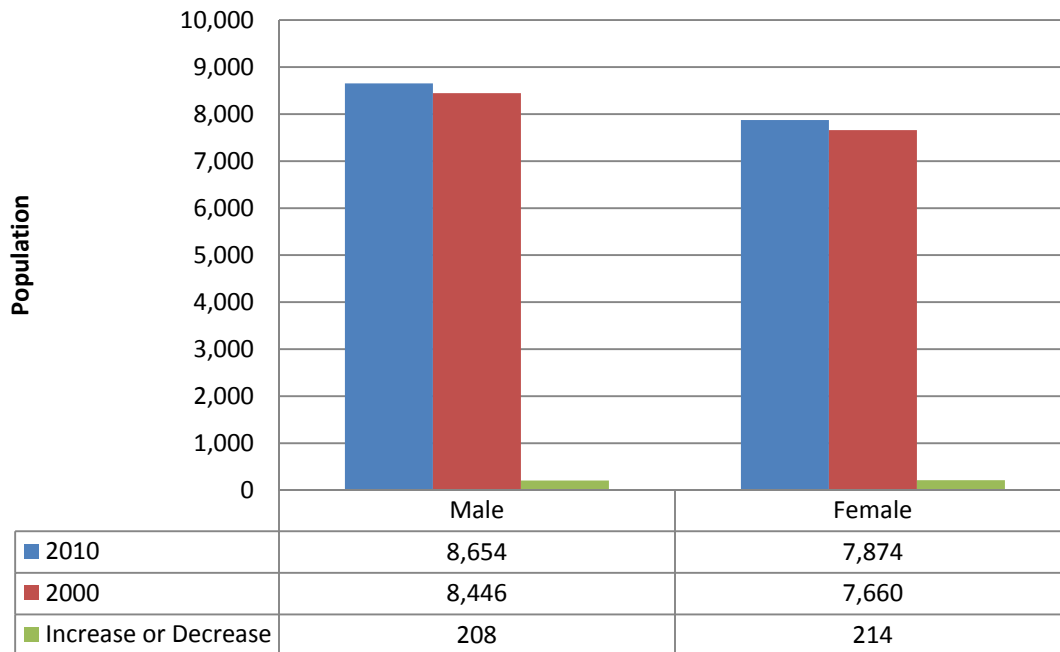


Figure 3.2 – Humboldt County U.S. Census Population by Age (Source: U.S. Census)

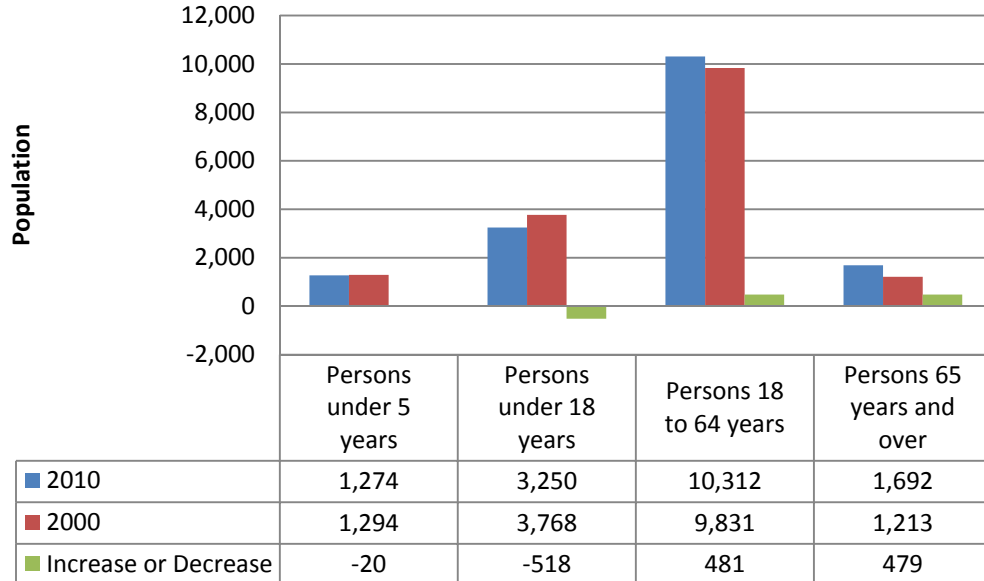
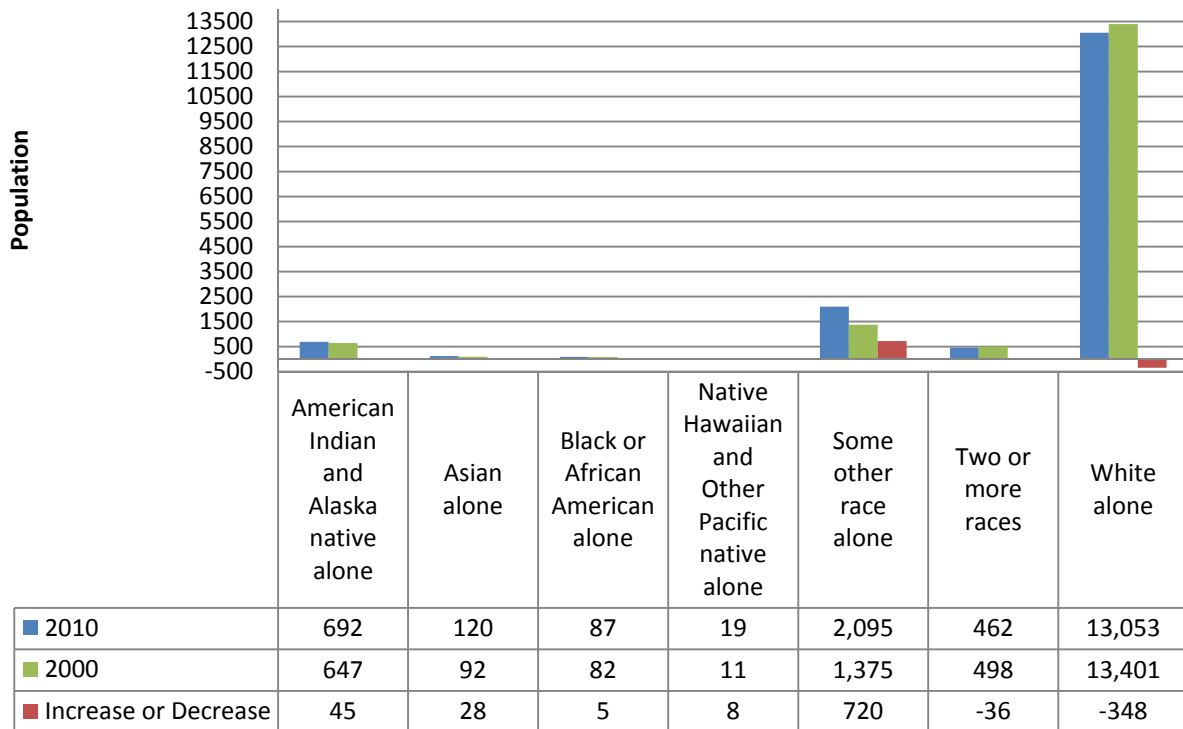
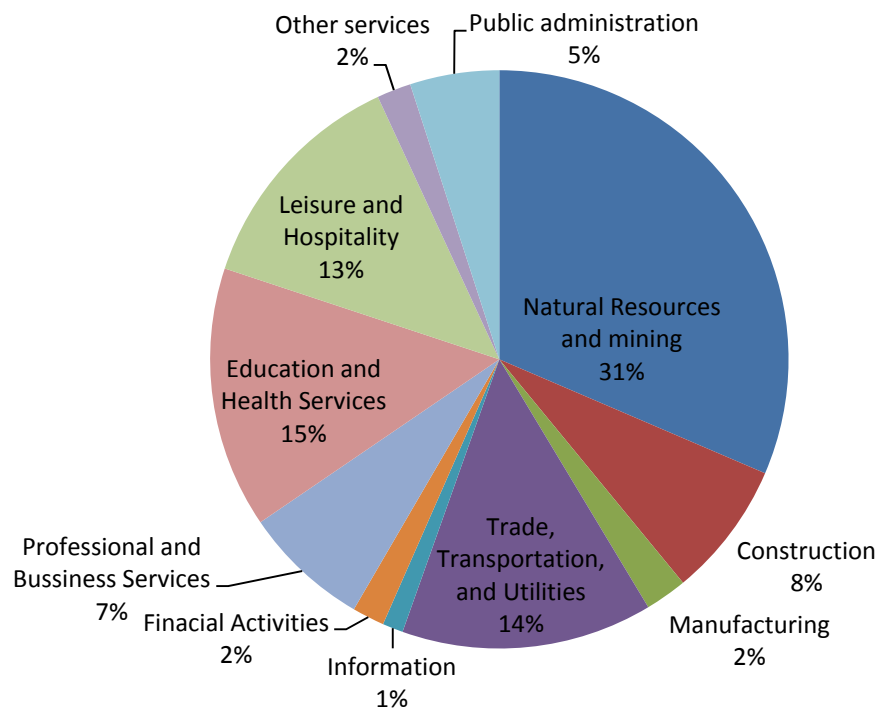


Figure 3.2 – Humboldt County U.S. Census Population by Race (Source: U.S. Census)**Figure 3.3 – Humboldt County Employment Distribution**

(Source: 2006-2010 American Community Survey)

City of Winnemucca

Winnemucca is located on Interstate 80 (I-80) approximately 170 miles northeast of Reno, Nevada. In addition to I-80, the Humboldt River and the Union Pacific Railroad pass through the City, which has a total area of 8.3 sq. miles.

According to the 2010 U.S. Census Winnemucca has a total population of 7,396. This represents an increase of 222 over the 2000 Census. The average number of persons per household is 2.72 and the median household income is \$62, 614.

According to the American Community Survey, housing units total 3,046 of which 1,790 are owner-occupied. The median value of owner-occupied units is \$163,300.

3.1.4 Land Use and Development Trends

“The dominant land use in the combined urbanized area of Winnemucca, Grass Valley, Rose Creek, Jungo Road and Outer County is range land. Over the past 30 years, the urban pattern has become less compact while population density has declined. The less compact urban pattern of the built environment, most significantly in the Grass Valley area, has increased the cost of providing urban services and decreased the feasibility of extending water, sewer and roads to serve this area” (Humboldt County Master Plan).

The most significant development in Humboldt County over the last 10 years has been mining related. Population growth has been relatively stagnant, limiting residential and commercial growth. For this reason construction related development in the county will continue to be limited in the near future.

3.2 LANDER COUNTY

3.2.1 History, Location, and Geography

The following history by Gina Little is found on the Lander County website:

“Lander County was formed on December 19, 1862 and was named after General Frederick W. Lander, Civil War hero and prominent builder of a wagon road across Nevada. Situated in the center of the state, the Lander County region attracted prospectors fanning out across the Great Basin after the 1859 discovery of the Comstock Lode. The County originally encompassed the eastern third of the State and was called “The Mother of Counties.” It was later divided into the Counties of Lander, Eureka, White Pine, and Elko. The first County seat was located in Jacobsville, six miles west of Austin. In September, 1863, voters mandated its move to Austin and in May, 1979 to Battle Mountain.

Located in north central Nevada, Lander County encompasses 5,621 square miles. Over 85 percent of the County is currently public land managed by federal agencies. Interstate 80 traverses the County in an east-west fashion on the northern end, as does Highway 50 on the southern end. State Highway 305, which runs north and south, bisects the center of Lander County. This highway links the cities of Battle Mountain and Austin. The town of Kingston is located in the southern part of Lander County on Highway 376.

The total population of Lander County in 2002 was estimated to be 5691. The population density is relatively .99 persons per square mile. Approximately 85 percent of Lander County residents live in the northern portion of the County.

In recent years Lander County's economy has been dominated by mining. Agriculture also plays a significant role in the local economy. High quality alfalfa and alfalfa seed is produced. Although the mining industry has declined in Lander County in recent years, it is still the dominant sector of the local economy.

Lander County claims fame to celebrations and events which include Austin Gridley Days, the Human Powered Race, the annual Basque Dinner and Picnic, the Performing Arts Crab Feed, the Community Christmas Celebration, the 4th of July Festival, the Lander County Fair, the Battle Mountain Bluegrass Festival and its newest event, the Chukar Tournament and Feed."

3.2.2 Government

The County government consists of an elected, five member board. The board members (Commissioners) represent districts within the county and are elected for terms of four years.

The Commissioners appoint an Executive Director who supervises County affairs. Key County officials and departments are listed in Tables 3.5 and 3.6.

Table 3.5 - Lander County Key Officials

Commissioner District 1	Executive Director	District Attorney
Commissioner District 2	Public Works Director	Judge
Commissioner District 3	Finance Director	Recorder
Commissioner District 4	Clerk	Treasurer
Commissioner District 5	Public Defender	Sheriff

Table 3.6 - Lander County Departments

Assessor	District Attorney
Building	Justice Court
Finance	Planning and Zoning
Executive Director	Recorder's Office
Public Works	Sheriff's Office
County Clerk	Treasurer

Battle Mountain is the Lander County Seat and is unincorporated.

The Te-Moak Tribe of Western Shoshone Indians of Nevada is a coalition government with headquarters in Elko, Nevada, serving four distinct Shoshone colonies in Nevada: Battle Mountain Colony, Elko Colony, South Fork Colony, and Wells Colony. The Te-Moak Tribal Council has total jurisdiction over all tribal lands, though the colonies retain sovereignty over all the other affairs, and each has its own separate governing Band Council. The Te-Moak Tribe's constitution and by-laws was adopted and approved in 1938 and amended in 1982.

"The Tribal Council known as the Tribal Council of the Te-Moak Tribe of Western Shoshone Indians of Nevada" includes Band Councils, one Band Council for each constituent Band of the Tribe and identified by the name of the Band.

According to the Te-Moak Constitution, Tribal Council consists of eight members serving terms of three years. The members are selected by the membership of the Band Councils. The Tribal Council officers include a Chairperson, Vice-Chairperson, Secretary, and Finance Officer.

Band Councils are made up of seven (7) elected members who serve terms of three years. Band Council leadership includes a Chairperson, Vice-Chairperson, Secretary, and/or Treasurer. Band Councils conduct business affairs related solely to the Band.

The Battle Mountain Reservation is located on the west side of the city limits of the town of Battle Mountain, Nevada. It consists of two separate parcels of land totaling 683.3 acres. The original 677.05-acre reservation was established by Executive Order on June 18, 1917, for Shoshones living near Winnemucca and Battle Mountain. By an Act of Congress on August 21, 1967, an additional 6.25 acres were added to colony lands.

3.2.3 Demographics

According to the 2010 U.S. Census, the population of Lander County is 5,775. Between 2000 and 2010 the population decreased 0.3%, or an average of .03 % per year. In 2010 Battle Mountain, the County seat, had the largest population at 3,635, approximately 63% of the County's total population. The average household size in Lander County is 2.78 persons and the median household income is \$66,525. According to the American Community Survey, there are 2,291 total housing units in Lander County of which 1,402 are owner-occupied. The median value of owner-occupied homes is \$103,400.

The population overview for Lander County from 2000 to 2010 is shown in Figures 3.4 through 3.5. Employment characteristics are shown in Figure 3.6

Figure 3.4 – Lander County Census Population by Gender (Source: U.S. Census)

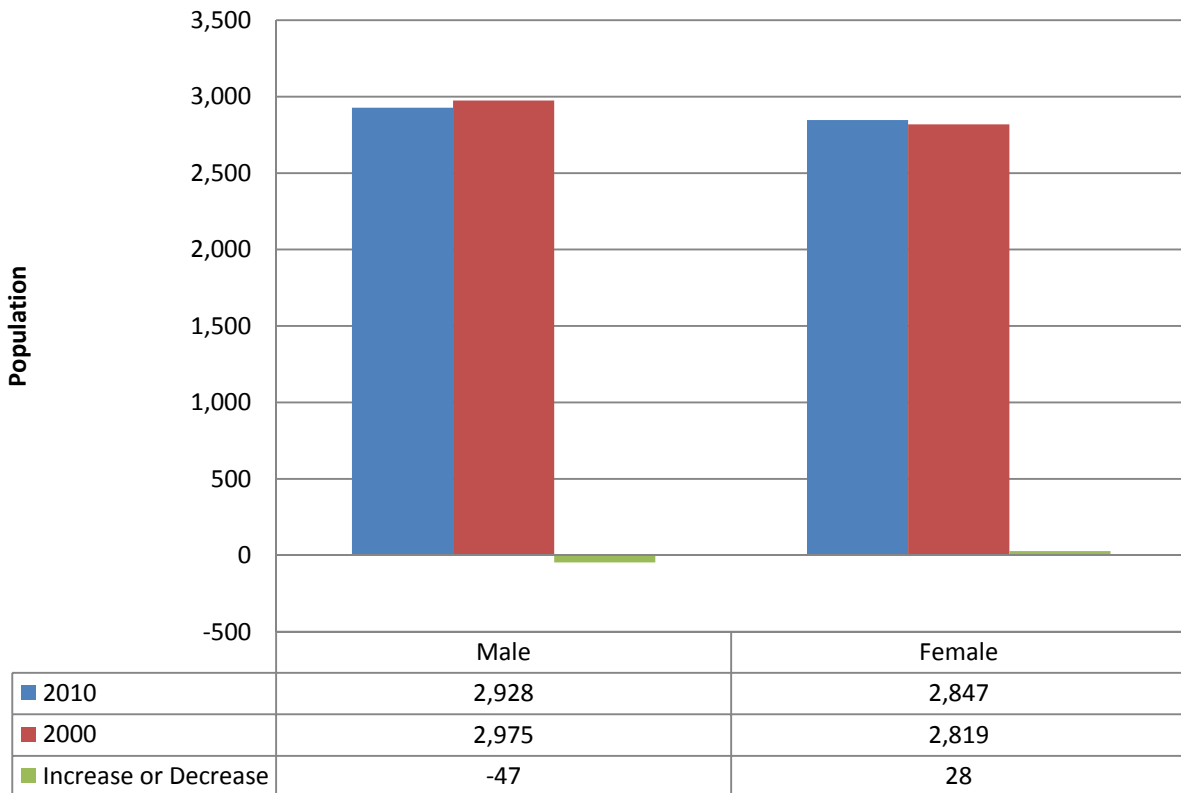


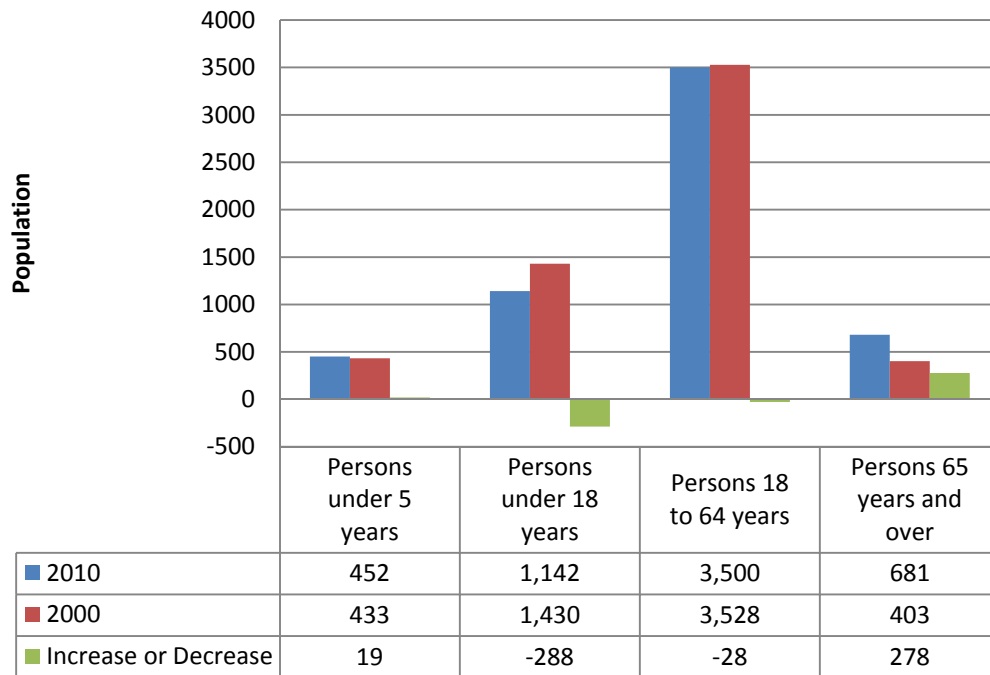
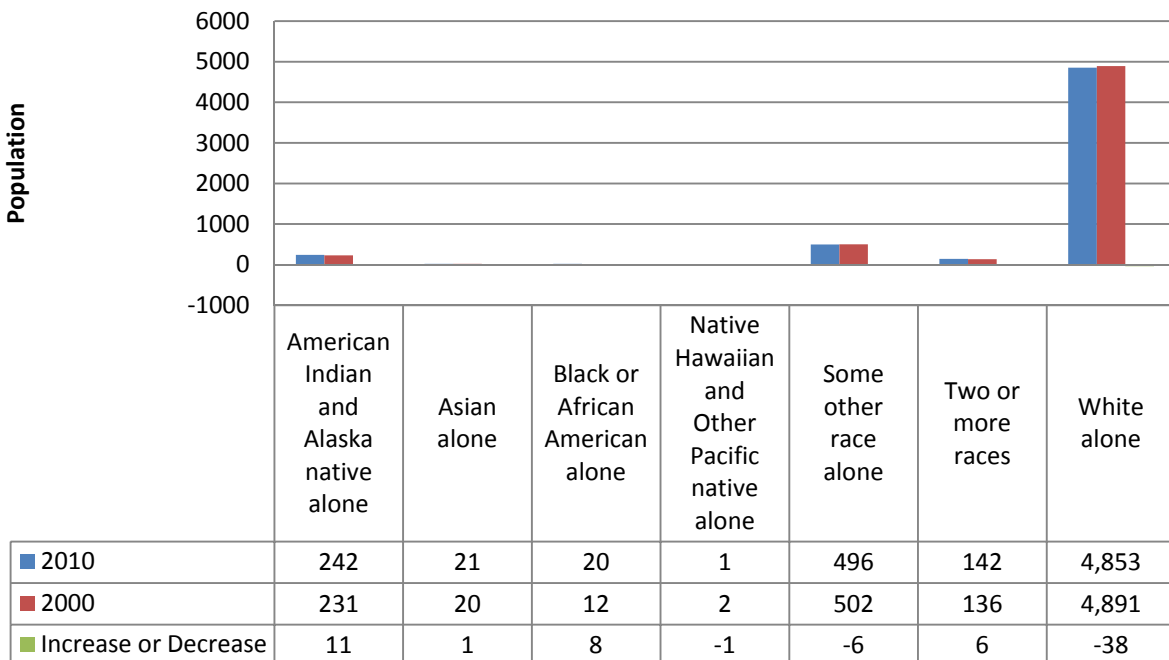
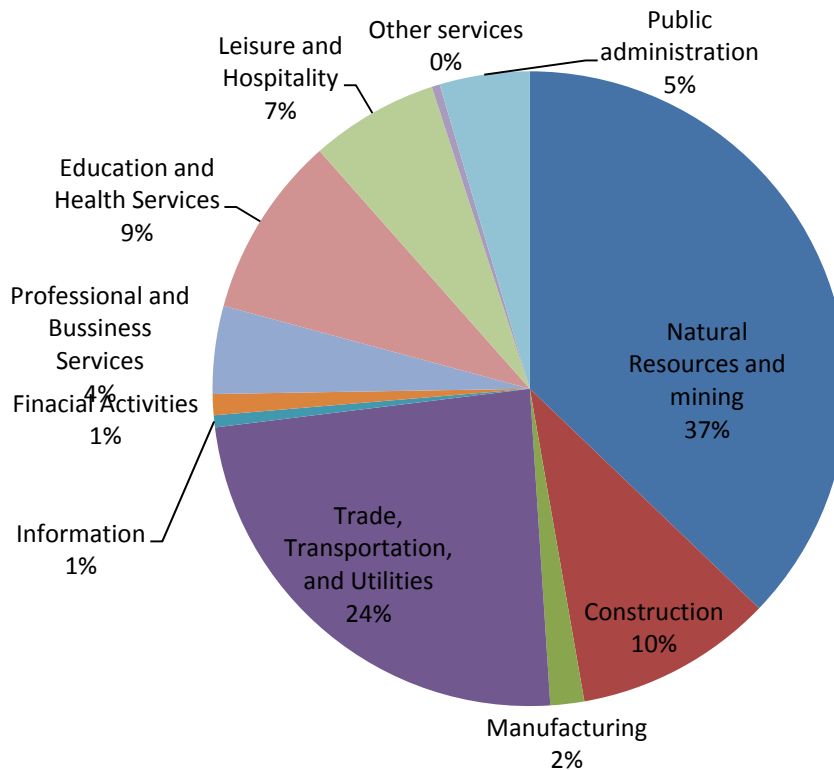
Figure 3.5 – Lander County U.S. Census Population by Age (Source: U.S. Census)**Figure 3.6 – Lander County U.S. Census Population by Race (Source: U.S. Census)**

Figure 3.7 – Lander County Employment Distribution

(Source: 2006-2010 American Community Survey)

Town of Battle Mountain

Battle Mountain is located on Interstate 80 (I-80) approximately 220 miles northeast of Reno, Nevada. In addition to I-80, the Humboldt River and the Union Pacific Railroad pass through the Town, which has a total area of 1.9 sq. miles.

According to the 2010 U.S. Census Battle Mountain has a total population of 3,635. This represents an increase of 764 over the 2000 Census. The average number of persons per household is 2.65.

According to the American Community Survey, housing units total 1,518 of which 894 are owner-occupied.

3.2.4 Land Use and Development Trends

Almost 93 percent of the land in Lander County is public land managed by the Bureau of Land Management. This land is primarily used for livestock grazing, mining, geothermal energy production and outdoor recreation. The single greatest land use within the County is open space agriculture. Active mining operations can be found primarily in the northern portion of the County near Battle Mountain with fewer mineral developments in the southern portion of the County.

Private lands are generally found in and around the communities of Battle Mountain, Austin and Kingston. There is some interest for second home development which has driven growth in the Kingston area. Otherwise private lands are scattered throughout the County and are associated with agricultural operations.

3.3 PERSHING COUNTY

3.3.1 History, Location, and Geography

Pershing County is located in Northwestern Nevada approximately 1.5 hours northeast of Reno. Pershing County was the last County Established in Nevada. Created in 1919 with Lovelock as the County Seat, it was originally part of southern Humboldt County. Lovelock has the largest population in the County and is the only incorporated City in the County. The County was named after army general John J. Pershing (1860–1948).

The Pershing County landscape includes foothills, salt flats, and mountains and the Humboldt River, I-80, and the Union Pacific Railroad run through its center. Rye Patch reservoir is used for irrigation storage and also serves as a recreational resource for fisherman and water sports enthusiasts. Primary industries in the County include agriculture and mining. Agricultural lands in the Lovelock area include approximately 37,000 irrigable acres.

According to the U.S. Census Bureau, the county has a total area of 6,068 square miles, of which, 6,037square miles is land and 31 square miles is water.

3.3.2 Government

The County government consists of an elected, three member board. The board members (Commissioners) are elected for terms of four years and include a Chairman and Vice-Chairman. An Administrative Assistant also provides support for County management.

Key County officials and departments are listed in Tables 3.7 and 3.8.

Table 3.7-Pershing County Key Officials

Commissioner, Chairman	Assessor	District Attorney
Commissioner, Vice-Chairman	Planning & Building Director	Justice of the Peace
Commissioner	District Court Clerk	Recorder
Administrative Assistant	Sheriff	Clerk/Treasurer

Table 3.8 - Pershing County Departments

Assessor	Justice Court
Building and Grounds	Planning and Building
Clerk and Treasurer	Recorder/Auditor
District Attorney	Road Department
District Court and Clerk	Sheriff's Office

The Lovelock Paiute Tribe has a federal reservation in Pershing County. The 20 acre reservation is located in Lovelock and was established in 1907. In 1990, 80 tribal members lived on the reservation. In 1992, 110 people were enrolled in the tribe. The tribe is governed by a five-person tribal council.

3.3.3 Demographics

According to the 2010 U.S. Census, the population of Pershing County is 6,753. Between 2000 and 2010 the population grew 0.9%, or an average of .09 % per year. In 2010 Lovelock, the County Seat, had the largest population at 1,894, approximately 28% of the County's total population. The average household size in Pershing County is 2.38 persons and the median household income is \$56,491.

According to the American Community Survey, there are 2,465 total housing units in Pershing County of which 1,395 are owner-occupied. The median value of owner-occupied homes is \$134,500. The population overview for Pershing County from 2000 to 2010 is shown in Figures 3.8 through 3.10. Employment characteristics are shown in Figure 3.11

Figure 3.8 – Pershing County Census Population by Gender (Source: U.S. Census)

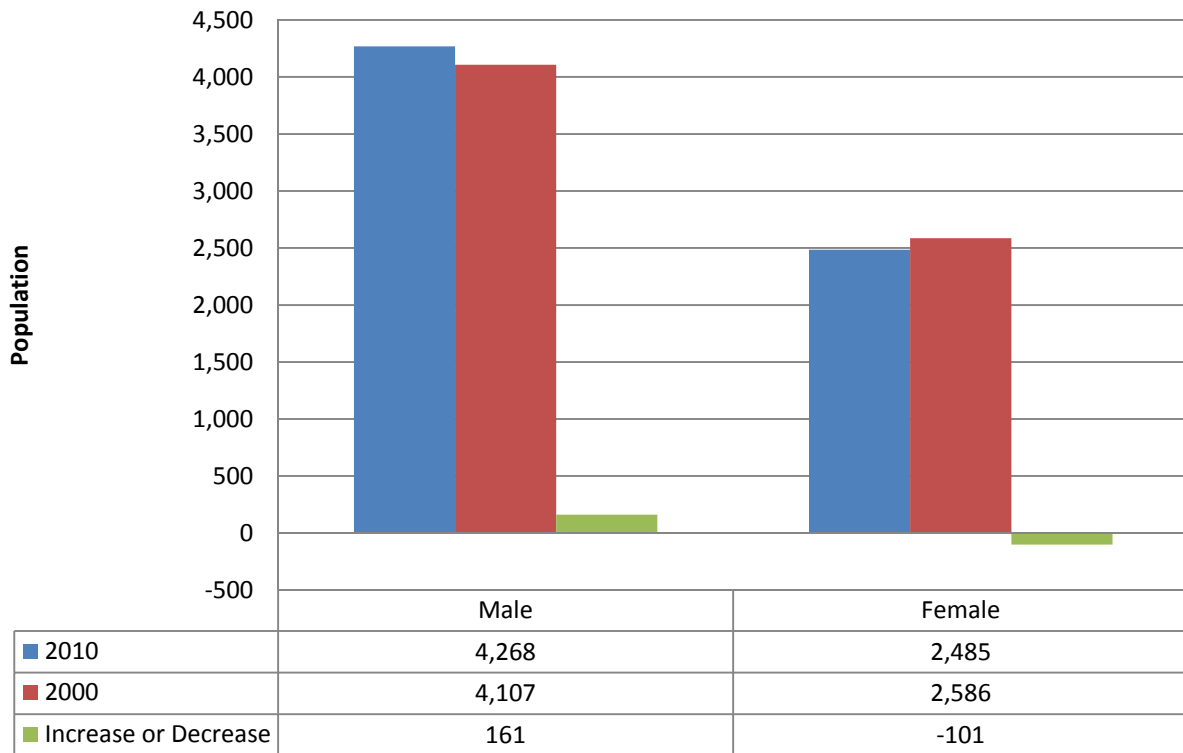


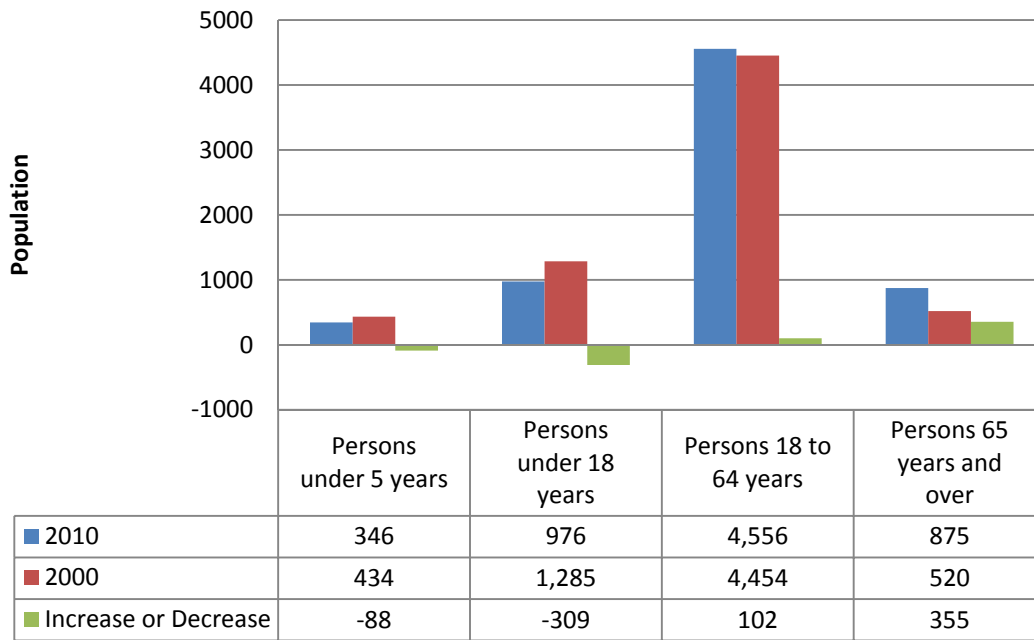
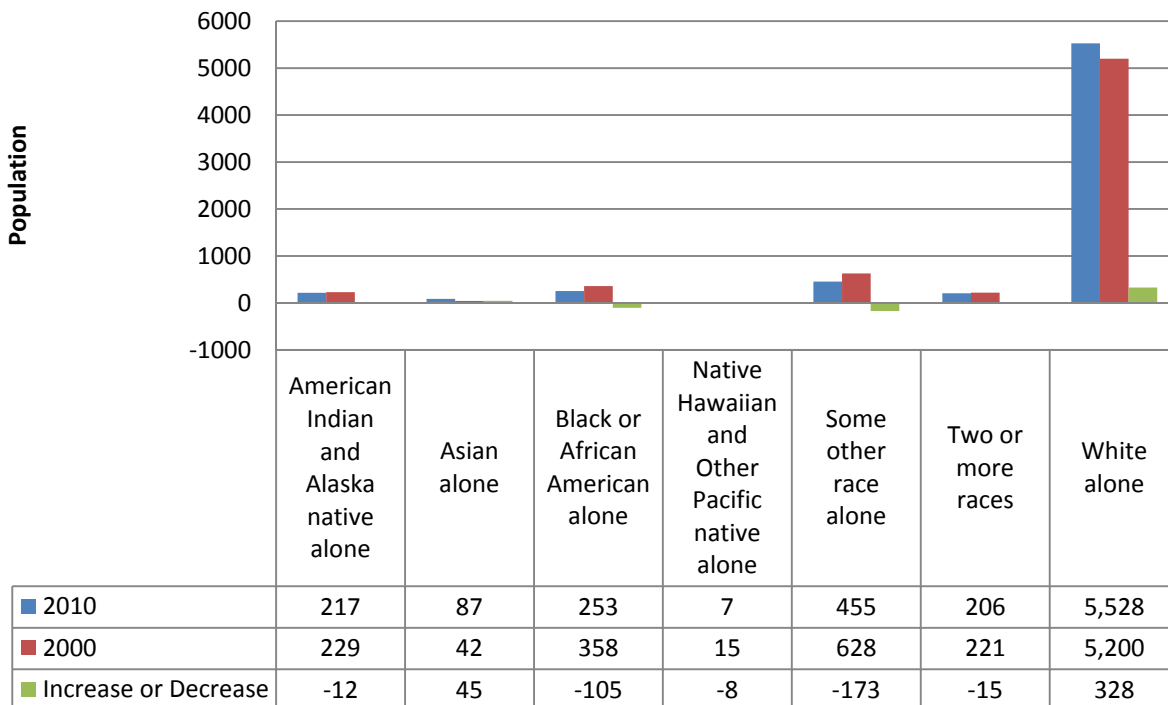
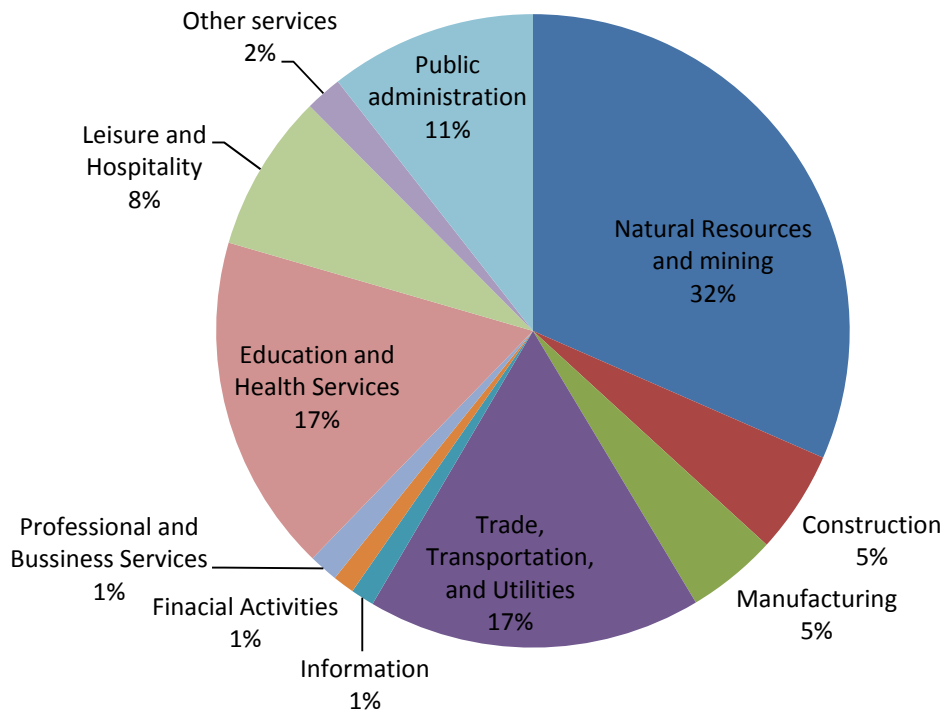
Figure 3.9 – Pershing County U.S. Census Population by Age (Source: U.S. Census)**Figure 3.10 – Pershing County U.S. Census Population by Race (Source: U.S. Census)**

Figure 3.11 – Pershing County Employment Distribution

(Source: 2006-2010 American Community Survey)

City of Lovelock

Lovelock is located on Interstate 80 (I-80) approximately 95 miles northeast of Reno, Nevada. In addition to I-80, the Humboldt River and the Union Pacific Railroad pass through the City, which has a total area of .87 sq. miles.

According to the 2010 U.S. Census Lovelock has a total population of 1,894. This represents a decrease of 109 over the 2000 Census. The average number of persons per household is 2.43.

According to the American Community Survey, housing units total 945 of which 419 are owner-occupied.

3.3.4 Land Use and Development Trends

Growth in the County has generally consisted of large lot residential set among farms and ranches and large tracts of publicly owned land. Pershing County includes several distinct residential communities developed around transportation crossroads. Some of these communities have densities that have (or will require) urban services. These include Grass Valley, Imlay and Humboldt River Ranch Association Rye Patch. Since 2004, ongoing water system infrastructure improvements have been implemented in Lovelock and Imlay in advance of anticipated growth however growth in these areas and throughout the County has been stagnant during the last 10 years. Consequently no significant development is anticipated for the near future.

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4.0 PLANING PROCESS

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

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

DMA 2000 Requirements: Planning Process

Documentation of the Planning Process

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

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

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

Element

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

Source: FEMA, March 2008.

4.1 OVERVIEW OF PLANNING PROCESS

Pershing County hired Farr West Engineering to assist in the development of the Tri-County HMP. The combined plan required coordination with Humboldt, Lander, and Pershing Counties. The initial planning phase included establishing contact persons from each of the Counties and meeting with their corresponding Local Emergency Planning Committees (LEPC).

The Counties and their associated County Seats (Winnemucca, Battle Mountain, and Lovelock) prepared this HMP with the assistance of Farr West Engineering and the State of Nevada, Hazard Mitigation Officer. Each section of the initial HMP plan was reviewed for content and the committees revised every section of the plan. The first step in the planning process was to meet with Local Emergency Planning Committees (LEPC) in each County. Primary Points of Contact for each County are as follows:

- Tony Shope and Andy Murdoch , Humboldt County
- Keith Westengard, Lander County
- CJ Safford, Pershing County

Once the Planning Committee was formed, the following five-step planning process took place during the period from June 2012 to May 2014.

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

4.2 HAZARD MITIGATION PLANNING COMMITTEE

4.2.1 Local Emergency Planning Committee (LEPC)

HMP planning began in May 2012. Initially the planning process, including hazard profiling, was presented to the LEPC of Humboldt, Lander, and Pershing Counties. Each LEPC included representatives from community entities both public and private. LEPC members for each County are included in Table 3.9. The Planning Committee meetings are described in section 4.2.2. Meeting minutes are provided in Appendix D.

Table 4.1 – Members of Humboldt, Lander, and Pershing County LEPC's

	Name	Department	Committee Member Role
Humboldt Co/ Winnemucca	Sheriff Ed Kilgore	Humboldt Co. Sheriffs Dept.	Committee Chairman ^{1,2}
	Tony Shope	Humboldt General Hospital	Committee Vice Chairman ^{1,2}
	Dave Milton	Humboldt Co. Sheriffs Dept.	1,2
	Doug Cain	City of Winnemucca	1,2
	Don Hogg	AT&T	1,2
	Thomas Silva	Winnemucca Police Dept.	1,2
	Bill Dalley	Winnemucca Police Dept.	1,2
	Stan Rorex	Civil Air Patrol	1,2
Lander Co/Battle Mountain	Keith Westengard	Lander County Safety Manager	Committee Chairman ^{1,2}
	Steven Stienmetz	Hospital Commissioner/Trustee ³	1,2
	Philip Hanna	Hospital Administrator ³	1,2
	Kerry Tuckett	Newmont Mining	1,2
	Rick Bell	Lander County EMT	1,2
	Vicki Hinton	Nurse, BMGH ³	1,2
	Kelley Price	Chief Nursing Officer, BMGH ³	1,2
	Steve Chamblis	Marigold Mine	1,2
Pershing Co/Lovelock	Charles Sparke	Search and Rescue	LEPC Committee Chairman ^{1,2}
	Nicole Larson	Secretary, District Attorney	LEPC Committee Secretary ²
	Michael Johnson	Pershing Co. Planner	Lead for plan information ^{1,2}
	Mark Pilon	City of Lovelock Public Works	1,2
	Jeffrey Munk	Frontier Community Coalition	1,2
	Carol Shank	Pershing Co. Commissioner	1,2
	Jerry Whyte	Community Representative	1,2
	Debra Reid	Review Miner	1,2
	Bonnie Stockman	Community Health Nurse	1,2
	C.J. Safford	Building Dept/LVFD	1,2
	Darrell Mancebo	Lovelock Police Dept.	1,2
	Dan Murphy	Pershing Co. School District	1,2
	Marco Ortega	Pershing Co. School District/LVFD	1,2
	Thomas Bjerke	Pershing Co. Sheriff's Office	1,2
	Vina Donaldson	Lovelock Meadows Water District	1,2
	James Weeldreyer	Pershing General Hospital	1,2

¹ Provided evaluation and information on the following sections, hazard profile, vulnerability analysis, risk assessment, mitigation strategies, plan maintenance, provided public outreach

² Attended meetings, reviewed drafts and provided input

³ Battle Mountain General Hospital

Non-LEPC members also in attendance at the various County LEPC meetings include the following:

- Elizabeth Ashby, State Hazard Mitigation Officer
- Karen Johnson, Nevada State Division of Emergency Management
- Danny Sommers, Farr West Engineering

4.2.2 Planning Committee Meetings

- **July 2012**
The Pershing County LEPC met and discussed general information regarding the HMP. Members of the LEPC completed the “Hazard Profiling Worksheet”.
- **August 2012**
The Humboldt County LEPC met and discussed general information regarding the HMP. Members of the LEPC completed the “Hazard Profiling Worksheet”.
- **September, 2012**
Public notices were placed in the Humboldt Sun, Battle Mountain Bugle, and the Lovelock Review-Miner (see Appendix C).
- **October 2012**
A hazard mitigation questionnaire was distributed throughout the Tri-County area. Michael Johnson with Pershing County managed the distribution of the questionnaire.

Also, the Pershing County LEPC reviewed the first three chapters of the HMP and provided comments.
- **December 2012**
The Lander County LEPC met and discussed general information regarding the HMP. Members of the LEPC completed the “Hazard Profiling Worksheet”.
- **March 2013**
Lander County LEPC reviewed and approved chapters.
- **April 2013**
Humboldt and Pershing Counties reviewed and approved HMP chapters
- **May 2013**
Lander County reviewed and approved HMP chapters.
- **July 2013**
Humboldt County reviewed and approved chapters.
- **May 2014**
Lander and Pershing Counties reviewed and approved final chapters and completed Staple E.

4.2.3 Participation and Public Involvement

In September 2012, a questionnaire was distributed to the public through County and City offices and water bills. The questionnaire and the results (Appendix D) were used by the Planning Committee during their development of the mitigation strategy. Approximately 100 questionnaires were completed and returned. Response to the questionnaire was relatively low (approximately 100).

Public notice of the HMP was provided in the following newspapers:

- Humboldt County - Humboldt Sun (Sept 18-20, 2012)
- Lander County - Battle Mountain Bugle (Sept 19-25, 2012)
- Pershing County – Lovelock Review-Miner (Sept 20-26, 2012)

Samples of all three press releases can be found in Appendix C.

The County mailed letters (see Appendix C) regarding the update of the HMP to the following entities:

- FEMA
- State NDEM, NDOT, NDWR
- State Assembly & Senate Representatives
- Counties of Churchill, Elko, Eureka, Humboldt, Lander, Lyon, Mineral, Nye, Pershing, Storey, Washoe, and White Pine.

4.2.4 Incorporation of Existing Plans and Other Relevant Information

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.

Humboldt County

- ***Humboldt County Regional Master Plan:*** Includes population characteristics, natural resources, land use, public facilities and services, and transportation. This document is used for planning purposes.
- ***Humboldt County Building Code:*** The building code specifies all adopted standards for construction within the County. This includes the 2006 International Building, Fire, and Residential, Codes. It also includes the 2005 National Electric Code and the 2006 Uniform Mechanical and Plumbing Codes.
- ***Humboldt County Fire Plan:*** Plan created by Resource Concepts Inc. (RCI) Includes risk and hazard assessments, risk and hazard reduction recommendations, and roles and responsibilities. Also includes maps showing suppression resources, critical community features, and fire history for a County wide assessment as well as assessments for the communities of Winnemucca, McDermitt, Golconda, Denio, Denio Junction, Grass Valley, Orovada, Paradise Valley, Quinn River, Fort McDermitt, Valmy, and Paradise Ranchos.
- ***Water Conservation Plans:*** The following water systems have Water Conservation Plans on file with the Nevada Division of Water Resources: Barrick Turquoise Ridge, Inc., McDermitt Water System, Newmont-Lone Tree Mine, Newmont-Twin Creeks, Virgin Valley Campground, and Winnemucca.

Lander County

- ***Lander County 2010 Master Plan:*** Includes population characteristics, natural resources, land use, public facilities and services, and transportation. This document is used for planning purposes.
- ***Lander County Building Code:*** The building code specifies all adopted standards for construction within the County. This includes the 1994 Uniform Building, Fire, Mechanical, and Plumbing Codes. It also includes the 1996 National Electric Code.
- ***Lander County 2010 Water Resources Plan:*** This Plan includes information concerning water quality and quantity for both ground and surface water. It discusses mining and agricultural demand. It also includes water profiles for the communities of Battle Mountain, Austin, and Kingston.
- ***Lander County Fire Plan:*** Plan created by RCI Includes risk and hazard assessments, risk and hazard reduction recommendations, and roles and responsibilities. Also includes maps showing suppression resources, critical community features, and fire history for a County wide assessment as well as assessments for the communities of Battle Mountain, Austin, Kingston, Battle Mountain Colony, Carico Valley, Grass Valley, Gilman Springs, Hilltop, and Smokey Valley.
- ***Water Conservation Plans:*** The following water systems have Water Conservation Plans on file with the Nevada Division of Water Resources: Battle Mountain, Kingston, and Newmont-Twin Creeks

Pershing County

- ***Pershing County 2012 Master Plan:*** Includes population characteristics, natural resources, land use, public facilities and services, and transportation. This document is used for planning purposes.
- ***Pershing County Water Conservation District Master Plan:*** This is the planning document for agricultural irrigation in Pershing County. It describes the irrigation facilities and proposed improvements to those facilities.
- ***Pershing County Building Code:*** The building code specifies all adopted standards for construction within the County. This includes the 2003 International Building, Fire, Residential, Plumbing, and Mechanical Codes. It also includes the 2002 National Electric Code.
- ***Pershing County Fire Plan:*** Plan created by RCI Includes risk and hazard assessments, risk and hazard reduction recommendations, and roles and responsibilities. Also includes maps showing suppression resources, critical community features, and fire history for a County wide assessment as well as assessments for the communities of Lovelock, Imlay, Mill City, Grass Valley, Unionville, Humboldt, Oreana, and Rye Patch.
- ***Water Conservation Plans:*** The following water systems have Water Conservation Plans on file with the Nevada Division of Water Resources: Couer Rochester Mine, Lovelock Meadows Water District, Imlay, Star Point Mobile Home Park, and Rye Patch Recreation Area.

Additional Applicable State and Federal Plans

The following are State and Federal planning documents that apply to the Tri-County area that were used in the Hazard Mitigation Planning process:

- ***State of Nevada Drought Response Plan:*** A Plan that defines drought conditions and makes recommendations regarding mitigation.
- ***State of Nevada Multi-Hazard Mitigation Plan:*** This plan, prepared by NDEM, was used to ensure that the County's HMP was consistent with the State's Plan.
- ***State Maintained Highways of Nevada (January 2011):*** This report provides descriptions and Maps of Highways by County.
- ***FEMA Flood Insurance Study for Churchill County, NV (FEMA 2009):*** This outlined the principal flood problems and floodplains within the County.

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

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

A complete list of the sources consulted is provided in References - Section 10.

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5.0 HAZARD ANALYSIS

Hazard analysis includes the identification, screening, and profiling of natural and human-caused hazards that could affect the tri-county area. A hazard by definition is “a natural or human-caused threat that may result in disaster occurring in a populated, commercial, or industrial area” (National Science and Technology Council 2005, 17). A natural hazard refers to all atmospheric, hydrologic, geologic (especially seismic and volcanic), and Wildland fire phenomena that, because of their location, severity, and frequency, have the potential to affect humans, their structures, or their activities adversely.

Human-caused (Technological) hazards are a “range of hazards emanating from the manufacture, transportation, and use of such substances as radioactive materials, chemicals, explosives, flammables, agricultural pesticides, herbicides, and disease agents; oil spills on land, coastal waters, or inland water systems; and debris from space” (FEMA, *FRP Appendix B*, 1992). In relation to these hazards, a technological disaster is likely to occur for one of the following reasons: (1) defective design; (2) inadequate management; (3) sabotage or terrorism (Smith 1996, 316).

Even though a particular hazard may not have occurred in or affected the tri-county area within recent history, all hazards potentially affecting the area have been included in the screening process. Hazards unlikely to occur or for which the risk of damage is accepted as being very low, have been eliminated from consideration.

Hazards identified in the screening process as potentially occurring within the tri-county area are profiled in this section in terms of their nature, history, magnitude, frequency, location, and probability. Hazards have been identified through the compilation of historical and scientific information, review of existing plans and studies, and preparation of hazard maps of the study area. Hazard maps are used to determine the geographic extent of potential hazards and define the approximate boundaries of the areas at risk.

5.1 HAZARD IDENTIFICATION AND SCREENING

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

DMA 2000 Requirements: Risk Assessment – Overall

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 new or updated plan include a description of all the types of all natural hazards that affect the jurisdiction?

Source: FEMA, March 2008.

5.1.1 Humboldt County/Winnemucca

The first step of the hazard analysis is the identification and screening of hazards, as shown in Table 5-1. During the first HMP meetings, the LEPC (comprised of representatives from the County agencies, City agencies, local businesses, State Division of Emergency Management, and Farr West Engineering) reviewed the State's identified hazards from the State of Nevada Hazard Mitigation Plan and identified 15 possible hazards (13 natural hazards and 2 human-caused hazards).

Table 5.1 – Hazard Screening for Humboldt, Lander and Pershing Counties

Hazard Type	Profile Required?	Reasoning
Avalanche	No	No history of occurrence in these Counties.
Drought	Yes	History of severe drought in these Counties.
Earthquake	Yes	Largest recorded earthquake in Nevada affected these Counties.
Epidemic	Yes	Epidemic was addressed in the State Multi-Hazard Mitigation Plan.
Expansive Soils	No	No history of effects from this hazard in these Counties
Extreme Heat	No	No historical record of this hazard in the County.
Flood (Including Dam/Levee Failure)	Yes	All three Counties have a history of flood damage.
Hazardous Material Event	Yes	Interstate 80 and the railroad pass through all three of these Counties.
Infestations	Yes	History of weed and insect infestations in all three Counties.
Land Subsidence & Ground Failure	No	No historic events.
Severe Weather Snow/Ice/Wind/Tornado	Yes	All three Counties have a history of extreme weather.
Seiche	No	No historic events.
Volcano	Yes	No historic events the Tri-County area. However there is a volcanic field located in Pershing County. Some effects from Volcanoes in California are possible.
WMD / Terrorism	No	This hazard is not addressed due to committee determining this is a moderate hazard and should not be addressed in a public document. Probability and extent could not be determined.
Wildland Fire	Yes	The terrain, vegetation, and weather conditions in the region are favorable for the ignition and rapid spread of wildland fires.

Assigning Vulnerability Ratings

During a Committee meeting the members were tasked to prioritize the hazards by their total impact in the community. An exercise requiring the committee to complete a form which tabulated their ratings of each hazard was accomplished. The exercise formula took into account the historical occurrence of each respective hazard, the potential area of impact when the disaster does occur, and the magnitude. Please see Table 5-2 below for scoring criteria.

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

Table 5.2 - Vulnerability Ratings Rubric

	Rating	Magnitude	Duration	Economic	Area Affected
Lowest	1	Insured Loss	1-3 Days	Community	Community
	2	Local	4-7 Days	City / Town	City / Town
	3	State	8-14 Days	County	County
	4	Federal Emergency	15-20 Days	State	State
Highest	5	Federal Disaster	20 + Days	Federal	Federal

	Rating	Frequency	Degree of vulnerability	State & Community Priorities
Lowest	1	10+ years	1-5% damaged	Advisory
	2	6-9 years	6-10%	Considered further Plan
	3	1-5 years	11-25%	Prompt Action
	4	2-12 months	26-35%	Immediate Action
Highest	5	0-30 days	36-50%	Utmost immediacy

The Committees referenced the NV DEM historical records, RCI plans and HAZUS runs from Nevada Bureau of Mines and Geology (NBMG) for scientific data that was used for magnitude, economic and frequency scores based on historical frequencies and / or projected probabilities of the hazards identified.

Upon obtaining total scores for each hazard, the team utilized the scores to analyze and prioritize the hazards to focus upon during the profiling, vulnerability assessment and mitigation strategy. Tables 5-3 through 5.4 summarize the hazard scoring results of both the members present at the LEPC meeting and those that supplied feedback via e-mail after the meeting. The Committee only used the scores from the present members in their priority determination; however there was no substantial change to the rankings.

In reviewing the results hail, thunderstorm, extreme heat, severe winter storm, windstorm, and tornado were combined as the majority of the respondents combined these categories.

The Planning Committees determined the following hazards pose a threat to their County's: Drought, earthquakes, epidemic, floods, hazardous materials (HAZMAT) events, infestation, severe weather, volcano, and wildland fires. The Committee then discussed the results of the ranking and through Committee deliberation, earthquake and flood are considered very high hazards, drought, and hazardous materials are considered high hazards, epidemic and severe weather are considered moderate hazards, volcano and wildland fire are considered low hazards and infestation is considered very low.

Table 5.3- Hazard Ranking Results for Humboldt County (Winnemucca)

Hazard Type	Frequency	Magnitude/Duration/Economic Impact	Planning Significance
Natural			
Drought	Moderate	High	Moderate
Earthquakes	Moderate	High	High
Epidemic	Low	Moderate	Moderate
Flood ¹	Moderate	Moderate	Moderate
Infestations	Moderate	Moderate	Moderate
Severe Weather ²	High	Moderate	Moderate
Volcano	Very Low	Low	Low
Wildland fire	Very High	Very High	Very High
Human Caused			
HAZMAT	High	Very High	High

¹Flood included dam and/or canal failure²Severe Weather includes thunderstorm/hail, snow, tornado, and windstorm**Table 5.4 - Hazard Ranking Results for Lander County (Battle Mountain)**

Hazard Type	Frequency	Magnitude/Duration/Economic Impact	Planning Significance
Natural			
Drought	Moderate	Moderate	Moderate
Earthquakes	Moderate	High	Moderate
Epidemic	Low	High	Moderate
Flood ¹	Moderate	Moderate	Moderate
Infestations	Low	Low	Low
Severe Weather ²	High	Moderate	Moderate
Volcano	Very Low	Very Low	Very Low
Wildland fire	High	High	High
Human Caused			
HAZMAT	Moderate	High	High

¹Flood included dam and/or canal failure²Severe Weather includes thunderstorm/hail, snow, tornado, and windstorm

Table 5.5 - Hazard Ranking Results for Pershing County (Lovelock)

Hazard Type	Frequency	Magnitude/Duration/Economic Impact	Planning Significance
Natural			
Drought	High	High	High
Earthquakes	Low	Moderate	Moderate
Epidemic	Low	Moderate	Moderate
Flood ¹	Moderate	Moderate	Moderate
Infestations	Low	Low	Very Low
Severe Weather ²	Low	Low	Low
Wildland fire	High	High	High
Human Caused			
HAZMAT	Moderate	Moderate	Moderate

¹Flood included dam and/or canal failure²Severe Weather includes thunderstorm/hail, snow, tornado, and windstorm**Table 5.6 - Hazard Rankings Summary, All Hazards**

Hazard	Ranking			
	Humboldt	Lander	Pershing	State of Nevada
Avalanche	Very Low	Very Low	Very Low	Very Low
Drought	Moderate	Moderate	Moderate	Low
Earthquake	High	Moderate	Moderate	Very High
Epidemic	Moderate	Moderate	Low	Moderate
Expansive Soils	Low	Low	Very Low	Very Low
Extreme Heat	High	Moderate	Low	Very Low
Flood ¹	Moderate	Moderate	Moderate	High
Infestations	Moderate	Low	Low	Very Low
Landslide	Low	Low	Very Low	Very Low
Severe Weather ²	Moderate	Moderate	Low	Moderate
Subsidence	Low	Low	Very Low	Very Low
Tsunami/Seiche	Very Low	Very Low	Very Low	Low
Volcano	Low	Very Low	N/A	Very Low
Wildland fire	Very High	High	High	High
HAZMAT	High	Moderate	Low	Low
Terrorism	High	Moderate	Low	Very High

¹Flood includes dam and/or canal failure²Severe Weather includes thunderstorm/hail, snow, tornado, and windstorm

Table 5.6 summarizes the results of hazard rankings for the LEPC's of the individual Counties. Hazards ranked as Very High, High, or Moderate will be carried through to the Vulnerability Analysis and will be addressed in the Mitigation Strategy portion of the plan.

A hazard profile will be developed for hazards with a "low" ranking but these hazards will not be carried through to the Vulnerability Analysis or Mitigation Strategy, as historically those hazards have occurred in unpopulated areas having little to no impact, measureable magnitude, or feasible mitigation actions. The "low" ranked hazards will be profiled for future reference in order to monitor the possible impact of these hazards in relation to the growth within the county and increasing visitor appeal.

The County hazard ranking results generally correspond with those in the State of Nevada Standard Hazard Mitigation Plan. Exceptions include drought, HAZMAT, and extreme weather related hazards common to north-central Nevada. Drought was ranked higher in the Counties due to the substantial amount of agriculture in the region. Hazardous material was ranked higher due to the highway and rail corridors that pass through all three Counties.

The remaining hazards excluded through the screening process were considered to pose no threat to life and property in the Counties due to the low likelihood of occurrence or the low probability that life and/or property would be significantly affected. Should the risk from these hazards increase in the future, the HMP can be updated to incorporate a vulnerability analyses for these hazards. The committee determined that Terrorism should not be addressed in this public document.

5.2 HAZARD PROFILES

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

<p style="text-align: center;">DMA 2000 Requirements: Risk Assessment – Profiling Hazards</p> <p>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.</p> <p>Element</p> <ul style="list-style-type: none"> ■ 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? <p><i>Source: FEMA, March 2008.</i></p>

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

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

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

5.2.1 Drought

Planning Significance	Humboldt , Lander, and Pershing - Moderate
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Nature

Drought can be defined as “a period of abnormally dry weather sufficiently prolonged for the lack of water to cause serious hydrologic imbalance in the affected areas” (Glossary of Meteorology, 1959). Droughts are naturally occurring weather patterns that result in a water deficit for an area. The effects of drought on humans relates to reduced water supplies, wells going dry or reduced well production, reduced soil moisture, stresses on the ecological system, increased Wildland fire potential, reduced crop production, and often water rationing.

Erroneously, many consider it a rare and random event. It differs from normal aridity, which is a permanent feature of the climate in Nevada, the most arid State in the nation. Drought is the result of a natural decline in the expected precipitation over an extended period of time, typically one or more seasons in length. Other climatic characteristics, such as high temperature, high wind, and low relative humidity, impact the severity of drought conditions.

Drought can be defined in reference to meteorological, agricultural, hydrological, or socioeconomic standards (NOAA) as follows:

- Meteorological drought refers to a period when the amount of precipitation is below normal. This standard can be highly variable from one location to another.
- Agricultural drought refers to conditions when soil moisture is insufficient to meet crop needs.
- Hydrological drought refers to conditions when snowpack, lakes levels, streamflow, and ground-water levels are below normal.
- Socioeconomic drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds supply as a result of weather-related supply shortfall. This type of drought has a direct effect on people. The severity of the drought may depend upon the amount of water in storage and the length of the drought. This may also be called a water management drought.

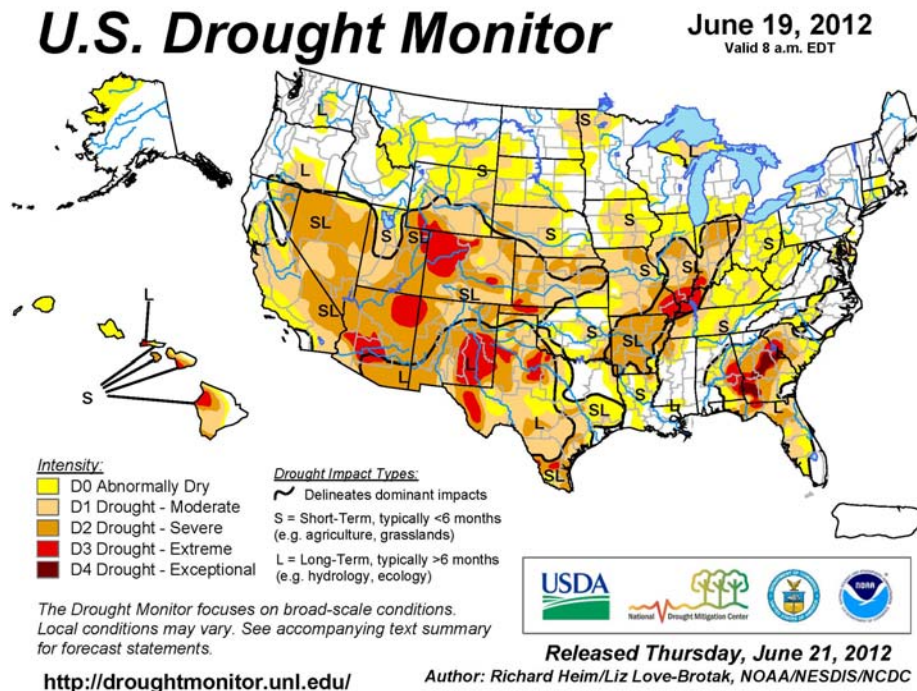
The Drought Monitor summary map (Figure 5.1) identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0 drought watch areas are areas drying out and possibly heading for drought, or are recovering from drought but not yet back to normal, suffering long-term impacts such as low reservoir levels.

Drought intensity categories are based on five key indicators and numerous supplementary indicators. Table 5.7 shows the ranges for each indicator for each dryness level. Because the ranges of the various indicators often don't coincide, the final drought category tends to be based on what the majority of the indicators show. The analysts producing the map also weight the indices according to how well they perform in various parts of the country and at different times of the year. Also, additional indicators are often needed in the West, where winter snowfall has a strong bearing on water supplies

Table 5.7 - Drought Severity Classification Table (See U.S. Drought Monitor Map, Figure 5.1)

Category	Description	Ranges					
		Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

Figure 5.1 - Example of Drought Monitor Summary Map



The Palmer Drought Severity Index (PDSI) is a meteorological drought index based on soil moisture (see Figure 5.1). Of the 5 key indicators in the Drought Severity Classification Table, the PDSI is most effective in determining long term drought—a matter of several months—and is not as good with short-term forecasts (a matter of weeks). It uses a 0 as normal, and drought is shown in terms of minus

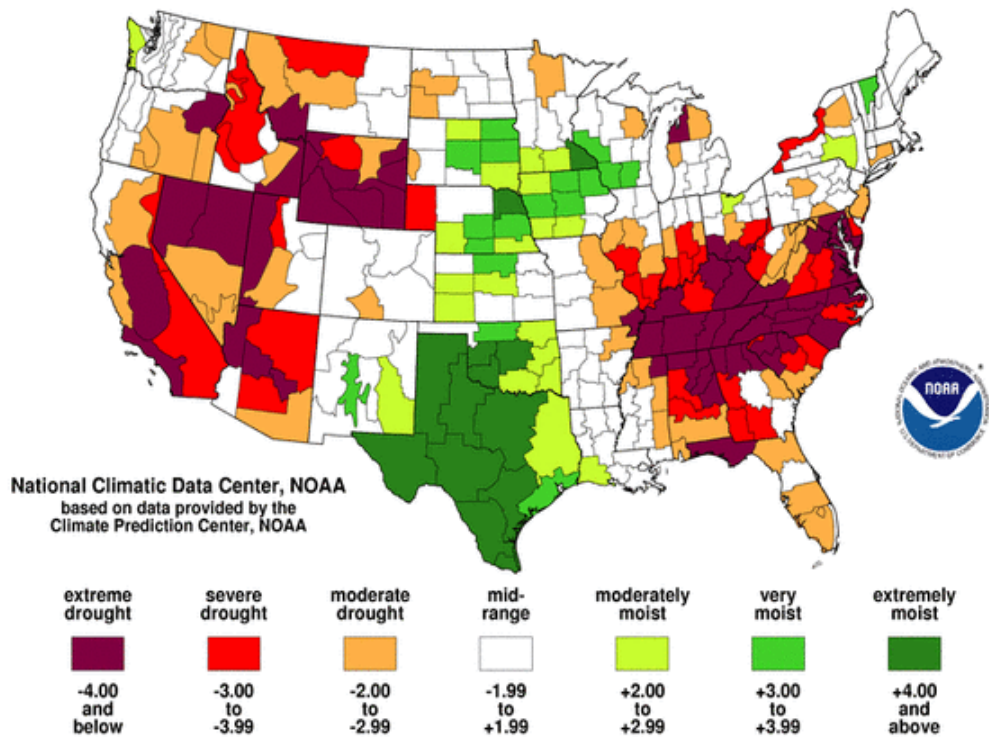
numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought.

Figure 5.1 shows an example of a Palmer Drought index map. The National Oceanic and Atmospheric Administration (NOAA) updates these maps often and they can be accessed online to track drought conditions anywhere in the United States. The example shows severe drought in northern Nevada, the general tri-county area during a month in 2012.

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

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

Figure 5.2 - Example of Palmer Drought Index Long-Term Conditions



History

Climate Division 1

Humboldt and Pershing Counties are located in Nevada’s northwestern Climate Division 1. The Palmer Index drought data for that division are reported from 1895 to the present by the National Climatic Data Center (NCDC). In Division 1 there were 8 years in the span between 1895—2011 that experienced an average 12 month Palmer Index Rating of -4 or lower (extreme drought). Of the 21 extreme drought years that occurred between 1895 and 2011, 7 occurred between 2000 and 2010.

In 2002, 2004, and 2008 the U.S. Department of Agriculture designated all 17 counties in Nevada as drought affected. The U.S. Seasonal Drought Monitor classified the majority of Nevada as being in a D3; extreme drought intensity. Implications from this drought include increased risk of Wildland fires, water shortages, insect infestations, and crop damages.

Climate Division 2

Lander County is located in Climate Division 2. Although drought events that have occurred in Division 2 have not matched those of Division 1, four of the fourteen droughts between 1895—2011 that were rated “severe” on the Palmer Index occurred between 2000 and 2010.

Location, Extent, and Probability of Future Events

Climate Division 1

In Humboldt and Pershing Counties, severe and extreme drought conditions (D2 to D3-rated intensities on the U.S. Seasonal Drought Monitor) have persisted over the last decade. Fortunately the Humboldt River is supplied by run-off from mountains located in climate division 2. If not for this, drought would have a significant impact due to the economic reliance on agriculture in these Counties.

The U.S. Seasonal Drought Outlook forecasts that Nevada, including Humboldt and Pershing Counties, will continue to be affected by drought. Although it is difficult to forecast future droughts, the general trend in Humboldt and Pershing Counties is an increase in the number and severity of droughts.

Climate Division 2

Generally, Lander County fairs better than Humboldt and Pershing Counties regarding drought. However, Climate Division 2 is also trending toward increasing drought.

5.2.2 Earthquake

Planning Significance	Humboldt - High , Lander - Moderate, and Pershing - Moderate
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Nature

Earthquake is a term used to describe both sudden slip on a fault, and the resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the earth (USGS, 2009). Earthquakes occur without warning and can cause a significant amount of damage in a short period of time. The effects of an earthquake can be felt far beyond the site of its occurrence. To date, there is no way to predict when and where an earthquake will occur.

When earthquakes occur, stored energy is released and travels through the earth in the form of seismic waves. There are two main types of waves generated by earthquakes; body and surface waves. While body waves travel through the interior of the earth, surface waves travel through the crust. Each of these types of waves has two subtypes.

Body Waves

The subtypes of body waves include primary waves (P waves) and secondary waves (S waves). P waves can pass through solid rock as well as fluids and, as the fastest traveling waves, are the first that are felt during an earthquake. P waves are also known as compression waves because they tend to push and pull at the particles they encounter. These particles tend to travel in the direction the wave is traveling which is the direction the energy is traveling. This direction is known as the “direction of wave propagation”.

Secondary waves (S waves) are the second waves felt during an earthquake. Unlike P waves, S waves can pass through rock but not through fluids. S waves make rock particles move up and down or side to side, perpendicular to the direction of wave propagation.

Surface Waves

Surface waves arrive after body waves and cause most of the damage associated with earthquakes. Usually the amount of damage caused by surface waves depends on their depth.

Surface Waves have two basic categories; Love waves and Raleigh waves. Love waves are the fastest surface waves and move the ground from side-to-side producing a horizontal motion. Raleigh waves move the ground up and down and side-to-side in the direction the wave is traveling. Most of the shaking felt in an earthquake is due to Raleigh waves since they tend to be much larger than other waves.

Earthquake Measurement

Earthquakes can be measured in regard to magnitude and intensity. The magnitude of an earthquake is a number that represents the relative size of an earthquake and is based on the maximum movement recorded on a seismograph. The most common scale used for measuring magnitude is the local magnitude, also referred to as the “Richter magnitude”. Magnitude on the Richter scale is expressed in whole numbers and decimal fractions. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

The intensity measurement of an earthquake describes its effect on the earth’s surface, on humans, and on structures. In the U.S. the most commonly used intensity scale is the Mercalli scale. The scale uses roman numerals from I (imperceptible) to XII (total destruction) to quantify an earthquake’s effects. The scale is based on perception in regard to the shaking that is felt and the resulting damage.

Peak ground acceleration (PGA) can also be used to quantify intensity. The acceleration of the ground can be measured by an accelerometer during an earthquake. The largest acceleration recorded by a particular accelerometer during an earthquake is the PGA at that location. A comparison of magnitude, intensity, and ground acceleration is shown in Table 5.8.

Secondary Hazards

There are secondary hazards that occur as a result of an earthquake. These hazards have the potential to cause damage in addition to that caused by shaking. Secondary hazards include the following:

- *Liquefaction* is a process by which water-saturated sediment temporarily loses strength and acts as a fluid. When liquefaction occurs, the strength of the soil decreases and, the ability of a soil deposit to support foundations for buildings and bridges is reduced. Liquefied soil also exerts higher pressure on retaining walls, which can cause them to tilt or slide. This movement can cause settlement of the retained soil and destruction of structures on the ground surface. Increased water pressure can also trigger landslides and cause the collapse of dams.
- *Surface faulting* is displacement that reaches the earth's surface during slip along a fault. Surface faults can be significant in terms of width and length. Surface fault can cause severe damage to highways, railways, pipelines, tunnels, and canals.
- *Landslides* can occur when unstable slopes fail due to seismic activity. Earthquake-induced landslides can include rock falls, rockslides, and soil slides. Slide risks can be amplified by weather conditions. Snow avalanches and mudslides can be caused by earthquakes.
- *Fires* can occur when gas pipelines rupture due to seismic activity. Also power lines that sway during earthquakes can arc and cause fires.
- *Flooding* can result from the failure of manmade structures during seismic events. Dams, canal structures, and canals are susceptible to damage due to both primary (shaking) and secondary (liquefaction, faulting, and landslides) effects of earthquakes.

Table 5.8 – Magnitude/Intensity/Ground acceleration relationships

Richter Magnitude	Mercalli Intensity	PGA (%g)	Potential Damage	Perceived Shaking
1.0 – 3.9	I	<.17	None	Not felt
	II – III	.17 – 1.4	None	Weak
4.0 – 4.9	IV	1.4 – 3.9	None	Light
	V	3.9 – 9.2	Very light	Moderate
5.0 – 5.9	VI	9.2 – 18	Light	Strong
	VII	18 – 34	Moderate	Very Strong
6.0 – 6.9	VIII	34 – 65	Moderate/Heavy	Severe
	IX	65 – 124	Heavy	Violent
>7.0	X	>124	Very Heavy	Extreme

Source: USGS Earthquake Hazards Program

History

Nevada is ranked third in the U.S. behind Alaska and California in having the highest number of large earthquakes. The Counties of Pershing, Humboldt and Lander were directly affected by the largest earthquake recorded in Nevada. The next three largest earthquakes occurred in neighboring Churchill County. Historical earthquakes of magnitude 6.0 or greater are shown in Table 5.9

Table 5.9 – Historical Earthquakes in the Region

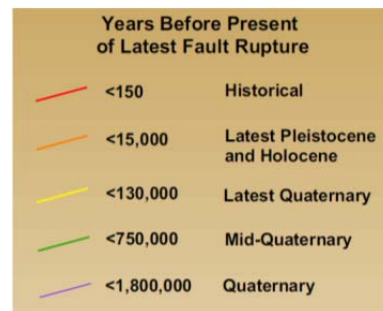
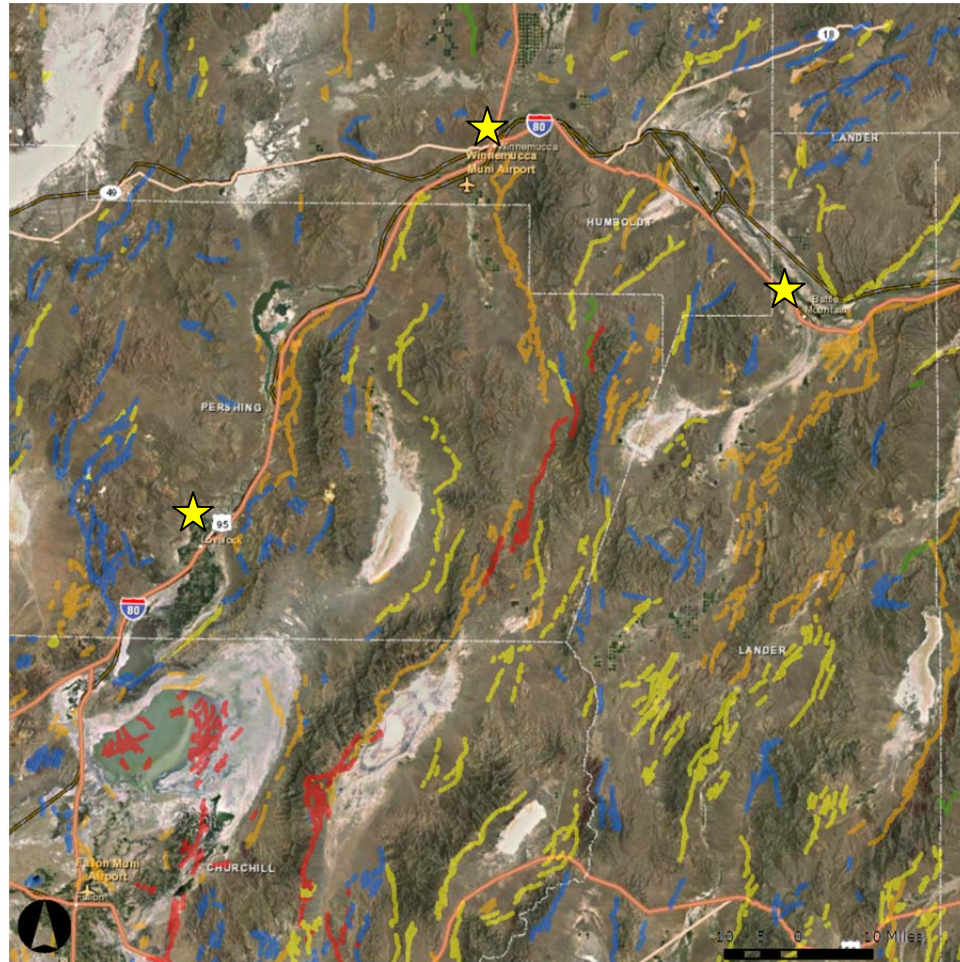
Date	Magnitude	Location	Nearest Town
October 3, 1915	7.8	Pleasant Valley, NV	Winnemucca, NV
July 6, 1954	6.8	Fallon-Stillwater, NV	Fallon, NV
August 23, 1954	6.8	Stillwater, NV	Fallon, NV
December 16, 1954	7.0	Fairview Peak, NV	Fallon, NV

Although three of the earthquakes in Table 5.9 were located in Churchill County, they occurred only 60 to 75 miles east of Austin located in Lander County and 40 to 60 miles south of Lovelock located in Pershing County.

Figure 5.3 shows the quaternary faults that have been identified within the Tri-County area. Quaternary faults are those active faults that have been recognized at the surface and which have evidence of movement in the past 1.6 million years.

Although the more recent fault activity has occurred in Pershing County, the Counties are close enough geographically that earthquakes centered in Pershing County have caused damage in both Humboldt and Lander Counties as well. In fact, the largest earthquake recorded in Nevada was centered in an uninhabited area of Pershing County but caused damage in the population centers of Battle Mountain, Lovelock, and Winnemucca.

Figure 5.3 Quaternary Fault Map for the Tri-County area

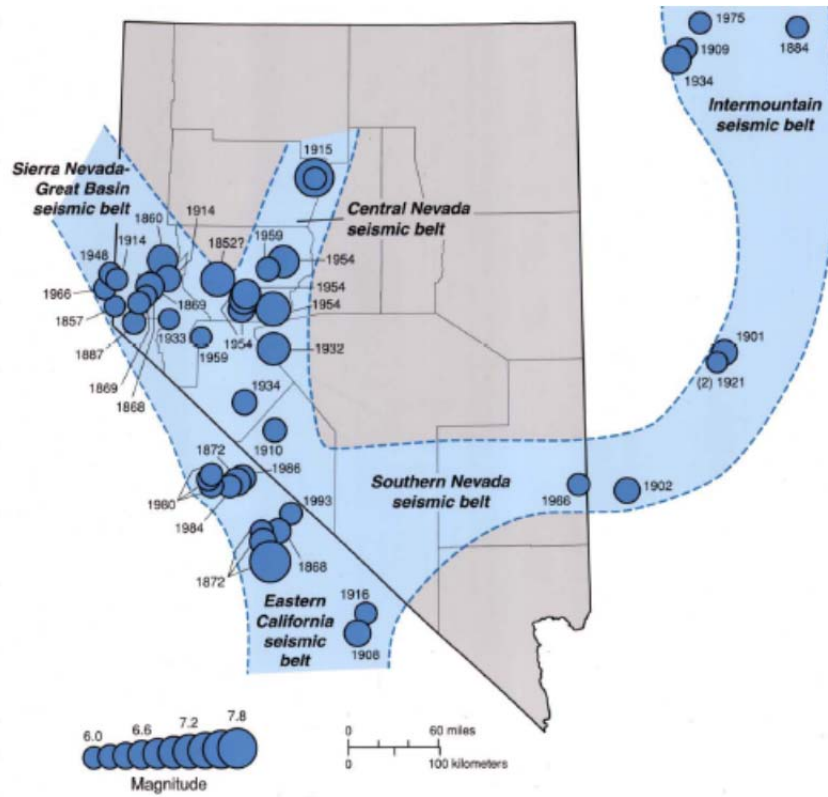


Source: UNR, NBMG 2010

Location, Extent, and Probability of Future Events

The Sierra Nevada-Great Basin seismic belt includes earthquakes along the eastern side of the Sierra Nevada and appears to be a northern continuation of the Eastern California seismic belt. The Central Nevada seismic belt, shown in Figure 5.4, which trends north-south in the west-central part of the state, includes the largest historic earthquakes in Nevada in the 20th century. Although the belt appears to affect Lander and Pershing Counties only, the principle population centers of all three of the Tri-Counties are located within the belt.

Figure 5.4 - Seismic Belt Map for Nevada



Source: UNR, NBMG 2010

The Nevada Bureau of Mines and Geology (NBMG) Open-File Report 09-8 “Estimated Losses from Earthquakes near Nevada Communities” estimates losses from earthquakes that could occur near thirty-eight Nevada communities, including all county seats and major population centers. The report uses the Federal Emergency Management Agency’s loss-estimation computer model, HAZUS-MH, to estimate such factors as total economic loss, numbers of buildings receiving extensive to complete damage, number of people needing public shelter and hospital care, and number of fatalities from earthquakes of magnitude 5.0, 5.5, 6.0, 6.5, and 7.0. The report also tabulates earthquake probabilities for these communities from the U.S. Geological Survey’s probabilistic seismic hazard analysis.

For earthquake scenarios for each community, the closest Quaternary faults on the map of Dipole (2008) were chosen. The epicenters of the earthquakes were chosen at the fault position that is closest to the community. The probabilities for each of the primary Tri-County communities are shown in Table 5.10.

Table 5.10 – Probabilities of earthquakes of various magnitudes occurring within 50 years within 50 kilometers (31 miles) of Tri-County communities.

County	Community	% Probability of Magnitude greater than or equal to					Rank by Probability
		5.0	5.5	6.0	6.5	7.0	
Lander	Austin	60-70	~40	20	10-15	2-3	19
	Battle Mountain	60-70	~40	18	10	1.5	20
Pershing	Lovelock	50-60	~35	10-20	10	1-2	21
Humboldt	Winnemucca	50-60	~35	15-20	5-10	1-1.5	22

Source: Bureau of Mines & Geology, UNR, *Estimated Losses from Earthquakes Near NV Communities*, 2009

Since the 1850s, 62 earthquakes have occurred in Nevada that have had potentially destructive magnitudes of 5.5 (Richter scale) or greater. Nevada is a national leader in population growth, and the risk of harm and loss from earthquakes increases proportionally with population and development. We can expect earthquakes to continue to occur in Nevada and some of these will strike our growing urban centers and communities.

5.2.3 Epidemic

Planning Significance	Humboldt - Moderate , Lander - Moderate, and Pershing - Low
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Nature

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

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

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

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

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

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

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

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

History

The following are examples of high-profile infectious diseases that have occurred in Nevada and specifically the Tri-County area.

Influenza Virus - Although seasonal flu commonly occurs, in the spring of 2009, a new influenza A (H1N1) virus emerged to cause illness in people. This virus was very different from regular human influenza A viruses and the new virus caused the first influenza pandemic in more than 40 years.

Pandemic flu can have a significant impact on society. The influenza pandemic of 1918 and 1919, known as the Spanish Flu, had the highest mortality rate in recent history for an infectious disease. More than 20 million persons were killed worldwide, some 500,000 of which were in the U.S. alone (Centers for Disease Control and Prevention, October 1998).

9 cases of the H1N1 virus were reported in Nevada in May of 2009.

West Nile Virus (WNV) - Human and animal WNV infections were not documented in the Western Hemisphere until the 1999 outbreak in the New York City metropolitan area. Since then, the disease has spread across the United States. In 2003, WNV activity occurred in 46 states and caused illness in over 9,800 people.

WNV is transmitted to humans through mosquito bites. Mosquitoes become infected when they feed on infected birds that have high levels of WNV in their blood. Infected mosquitoes can then transmit WNV when they feed on humans or other animals.

Since 2000, the USGS has created maps showing by State, incidence of human cases of WNV. However, Nevada did not begin participating in the tracking process until 2003. Table 5.11 shows confirmed cases of WNV in the Tri-County area from 2003 to 2012.

Table 5.11 – West Nile Virus Cases in the Tri-County Area 2003-2012

County	Number of West Nile Virus Cases 2003-2012									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Humboldt	0	0	3	14	0	0	0	0	0	0
Lander	0	0	0	2	0	0	0	0	0	0
Pershing	0	0	0	8	1	0	0	0	0	0

Few cases of WNV have been reported in the Tri-County area over the period shown in Table 5.11. However, neighboring Washoe and Churchill Counties have reported cases of WNV in all but two years since 2003.

Severe acute respiratory syndrome (SARS) is estimated to have killed 774 and infected 8,098 worldwide. In the U.S., there were 175 suspect cases and 8 confirmed cases all who traveled to other parts of the world, although no reported deaths (Centers for Disease Control and Prevention, October 2009). Nevada reported 3 cases, none of which were confirmed.

Norovirus - CDC estimates that 23 million cases of acute gastroenteritis are due to norovirus infection, and it is now thought that at least 50% of all food borne outbreaks of gastroenteritis can be attributed to noroviruses (Centers for Disease Control and Prevention, October 2009).

Escherichia coli (abbreviated as *E. coli*) are a large and diverse group of bacteria. Although most strains of *E. coli* are harmless, others can make you sick. Some kinds of *E. coli* can cause diarrhea, while others cause urinary tract infections, respiratory illness and pneumonia, and other illnesses. Experts think that there may be about 70,000 infections with *E. coli* O157 each year in the United States. (Centers for Disease Control and Prevention, October 2009). In past years, Nevada has been listed among other States having *E. coli* outbreaks.

Hantavirous Pulmonary Syndrome (HPS), discovered in 1993, is a severe, sometimes fatal, respiratory disease in humans caused by infection with a hantavirus.

Anyone who comes into contact with rodents that carry hantavirus is at risk of HPS. Rodent infestation in and around the home remains the primary risk for hantavirus exposure. Even healthy individuals are at risk for HPS infection if exposed to the virus.

To date, no cases of HPS have been reported in the United States in which the virus was transmitted from one person to another.

Figure 5.5 shows the number of cases of HPS by State. Note that HPS is more prevalent in the western U.S.

Figure 5.5 - Reported HPS Cases as of June 2012

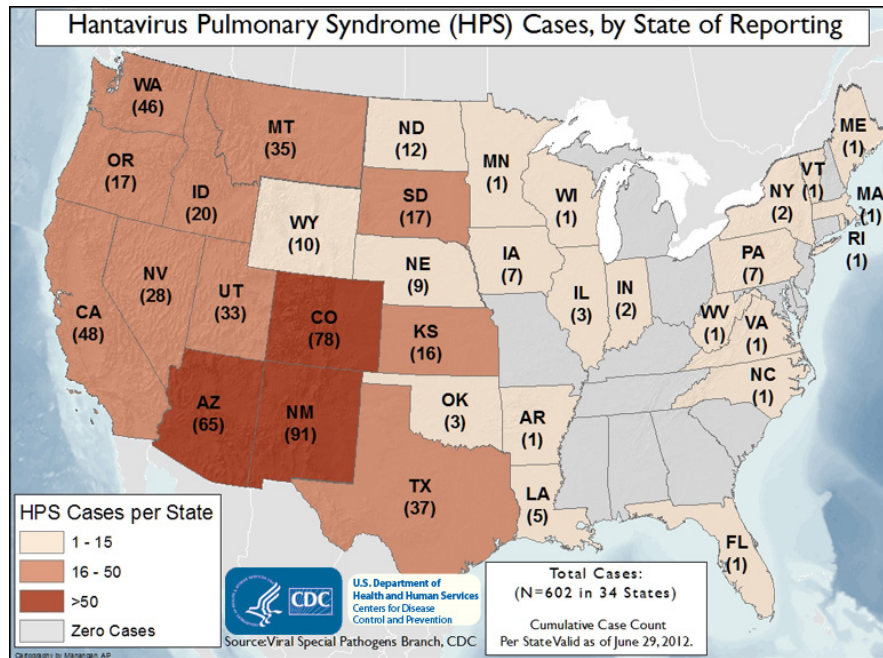


Table 5.12 – Historic Occurrences of Epidemics Registered in Nevada

Date	Details
February 1992	Cholera outbreak confirmed. At least 26 passengers from Aerolineas Argentinas Flight 386 that brought a cholera outbreak to Los Angeles traveled on to Las Vegas, where 10 showed symptoms of the disease. Cholera or cholera-like symptoms developed in 67 passengers of Flight 386.
Spring 2000	Five cases of the measles confirmed. Outbreak identified and confirmed, Clark County Health District (CCHD) Office of Epidemiology (OOE) worked with the Immunization Clinic and the media to alert the community about the prevention of the spread of the disease.
October 2004	Norovirus confirmed at a major public accommodation facility on the Strip.
April 2009	H1N1 virus confirmed by the WHO as a worldwide epidemic.

Extent and Probability of Future Events

The probability and magnitude of disease occurrence, particularly an epidemic, is difficult to evaluate due to the wide variation in disease characteristics, such as rate of spread, morbidity and mortality, detection and response time, and the availability of vaccines and other forms of prevention. There is growing concern, however, about emerging infectious diseases as well as the possibility of a bioterrorism attack. Over the last 300 years, ten major influenza pandemics have occurred. The 1918 pandemic (Spanish Flu) is considered to be yet the most severe. 30% of the world's population became ill and between 50 and 100 million died. One important factor why the Spanish Flu spread so quickly and so extensively was through modern transportation, which at the beginning of the 20th century offered a global coverage. The virus was spread around the world by infected crews and passengers of ships and trains and severe epidemics occurred in shipyards and railway personnel. Concerns about the emergence of a new pandemic are salient, particularly in light of recent outbreaks such as SARS (Severe Acute Respiratory Syndrome) in 2002-2003 and the Swine Flu in 2009, which quickly spread because of the convenience of global air travel. The next influenza pandemic could be equally severe and widespread illness or absenteeism in freight transportation sectors can cause cascading disruptions of social and economic systems.

The more efficient transportation is, the more efficient the transmission of infectious disease. International and long distance transport such as air and rail, modes and terminals alike, concentrates passengers and increase the risk of exposure. The velocity of transportation systems for long distance travel is superior to the incubation time of many flu variants. Since the incubation time for the average influenza virus is between 1 and 4 days, there is ample time for someone being infected to travel to the other side of the world before noticing symptoms. Thus, in a window of a few days before an outbreak could become apparent to global health authorities, a virus could have easily been translocated in many different locations around the world.

I-80 and the railroad pass through Lovelock, Winnemucca, and Battle Mountain. All three towns have small airports as well. Additionally, Reno and Las Vegas attract international tourists who could potentially carry disease to these cities. Of highest concern is in the Reno area, in various entertainment venues, and Reno/Tahoe International Airport. The transient nature of the Washoe County population

coupled with primary highway and rail arteries that connect the County to the Tri-County area increase the potential for an epidemic as well as for its spread into neighboring counties.

Location

An epidemic in the Tri-County area would affect a regional response requiring coordination among Pershing, Humboldt, and Battle Mountain General Hospitals, neighboring counties, state and federal agencies. Segments of the population at highest risk for contracting an illness from a foreign pathogen are the very young, the elderly, or individuals who currently experience respiratory or immune deficiencies. These segments of the population are present within the County.

Warning Time

Due to the wide variation in disease characteristics, the warning time for a disease disaster can vary from no time to months, depending upon the nature of the disease. No warning time may be available due to an extremely contagious disease with a short incubation period, particularly if combined with a terrorist attack in a crowded environment. However, there are agencies in place that have capabilities to prevent, detect, and respond to these types of diseases, such as the Centers for Disease Control (CDC), and the Nevada State Health Division (NSHD). This provides a positive, balancing influence to the overall outcome of a disease disaster event.

5.2.4 Flood

Planning Significance	Humboldt , Lander, and Pershing - Moderate
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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, wetland areas, or playas.

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: Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.

- Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Floods also cause economic losses through closure of businesses and government facilities; disrupt communications; disrupt the provision of utilities such as water and sewer service; result in excessive expenditures for emergency response; and generally disrupt the normal function of a community. Flooding in the Tri-County area, including the County seats of Battle Mountain, Lovelock, and Winnemucca, is due primarily to the overflow of the Humboldt River. The Humboldt River originates at a spring in the East Humboldt range and receives most of its water from the Ruby, Jarbidge, and Independent mountain ranges. The river flows through each of the Counties and terminates in the Humboldt Sink southeast of Lovelock.

All of the County seats in the Tri-County area have experienced both dry-mantle and wet mantle flooding. Characteristics of both types of floods are shown in Table 5.13.

Table 5.13 – Characteristics of Dry-mantle and Wet-mantle flooding

Factor	Dry-mantle Flood	Wet-mantle Flood
Soil Mantle Condition	Dry (high water storage capacity)	Wet (storage capacity exhausted)
Precipitation	Short intense rainfall	Prolonged rainfall and/or snowmelt
Storm Area	Only 5 to 10% of flooding drainage.	Large, usually all of flooding drainage
Volume of Water	Small, may be only a few acre-feet	Large, thousands of acre-feet
Flow to Stream Channels	Over surface	Seepage, bleeding of saturated soil
Sediment Carried	High, as much as 60% of volume	Low in relation to water volume

Flooding along the Humboldt River is caused historically by abrupt warming trends that melt large areas of snow or by rainfall on snow or frozen ground. These conditions are generally associated with wet-mantle flooding.

The USGS defines a flash-flood as the result of heavy or excessive amounts of rainfall within a short period of time, usually less than 6 hours, causing water to rise and fall quite rapidly. Flash-floods can occur in either dry-mantle or wet-mantle conditions and can reach their peak volume in a matter of a few minutes, often carrying large loads of debris including mud and rock fragments.

Canal and Dam Failures

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

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

FEMA has established a dam hazard potential classification system. The system categorizes dams according to the degree of adverse incremental consequences of a failure or mis-operation of a dam. The hazard potential classification does not reflect in any way on the current condition of the dam (e.g., safety, structural integrity, flood routing capacity). Three classification levels have been adopted: Low, Significant, and High, listed in order of increasing adverse incremental consequences. Each level is defined as follows and summarized in Table 5.14.

Low Hazard Potential

Dams assigned the low hazard potential classification are those where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

Significant Hazard Potential

Dams assigned the significant hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

High Hazard Potential

Dams assigned the high hazard potential classification are those where failure or mis-operation will probably cause loss of human life.

Table 5.14 – Hazard Potential Classification Summary

Hazard Potential Classification	Loss of Human Life	Economic, Environmental, Lifeline Losses
Low	None Expected	Low and generally limited to owner
Significant	None Expected	Yes
High	Probable. One or more expected.	Yes (but not necessary for this classification)

History

There are two principal rivers in the Tri-County area, the Humboldt and the Quinn. The rivers and their tributaries are shown in Table 5.15.

Table 5.15 – Rivers in the Tri-County Area

Humboldt		Quinn	
Tributary Rivers	Location (County)	Tributary Rivers	Location (County)
Little Humboldt	Humboldt	Kings	Humboldt
Reese	Lander		
South Fork, Humboldt	Elko, White Pine		
North Fork, Humboldt	Elko		
Mary's	Elko		

Memorable floods on the Humboldt date from 1861-62; however, no well-detailed documentation of floods prior to the turn of the century exists. The flood of February 1910 flooded the upper Humboldt River beyond the highest stages known and was caused by a rapid melt of low-elevation snowpack overlying frozen ground. Damages were extensive and railroad grades, roadways, and bridges were washed out. The Humboldt River flood of 1910 has been estimated to have a recurrence interval of approximately 140 years, based on flood frequency relationships developed by the U.S. Army Corps of Engineers and work done by the USGS at the Palisades gaging site. Floods of a lesser extent and magnitude occurred in April 1942, January 1943, and May 1952 (a spring snowmelt flood).

The flood of February 1962 was considered major and was due to prolonged, low-intensity rainfall on moderate amounts of snow generating serious flooding in Winnemucca and Battle Mountain. Flooding in Battle Mountain was the worst. On February 12, the Reese River overflowed and sent three feet of water into the town. As business owners stacked sandbags, citizens complained that the Southern Pacific's raised track bed was keeping the floodwaters from draining.

Along the Humboldt River, the snowmelt floods in 1983 and 1984 were among the second (1984) and third (1983) highest in the period of record. Flooding was caused by snowmelt over the entire basin. The total volume of snowmelt for 1984 was more than twice as great as in any year prior to 1983 (FEMA, Flood Insurance Study, Humboldt County).

Table 5.16 describes historic damaging floods for the Humboldt River Basin from 1906 to 1969.

Table 5.16 – Chronology of Floods in the Humboldt River Basin

Date	Type	Location	Description
5/28/1906	Dry-mantle	South of Golconda	Heavy rainfall caused the failure of the Duertre Reservoir Dam resulting in 7 deaths, loss of livestock, and undermining of Southern Pacific track.
Feb/1907	Wet-mantle	Lower Humboldt below Battle Mountain	No flood records available.
3/6/1907 to 4/21/1907	Wet-mantle	Lower Humboldt below Battle Mountain	Caused by rainfall on snowpack, Loss of livestock, both Humboldt and little Humboldt flooded along entire length.
Feb-Apr/1910	Wet-mantle	The entire length of the Humboldt River	Flooding in Battle Mountain, Winnemucca, and Lovelock. Considerable loss of livestock, extensive damage to roads, railroads, and bridges. Flooding in Lovelock destroyed most of the canal and diversion system and flooded agricultural land.
7/22-23/1913	Dry-mantle	Little Humboldt, Paradise Valley	Severe thunder and rain storms cause widespread flooding. Damage to hay fields in Paradise Valley
Jan-Apr/1914	Wet-mantle	Paradise Valley, Lovelock	Damage to roads and bridges. Big Five reservoir in Lovelock breeched causing damage to farmland below.
Feb-Mar/1917	Wet-mantle	Area above Beowawe	Road, railroad, and bridge damage.
6/22/1918	Dry-mantle	Paradise Valley	Relatively minor damage.
Feb-Mar/1921	Wet-mantle	South of Palisade	Railroad and bridge damage.
Apr-Jun/1922	Wet-mantle	Little Humboldt	Minor flooding, no reported damage.
Mar-Jun/1932	Wet-mantle	Lower Humboldt, Lovelock	Big Five Diversion washed out.
12/1937 to 5/1938	Wet-mantle	Paradise Valley	Bridge damage.
Apr-May/1942	Wet-mantle	Entire length of the Humboldt River	Damage to roads, railroads, bridges, irrigation structures, cropland, and ranch buildings. Unregulated dams from Elko to Rye Patch were dynamited to relieve flood pressure. In Lovelock the Young and Rodgers Dam were destroyed.
1/21-27/ 1943	Wet-mantle	Elko County	Damage to roads, railroads, bridges, and irrigation canals
Feb-May/1952	Wet-mantle	Entire length of the Humboldt River	Damage to roads, railroads, bridges, crops, head gates on Pitt-Taylor Dams and Big Five levees in Lovelock. Affected Battle Mountain and Lovelock.
7/28/1952	Dry-mantle	Reece River Basin	Extensive erosion
2/9-13/1962	Wet-mantle	Battle Mountain and vicinity	Greatest flood in Battle Mountain since 1910. Damage to structures, roads, railroad, irrigation structures, crops, and cattle. Some Battle Mountain Residents evacuated (\$500,000 in damages)
Jan/1969	Wet-mantle	Little Humboldt	High flows

Historically, the most extensive flood damage in the Tri-County area has occurred in the Humboldt River Basin between Battle Mountain and Lovelock. Battle Mountain, Winnemucca, and Lovelock have all experienced loss of crops, and cattle as well as damage to roads, railroads, irrigation canals and structures. Most of the flooding has been wet-mantle in nature, occurring in the late winter and early spring. This type of flooding is mainly due to rain on snow during a time of year when the soil is already saturated and unable to absorb additional moisture.

Flooding in the Battle Mountain area can potentially threaten commercial and residential structures due to the fact that those types of structures have been built within the flood zone. In Winnemucca and Lovelock, flooding tends to affect agriculturally related structures including diversion dams and canals

Canal and Dam Failure

Since 1900 there have been a number of canal and dam failures in the Tri-County area. Certain structures in the Lovelock area, such as the Rodgers Dam, have failed multiple times. During the flood of 1942, unregulated dams were dynamited to relieve flood pressure along the river.

Most of the more costly dam or canal structure failures have occurred in the Lovelock area. The Rodgers Dam, which diverts irrigation water for approximately 2/3 of the 37,000 acres of irrigable land in Lovelock, has failed twice; most recently in 2006. At that time the replacement cost for the Rodgers Dam was approximately \$5,000,000.

Since the construction of the Rye Patch Reservoir Dam in 1936, the structures downstream of the dam in the Lovelock area have been less susceptible to flooding. However, the earthen dam at the end of the Humboldt near the Big Five Dam continues to be a weak point in the system. Like the Rodgers Dam, it has failed multiple times over the years. Failure at that location has repeatedly caused flood damage to approximately 22% of the agricultural land in Lovelock.

Location, Extent, and Probability of Future Events

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies often use historical records, such as stream flow gages, to determine the probability of occurrence for floods of different magnitudes. The probability of occurrence is expressed as a percentage for the chance of a flood of a specific extent occurring in any given year.

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

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

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

The magnitude of flood used as the standard for floodplain management in the United States is a flood having a 1 percent probability of occurrence in any given year. This flood is also known as the 100-year flood or base flood. The most readily available source of information regarding the 100-year flood is the

system of Flood Insurance Rate Maps (FIRMs) prepared by FEMA. These maps are used to support the National Flood Insurance Program (NFIP). The FIRMs show 100-year floodplain boundaries for identified flood hazards. These areas are also referred to as Special Flood Hazard Areas (SFHAs) and are the basis for flood insurance and floodplain management requirements. The FIRMs also show floodplain boundaries for the 500-year flood, which is the flood having a 0.2 percent chance of occurrence in any given year. FEMA has created FIRMs for Humboldt, Lander, and Pershing Counties, dated 2010, 1988 and 1990, and 2009 respectively. The FIRMs show that the Cities of Lovelock and Winnemucca are mostly located outside of the 100-year flood zone. However a significant portion of the Town of Battle Mountain is located within the 100-year flood zone.

There has been at least one significant flood in the Humboldt River Basin during every decade since 1900. It is therefore reasonable to assume this established flood frequency pattern will continue. Battle Mountain is the most susceptible to residential and commercial property damage while Winnemucca and Lovelock are likely to sustain damage to agricultural facilities. Bridges and railroads have the potential for damage at various locations along the Humboldt.

Canal and Dam Failure

The goal of the Nevada Division of Dam Safety program is to avoid dam failure and thus prevent loss of life and destruction of property. This is accomplished by regulation of new dam construction and periodic visual inspections of existing dams. The Division has created a data base of dams throughout the State that classifies the dams in accordance with the FEMA standards. Table 5.17 includes the dams in the Tri-County area that are classified as High or Significant hazard dams. High hazard dams are highlighted in red.

Table 5.17 – Significant and High Hazard Dams Within the Tri-County Area

National ID	State ID	Name	County	Hazard
NV00001	0	Alkali Reservoir	Humboldt	S
NV00003	J-057	Bog Hot Reservoir	Humboldt	S
NV00004	J-330	Knott Creek Reservoir	Humboldt	S
NV00005	J-016	Onion Valley Dam	Humboldt	S
NV00006	J-041	Little Onion Dam	Humboldt	S
NV00008	0	Dufurrena Pond #13	Humboldt	S
NV00197	J-152	Soldier Meadow Dam	Humboldt	H
NV01151	J-134	Chimney Dam	Humboldt	S
NV10264	J-018	Desmond Dam	Humboldt	S
NV10267	J-126	Fort McDermitt Dam	Humboldt	H
NV10272	J-546	Lone Tree Section 23 Tails	Humboldt	S
NV00057	J-118	Iowa Creek Dam	Lander	S
NV00058	0	Izzenhood Dam	Lander	S
NV00100	0	Smith Creek Dam	Lander	S
NV00127	J-114	Kingston Canyon Dam	Lander	H
NV00178	J-369	Argenta Tailings Dam	Lander	S
NV10290	J-224	Copper Canyon Tailings	Lander	S
NV10298	J-203	Filippini Ranch Dam	Lander	S
NV10409	J-290	BMG Mine Willow Creek Dam	Lander	S
NV10460	J-430	Callaghan Creek Dam	Lander	S
NV10124	0	Rye Patch Dam	Pershing	H

In addition to the significant and high hazard dams listed, there are a substantial number of low-hazard dams within the Tri-County area. Failure of these low-hazard dams is unlikely to cause loss of life but could cause damage to structures. Table 5.18 shows the total number of dams in the Tri-County area. Of the four high-hazard dams in the Tri-County area, failure of the Rye Patch Dam would potentially cause the most damage.

Table 5.18 –Number of Dams in Tri-County Area

County	Hazard Classification			Total
	High	Significant	Low	
Humboldt	2	9	37	48
Lander	1	8	30	39
Pershing	1	0	17	18

Canal failure is also a concern throughout the Tri-County area. Failure of canal levees and undermining of diversion structures have nearly always accompanied historic floods. Canal and diversion structure failure results when the canal capacity is exceeded and water overtops the bank. This usually occurs when water releases from dams upstream are above normal. Abnormally high releases are necessary when the capacity of the reservoirs upstream of the dams is exceeded. For example, the maximum amount that can be released from Rye Patch Dam exceeds the capacity of several of the structures downstream of the dam. Oftentimes, a wet winter will allow the manager of the dam, the Pershing County Water Conservation District (PCWCD), to fill the Rye Patch Reservoir to capacity. However, two consecutive wet winters may produce too much storage water, endangering the dam and making a release of the excess water

necessary. Since the overtopping of the Rye Patch Dam could cause a catastrophic failure, the PCWCD is sometimes forced to release water in quantities that can potentially damage facilities downstream. When dam, canals, and/or canal structures fail, the ability to control flood waters becomes limited.

Historically, dam and canal failures have accompanied every significant flood of the Humboldt River. The location of the facility failure is dependent upon the extent and location of the flood.

NFIP

All three of the Counties participate in the NFIP and do not permit building in the floodway. According to each of the Counties codes, critical flood zones are protected from encroachment and development.

Repetitive Loss

FEMA's Severe Repetitive Loss (SRL) Program was designed in 2004 to provide funding to reduce or eliminate the long-term risk of flood damage to SRL structures insured under the (NFIP).

Nevada has no severe repetitive loss properties. FEMA's Repetitive Flood Claims (RFC) grant program was authorized to assist States and communities in reducing flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP). Table 3-19 below is a summary of the number of repetitive loss cases and claims paid due to floods for communities in the State of Nevada. There are no properties in the Tri-County area that qualify.

Table 5.19 – Nevada Communities Repetitive Loss Due to Flood

<i>Community Name</i>	<i>Number of Properties</i>	<i>Total Claims Paid</i>
Churchill County	1	\$6,997
Clark County	4	\$103,087
Carson City	3	\$99,799
Douglas County	4	\$216,889
City of Las Vegas	3	\$265,640
City of Reno	11	\$2,089,412
City of Sparks	23	\$5,685,185
Washoe County	8	\$687,794

Note: The data contained on this report contains repetitive loss properties only. It does not include mitigated properties. Data as of 7/31/2009

Source: NV State Flood Plain Manager

5.2.5 Hazardous Materials Events

Planning Significance	Humboldt – High, Lander – Moderate, Pershing - Low
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Nature

Hazardous materials may include hundreds of substances that pose a significant risk to humans. These substances may be highly toxic, reactive, corrosive, flammable, radioactive, or infectious. Hazard materials are regulated by numerous Federal, State, and local agencies including the U.S. Environmental Protection Agency (EPA), U.S. Department of Transportation (DOT), National Fire Protection Association, FEMA, U.S. Army, and International Maritime Organization.

Hazardous material releases may occur from any of the following:

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

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). These chemicals are identified by the EPA in the *List of Lists – Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112 of the Clean Air Act*. Releases of EHSs can occur during transport to and from fixed site facilities. Transportation-related releases are generally more troublesome because they may occur anywhere, including close to human populations, critical facilities, or sensitive environmental areas. Transportation-related EHS releases are also more difficult to mitigate due to the variability of locations and distance from response resources. In addition to accidental human-caused hazardous material events, natural hazards may cause the release of hazardous materials and complicate response activities. The impact of earthquakes on fixed facilities may be particularly serious due to the impairment or failure of the physical integrity of containment facilities. The threat of any hazardous material event may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cut-off of response personnel and equipment. In addition, the risk of terrorism involving hazardous materials is considered a major threat due to the location of hazardous material facilities and transport routes throughout communities and the frequently limited antiterrorism security at these facilities.

Regulation

The National Response Center (NRC) serves as the sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. In addition to gathering and distributing spill data for Federal On-Scene Coordinators and serving as the communications and operations center for the U.S. National Response Team (an organization of 15 Federal departments and agencies responsible for coordinating emergency preparedness and response to oil and hazardous substance pollution incidents), the NRC maintains agreements with a variety of federal entities to make additional notifications regarding incidents meeting established trigger criteria. The NRC also takes Terrorist/Suspicious Activity Reports and Maritime Security Breach Reports.

The State of Nevada Bureau of Corrective Action oversees cleanup of releases of regulated substances using a multi-media (air, water, soil, and ecological resources) approach. The bureau also administers the environmental response program.

History

Both the NRC and the Nevada Bureau of Corrective Actions (BCA) maintain databases of hazardous spills. The Bureau of Corrective Actions database consists primarily of oil and chemical spills whereas the NRC database includes essentially all hazardous spills. Table 5.20 shows the number of spills reported in the Tri-County area between 1990 and July 2012. There is some overlap on cases reported to the NRC and BCA.

Table 5.20 – Reported Hazardous Spill Incidents (1990 to July 2012)

County	National Response Center	Bureau of Corrective Actions
Humboldt	252	130
Lander	81	66
Pershing	35	58

Location, Extent, and Probability of Future Events

The industries that consistently report spills in the Tri-County area are mining and transportation. Mining related spills make up a significant part of those reported to the NRC. Other common spills reported to the NRC are railroad and trucking company related. Hazardous materials are routinely shipped by means of Interstate 80 and the railroad and the potential for spills is always present.

Comprehensive information on the probability and magnitude of hazardous material events from all types of sources (such as fixed facilities or transport vehicles) is not available. Wide variations among the characteristics of hazardous material sources and among the materials themselves make such an evaluation difficult. While it is beyond the scope of this HMP to evaluate the probability and magnitude of hazardous material events in the County in detail, it is possible to determine the exposure of population, buildings, and critical facilities should such an event occur. Areas at risk for hazardous material events include any area within a 1-mile radius of Interstate 80, Highway 50, and the railroad including Winnemucca, Lovelock, Battle Mountain, Golconda, and Austin (see Appendix B).

5.2.6 Infestation

Planning Significance	Humboldt – Moderate, Lander – Low, Pershing - Low
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Nature

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

- 1) Non-native (or alien) to the ecosystem under consideration and
- 2) Whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Invasive species can be plants, animals (including aquatic species) and other organisms (e.g., microbes). Source: United States Dept. of Agriculture, National Agriculture Library (10/5/2007)

Infestations impact Nevada's economy through the destruction of crops and natural resources which also impacts tourism. Some of the plant infestations are highly flammable and assist in the spread of Wildland fires. Human actions are the primary means of introduction and spread of invasive species.

History

Weeds

Noxious weeds are designated per NRS 555.130 and 555.010.

The Nevada Department of Agriculture monitors the introduction and spread of noxious weeds in the state. They have developed the following categorization scheme for control of noxious weeds with Category "C" being the most widespread and subject to active eradication.

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

Table 5.21 shows noxious weeds that are included on the Nevada Department of Agriculture's Nevada Noxious Weed List and are known to occur in the Tri-County area according to the Nevada Noxious Weed Field Guide.

Table 5.21 – Noxious Weeds Known to Occur in the Tri-County Area

Category A Weeds:	
Weed	County where it occurs
African rue (<i>Peganum harmala</i>)	Pershing
Austrian fieldcress (<i>Rorippa austriaca</i>)	Humboldt, Lander, Pershing
Black henbane (<i>Hyoscyamus niger</i>)	Humboldt, Lander
Camelthorn (<i>Alhagi pseudalhagi</i>)	Lander
Giant reed (<i>Arundo donax</i>)	Humboldt
Houndstongue (<i>Cynoglossum officinale</i>)	Humboldt
Mayweed chamomile (<i>Anthemis cotula</i>)	Humboldt
Mediterranean sage (<i>Salvia aethiopis</i>)	Humboldt
Perennial sowthistle (<i>Sonchus arvensis</i>)	Humboldt
Purple starthistle (<i>Centaurea calcitrapa</i>)	Pershing
Spotted knapweed (<i>Centaurea maculosa</i>)	Humboldt, Lander
Sulfur cinquefoil (<i>Potentilla recta</i>)	Humboldt
Yellow starthistle (<i>Centaurea solstitialis</i>)	Humboldt, Lander, Pershing
Yellow toadflax (<i>Linaria vulgaris</i>)	Humboldt
Category B Weeds:	
Diffuse knapweed (<i>Centaurea diffusa</i>)	Lander
Leafy spurge (<i>Euphorbia esula</i>)	Humboldt, Lander
Medusahead (<i>Taeniatherum caput-medusae</i>)	Humboldt, Pershing
Musk thistle (<i>Carduus nutans</i>)	Humboldt, Lander
Russian knapweed (<i>Acroptilon repens</i>)	Humboldt, Lander, Pershing
Scotch thistle (<i>Onopordum acanthium</i>)	Humboldt, Lander, Pershing
Category C Weeds:	
Canada thistle (<i>Cirsium arvense</i>)	Humboldt, Lander, Pershing
Hoary cress (<i>Cardaria draba</i>)	Humboldt, Lander, Pershing
Perennial pepperweed (<i>Lepidium latifolium</i>)	Humboldt, Lander, Pershing
Poison-hemlock (<i>Conium maculatum</i>)	Humboldt
Puncturevine (<i>Tribulus terrestris</i>)	Humboldt, Lander, Pershing
Salt cedar (tamarisk) (<i>Tamarix</i> spp.)	Humboldt, Lander, Pershing
Spotted waterhemlock (<i>Cicuta maculata</i>)	Humboldt, Lander

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

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

Insects

Occurring within the Tri-County area, Mormon crickets are the insect most likely to cause substantial damage and economic loss. Mormon crickets are flightless, ground dwelling insects native to the western United States. They eat native, herbaceous perennials (forbs), grasses, shrubs, and cultivated forage crops, reducing feed for grazing wildlife and livestock. In large numbers, their feeding can contribute to soil erosion, poor water quality, nutrient depleted soils, and potentially cause damage to range and cropland ecosystems. Drought encourages Mormon cricket outbreaks, which may last several years (historically 5 to 21 years) and cause losses to rangeland, cropland, and home gardens.

Additional insects occurring in Nevada but not currently present or of concern in the Tri-County area include Africanized honey bees, bark beetles, and fire ants.

Aquatic species

Aquatic nuisance species (ANS) are defined as any non-indigenous aquatic species of plant or animal that has a negative effect on native species or the ecological stability of waters. Negative effects may lead to a decrease in sport fish and native species numbers or other negative impacts on desirable aquatic life which can lead to commercial and/or recreational loss as well as the possible complete elimination of native species. At times, health issues might also be an area of concern.

Aquatic species that have become a particular concern in Nevada in recent years are: zebra mussels, quagga mussels, Asian clams, and New Zealand mud snails. Currently the quagga mussel is the only species present in the Tri-County.

Quagga mussels were first found in Lake Mead in 2007. The mussels are nuisance invasive species that reproducing quickly and in large numbers. They are biofoulers that obstruct pipes in municipal and industrial raw-water systems, requiring millions of dollars annually to maintain. They produce microscopic larvae that float freely in the water column, and thus can pass by screens installed to exclude them. Monitoring and control of these mussels cost millions of dollars annually. As filter feeders, zebra

and quagga mussels remove suspended material from the habitat in which they live. This includes the planktonic algae that are the primary base of the food web. Thus these mussels may completely alter the ecology of water bodies in which they invade. There has been a preliminary discovery by the Nevada Department of Wildlife of quagga mussels in Rye Patch Reservoir. The mussels were found during routine quagga mussel sampling; however, follow up tests are needed to validate the results. No other infestations have been discovered, but NDOW has sent teams of biologists to test other waterways across the state to make sure no other lakes are affected, a practice NDOW has done routinely since the first outbreak was discovered in Lake Mead. There is no reason to believe there are any other infected waterways at this time. Even in the event of infestation, there is no way to determine the effects quagga mussels will have on any particular body of water. Quagga mussels are most often spread by trailers, boats and equipment that travel between waterways (NDOW, 2011).

Location, Severity and Probability of Future Events

Nevada Division of Forestry is currently funding a geographic information system (GIS) data set project with the Nevada Department of Agriculture and the Weed Management Program to provide better mapping for all of Nevada. This will not be available until 2013 and should be included in the next update of this plan. The Nevada Natural Heritage Program has developed limited maps for the State that show the locations where the various noxious weeds listed in Table 5.22 occur. The Program has also created a map showing the location and cover percentage for cheatgrass (see Appendix B). Transport of weed seeds in areas adjacent to the I-80 corridor is a concern since there is agricultural land and water near I-80 in all of the Counties. Noxious weed infestations are continuously monitored by the State Department of Agriculture. Currently there are no known infestations of insects or aquatic species in the Tri-County area. However there is a potential threat of quagga mussels in Rye Patch Reservoir and continuing drought conditions that encourage increases in insect populations, including Mormon crickets.

The Nevada Hazard Mitigation Planning Subcommittee agreed that plant, insect, and aquatic organism infestations will continue to occur throughout the state as recreation and commerce continue to move people and property across state lines.

5.2.7 Severe Weather

Planning Significance	Humboldt – Moderate to Low, Lander – Moderate, Pershing - Low
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Nature

Thunderstorms, hailstorms, tornadoes, windstorms, and winter storms were combined into the category of severe weather. Thunderstorms are further defined due to the numerous threats associated with them.

Thunderstorms

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

Hailstorms

Hail is a form of solid precipitation which consists of balls or irregular lumps of ice, that are individually called hail stones. Hail stones consist mainly of water ice and measure between 0.20” and 6.00” (5 and 150 millimeters) in diameter, with the larger stones coming from severe and dangerous thunderstorms. Hail is possible with most thunderstorms as strong rising air currents in the thundercloud transport moisture laden air well above the freezing level converting super-cooled water vapor into hail stones. The stronger the updraft into the thunderstorm, the longer these initially small hail stones stay suspended in the storm, allowing them to grow to in size to the point where they eventually become too heavy for the updraft to keep them aloft, and they fall to the surface.

Tornadoes

A tornado is a violent, rotating column of air which is in contact with both the surface of the earth and a thunderstorm cloud. Tornadoes come in many sizes but are typically in the form of a visible condensation funnel, whose narrow end touches the earth and is often encircled by a cloud of debris. Most tornadoes have wind speeds between 65 mph and 110 mph, are approximately 250 feet across, and travel less than a mile before dissipating. Some attain wind speeds of more than 300 mph, stretch more than a mile across, and stay on the ground for dozens of miles. Tornadoes are measured using the Fujita Scale, which measures tornadoes according to their intensity and area. The scale is divided into six categories:

- F0 (Gale)
- F1 (Weak)
- F2 (Strong)
- F3 (Severe)
- F4 (Devastating)
- F5 (Incredible)

Downburst Winds

A downburst is created by an area of significantly rain-cooled air that, after hitting ground level, spreads out in all directions producing strong winds. Unlike winds in a tornado, winds in a downburst are directed outwards from the point where it hits land or water. Dry downbursts are associated with thunderstorms with very little rain, while wet downbursts are created by thunderstorms with high amounts of rainfall. Downburst winds are often termed microbursts, macrobursts, or outflow thunderstorm winds. Most downburst winds that impact the County occur as dry downbursts due to the high cloud bases of the associated thunderstorms, which allows for much of the rainfall to evaporate before reaching the ground. They are also usually microbursts compared to macrobursts since the area affected is typically less than 2.5 miles. Macrobursts do occur in the region when individual thunderstorm cells organize into a line or cluster, but are less common. Downburst winds are typically 35 to 75 mph, but can exceed over 100 mph in rare cases.

Downburst winds typically damages fences, roofs, weakened structures, trees, and power lines. Downbursts do pose a significant risk to aviation, especially to aircraft taking off and landing due to strong winds that change direction over very short distances. In addition, small aircraft on the ground can incur damage if not secured. Downburst winds do pose a significant risk to new lightning induced Wildland fire starts, allowing small fires to grow quickly. During periods of drought, dust storms result from downburst winds and cause visibilities to drop below ½ mile, creating hazardous driving conditions. Downburst winds from thunderstorms are common in Churchill County from late spring through early fall.

Down-slope Wind Storms

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

Strong and/or severe winds often precede or follow frontal activity, including cold fronts, warm fronts, and dry lines. Down-slope wind storms are common in Churchill County during the winter months when winter storms approach the Sierra. Strong winds ahead of a cold front are ducted down to the surface due to mountain waves, enhancing wind speeds that are often stronger than Down-slope wind storms seen in the rest of the United States. Down-slope winds in the lee of the Sierra typically produce sustained southwest winds of 30 to 50 mph with gusts to 70 mph. During the strongest down slope wind storms, winds can exceed over 100 mph and last numerous hours.

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

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

Winter Storms

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

History

The National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center provides information (www.ncdc.noaa.gov/stormevents) regarding storm events for each County and/or forecast zone in Nevada. The following storm events have occurred within the Tri-County area from 2006 to the present:

Table 5.22 – Past Storm Events in the Tri-County Area (2006–2012)

Storm Event	Number of Event by County ¹		
	Humboldt	Lander	Pershing
Dust Storm	2	1	0
High Wind	8	4	0
Heavy Snow	7	0	0
Thunder Storm	10	4	3
Flash Flood	2	0	0
Hail	1	2	0
Tornado	1	0	0
Frost/Freeze	1	1	0
Winter Storm	4	7	0

¹Event shown are those officially reported. Storm events for Humboldt and Pershing are often similar due to their common climate zone (zone 1)

The storm events shown in Table 5.22 caused two injuries and relatively minimal damage. Not all storm events are reported so the Table (note lack of events for Pershing County) does not account for all weather events. However, those shown demonstrate that all types of storms occur in the Tri-County area; thunder storms, high wind, and winter storms being the most common.

Table 5.23 shows the annual maximum and average snowfall amounts that have occurred in the Tri-County area.

Table 5.23 – Snowfall in the Tri-County Area

City/Town	Average Annual Snowfall (in.)	Maximum Snowfall (in.)
Winnemucca	19.9	38.0
Battle Mountain	20.4	60.7
Lovelock	7.3	26.9

High winds in the Tri-County area are most common during the months of January through April. Wind speeds recorded in the Tri-County area have reached as high as 70 mph with gusts exceeding 80 mph. In the past, the affects of high winds have included dust storms. Most dust storms last about 4 hours and have been known to reduce visibility on local roads including I-80.

Thunder storms in the Tri-County area occur almost exclusively during the summer. Historically, many rangeland fires have been attributed to lighting from thunderstorms. Cloudbursts associated with thunderstorms have also caused flash floods. Flash flooding has occurred in normally dry washes as well as in creek beds and rivers.

Tornados have been recorded in Humboldt and Lander Counties. Table 5.24 includes these tornados as measured according to the Fujita Scale.

Table 5.24 – Tornado History for Tri-County Area

County	Date	Time	Magnitude (F scale)
Humboldt	July 24, 1931	Not recorded	F0
Humboldt	August 14, 1979	13:00	F0
Lander	May 5, 1994	15:30	F1

Location, Extent, and Probability of Future Events

Thunderstorms that produce hail and downburst winds occur in the Tri-County area every year. An active thunderstorm pattern, resulting from monsoon moisture over the Southwestern United States being transported into Nevada can lead to a prolonged period of thunderstorms and severe weather. In addition, weak weather systems moving over Nevada after a period of hot weather often leads to dry thunderstorms with strong downburst winds. The frequency of tornado occurrence is 1 in 21 years with most being categorized as F0 or F1.

Hailstorms are relatively infrequent and occur in the Tri-County during the late spring through early fall months, often accompanying thunder storms. Hail size generally ranges between pea and marble size, but can get larger than golf balls during the strongest storms that impact the area. A Severe Thunderstorm for hail, as defined by the National Weather Service, is a thunderstorm capable of producing hail stones greater than 1" in diameter, which usually occurs once every decade.

Tornadoes are rare in the Tri-County area due to the mountainous terrain. Historically, tornadoes in the region are categorized as F0 (65-85 mph) or F1 (86-110 mph) on the Fujita Scale. An upper level low pressure system is often required for tornado development in the Tri-Counties due to the need for sufficient wind shear in the lower atmosphere, which is necessary to create an environment favorable for tornado genesis. The frequency of tornado occurrence is 1 in 21 years with most being categorized as F0 or F1.

High Wind events are common in the Tri-County area, occurring every year. The winds are the result of two weather events known as the "Nevada Low" and the Southwest Monsoon Flow. The Nevada low is a local name given to a low or deep trough that develops over California and Nevada between February and April in advance of an associated cold front moving down from the north. A well developed Nevada low system can sustain 17-23 mph winds with 34-46 mph gusts through the area. However, wind speeds of nearly 70 mph have been recorded.

Winter storms occur every year in the Tri-County area. More severe storms can deposit 6 to 10 inches of snow during a 24 hour period and can make travel treacherous. Low temperatures can also create icy driving conditions. Heavy snowfall is generally associated with a strong low pressure system dropping out of the Gulf of Alaska with the higher elevations receiving the greatest amount of snow. Warm temperatures with rain during winter months can cause wet-mantle flooding, melting snow pack, and causing an increase in stream flows.

5.2.8 Volcanic Activity

Planning Significance	Humboldt – Low, Lander – Very Low, Pershing – Very Low
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Nature

A volcano is an opening, or rupture, in a planet's surface or crust, which allows hot, molten rock, ash and gases to escape from below the surface. Volcanic activity involving the extrusion of rock tends to form mountains or features like mountains over a period of time.

Volcanoes are generally found where tectonic plates pull apart or come together. By contrast, volcanoes are usually not created where two tectonic plates slide past one another. Volcanoes can also form where there is stretching and thinning of the earth's crust (called "non-hotspot intra plate volcanism"), such as in the Rio Grande Rift in North America.

History

There is a history of ancient volcanic action in State of Nevada; however, the risk is not considered significant within the State's geographic area. Volcanic activity surrounding the State of Nevada could potentially cause some ash fall over portions of the State. However this is predicted to cause little or no damage or significant disruptions. There is no immediate indication of renewed volcanic activity in State of Nevada. (U.S. Geological Survey)

Location, Extent, and Probability of Future Events

Volcanic activity that produces ash could potentially impact the Tri-County area for a short period of time. Volcanic ash and coarser debris also can induce respiratory problems, cause hazardous driving conditions, interfere with communications, short out power lines, contaminate feed for livestock, and damage electronic or motorized equipment. Once dry, volcanic ash deposits can be remobilized by wind and remain troublesome long after an eruption ceases.

The ash could also temporarily contaminate surface water sources.

Despite the potential hazards associated with volcanic activity, the probability of an event occurring is low. The following Forum Report, on volcanic hazard risks in Nevada, was made available to the Hazard Mitigation Steering Committee from the Nevada Bureau of Mines and Geology.

Volcanic Hazards

Volcanoes most likely to affect the Tri-County area include Mount Lassen, Mount Shasta, Medicine Lake and the Long Valley Caldera in California. Volcanoes in the Cascade Mountains in Oregon could also have a minor effect.

The USGS volcano threat ranking system includes five levels: very high, high, moderate, low, very low. Threat rankings are based on a number of hazard and exposure factors common to most volcanoes. Mount Lassen, Mount Shasta, the Long Valley Caldera and several volcanoes in the Cascade Range are considered "very high" threat volcanoes. The Medicine Lake Volcano is considered a "high" threat volcano.

The main effect on Nevada from an eruption of any of these volcanoes would be the deposition of ash. The primary hazard associated with the ash would be damage to flying aircraft. However, ash from eruptions in California or Oregon is not likely to cause long-term problems in Nevada, because the ash deposits are likely to be thin, typically only a few inches thick at most.

A massive eruption from the Long Valley Caldera near Mammoth Lakes, California over 700,000 years ago devastated a considerable area in Owens Valley when thick, hot flows of ash were deposited as far south as Bishop. Air-fall ash from these eruptions did collect as thick piles of ash in parts of Nevada, and some of the ash may have been hot enough or thick enough to devastate the landscape locally. Today, scientists would expect to see strong indications from seismographs before another eruption of this magnitude. The USGS has an ongoing monitoring program and will issue warnings prior to any subsurface changes that could precede a major eruption."

Figure 5.6 - Volcanoes that Could Potentially Affect the Tri-County Area



Figure 5.6 shows the locations of active volcanoes in the western U.S. Note the location of volcanoes in northern California (Medicine Lake, Mount Shasta, and Lassen Peak (circled)). Volcanoes in this area are those most likely to produce ash that could affect the Tri-County area.

Eruptions within Nevada are unlikely in the near future. Currently, Steamboat Hot Springs is the only volcano in Nevada that is included on the USGS threat ranking list (rank: “Moderate”). However, volcanic activity in this area has not occurred for some time. There are two volcanic fields located within the Tri-County area that are not included in threat ranking list: Buffalo Valley and the Sheldon Antelope Range. The location of both of these fields is shown in Figure 5.7.

Figure 5.7 Volcanic Fields of Nevada

The lava flows in the Charles Sheldon National Antelope Range straddle the Nevada-Oregon border in an area relatively remote from other young volcanism. The flows (20-35 kilometers long) issued from small shield volcanoes. The Range is crossed by Highways 140, 34A, and 8A.

The Buffalo Valley volcanic field is located along the eastern margin of Buffalo Valley just north of the Fish Creek Mountains caldera (around 2.4 million years old). The field is comprised of 14 vents and associated flows which form a northeast-trending zone, approximately 5 kilometers wide and 15 kilometers long, along the northwest flank and piedmont of the Fish Creek Mountains. Both cones and flows are relatively small. Most of the vents are surmounted by breached cinder cones of highly variable size and shape. Several of these cones occur as contiguous pairs or triplets with north to northeast alignments that generally parallel the overall trend of the field. Cone heights range from approximately 50 to 100 meters and cone diameters from 150 to 500 meters. Flow areas are each less than 0.5 square kilometers, and the combined area of all the cones and flows is approximately 10 square kilometers. The Buffalo Valley volcanic field is situated along the southeast margin of Buffalo Valley in north-central Nevada. The field is located approximately 235 kilometers east-northeast of Reno, Nevada, and about 5 kilometers southwest of Battle Mountain, Nevada.

5.2.9 Wildland Fire

Planning Significance	Humboldt – Very High, Lander – High, Pershing - High
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Nature

A wildland fire is any non-structure fire that occurs in an area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered.

Wildland fires are fueled by vegetation classified as light (grass, pine needles, etc...) medium (brush) or heavy (timber). wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. wildland fires often occur in areas with ample vegetation and are usually ignited in light fuels.

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

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

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

The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby increasing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards.

History

Humboldt County has the highest incidence of Wildland fire in Nevada (BLM Nevada State Office 2002). In fact, between 1980 and 2011, Humboldt County fires have consumed nearly twice the acreage consumed in fires in Pershing County and almost three times the acreage consumed in Lander County.

A moderate number of Wildland fires occurred between 1980 and 2003 in Lander County, with some fires of extensive acreage during the last decade.

Pershing County experienced large wildland fires in the late 1990's and during the last decade. The severe nature of previous fires in Pershing County has heightened the awareness of some communities to become more proactive in their fire hazard reduction efforts.

Table 5.25 Includes the fire history in the Tri-County area from 1980 to 2011. On July 13, 2012, the US Department of Agriculture declared all counties in Nevada are under a drought emergency declaration. The Governor accepted the declaration and instructed the Chief of Nevada Division of Emergency Management (NDEM) to activate the State Emergency Operations Center in accordance with the Nevada Drought Plan.

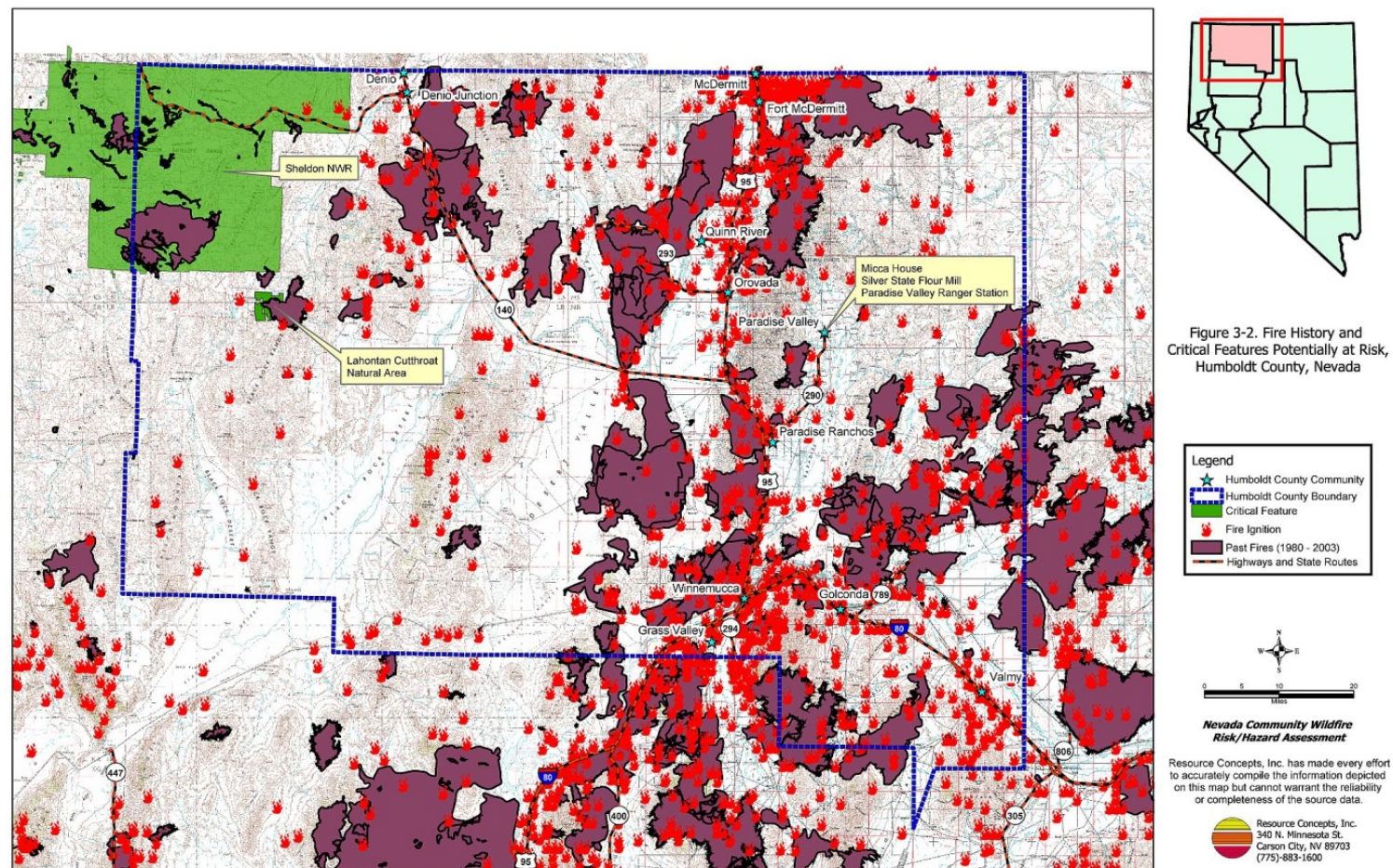
Figures 5.8 through 5.10 show the location of fires between 1980 and 2003. Although the maps do not show fires from 2003 to present, they do illustrate the fires can occur in approximately the same areas from year to year.

Table 5.25 – Summary of Fire History Data for the Tri-County Area

Year	HUMBOLDT		LANDER		PERSHING	
	Number of Fires	Total Reported Fire Acreage	Number of Fires	Total Reported Fire Acreage	Number of Fires	Total Reported Fire Acreage
1980	27	973	15	1,136	NA	2,531
1981	14	1,983	18	121	NA	853
1982	11	3,230	22	84	NA	2,423
1983	22	5,441	11	4	NA	261
1984	44	73,170	35	2,516	NA	11,287
1985	65	383,342	41	35,622	5	69,170
1986	42	43,775	30	6,361	6	8,118
1987	87	34,269	11	7	1	16,917
1988	48	22,007	18	156	NA	4,962
1989	27	9,372	20	1,901	1	4,042
1990	44	4,411	18	114	NA	1,380
1991	44	11,778	20	823	1	419
1992	47	11,956	16	691	NA	84
1993	38	2,777	19	1,248	NA	2
1994	44	32,152	11	123	NA	1,030
1995	68	19,642	8	23,921	3	15,934
1996	107	300,599	33	45,884	5	10,020
1997	56	17,372	20	42	NA	830
1998	42	5,272	11	7,834	8	22,029
1999	92	288,884	47	229,332	73	364,721
2000	NA	NA	26	12,036	21	54,046
2001	NA	NA	34	85,923	20	148,744
2002	NA	NA	14	275	2	1,182
2003	15	1,453	24	351	NA	3
2004	NA	NA	NA	NA	NA	NA
2005	NA	NA	NA	NA	NA	NA
2006	18	274,341	7	23,073	4	25,655
2007	7	48,550	6	109,522	6	80,279
2008	2	1,145	2	1,493	0	0
2009	0	0	1	322	1	478
2010	2	1,145	0	0	3	5,726
2011	6	97,887	2	3,041	2	1,752
Totals		1,696,92		593,596		854,878

Source: Fire ignition and base acreage data provided by the National Interagency Fire Center, Boise, Idaho. Additional fire history information provided by BLM Nevada State Office and USFS Supervisor's Office.

Figure 5.8 - Fire History for Humboldt County 1980 - 2003



Source: Resource Concepts Inc.

Figure 5.9 - Fire History for Lander County 1980 - 2003

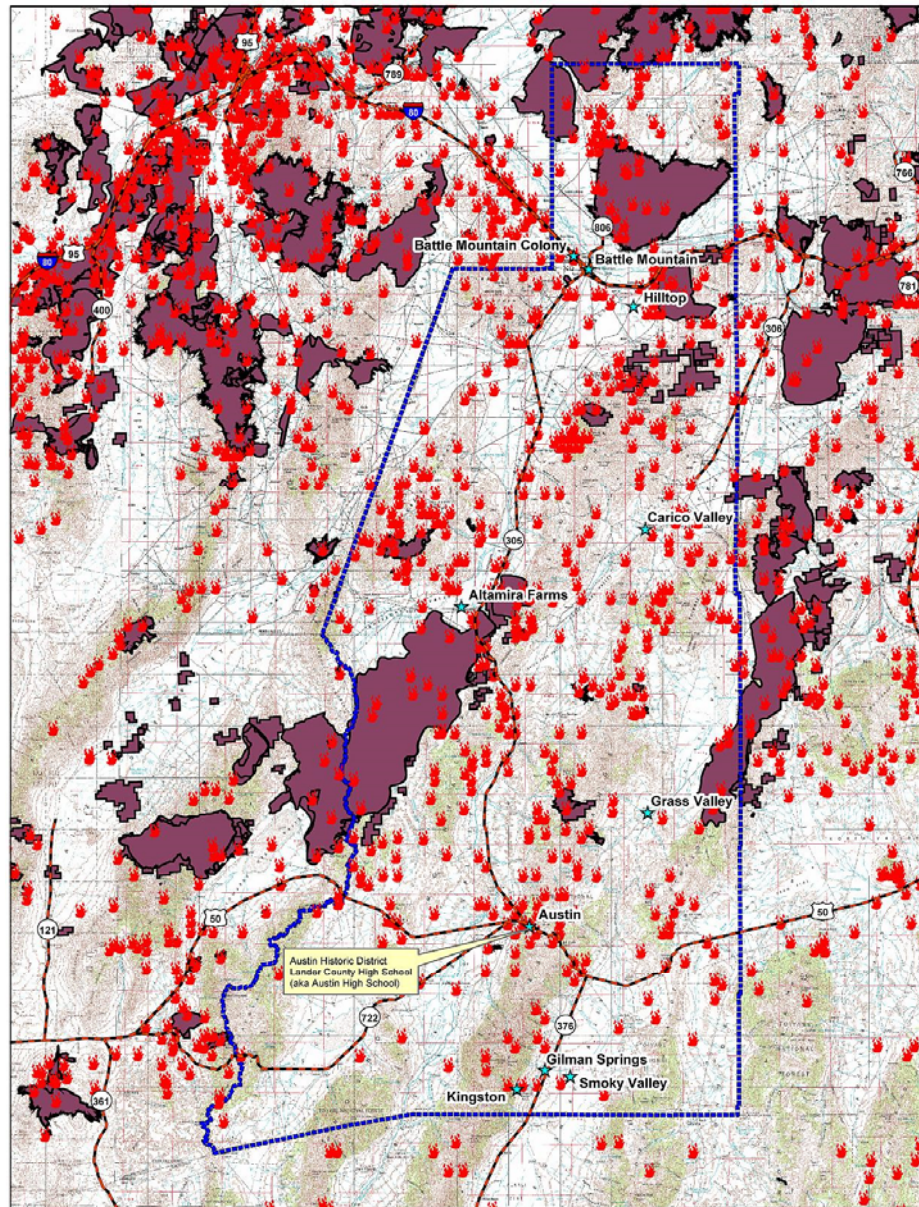
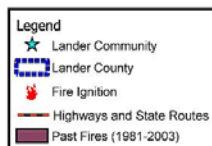


Figure 3-2. Ignition History, Fire History and Critical Features Potentially at Risk, Lander County, Nevada

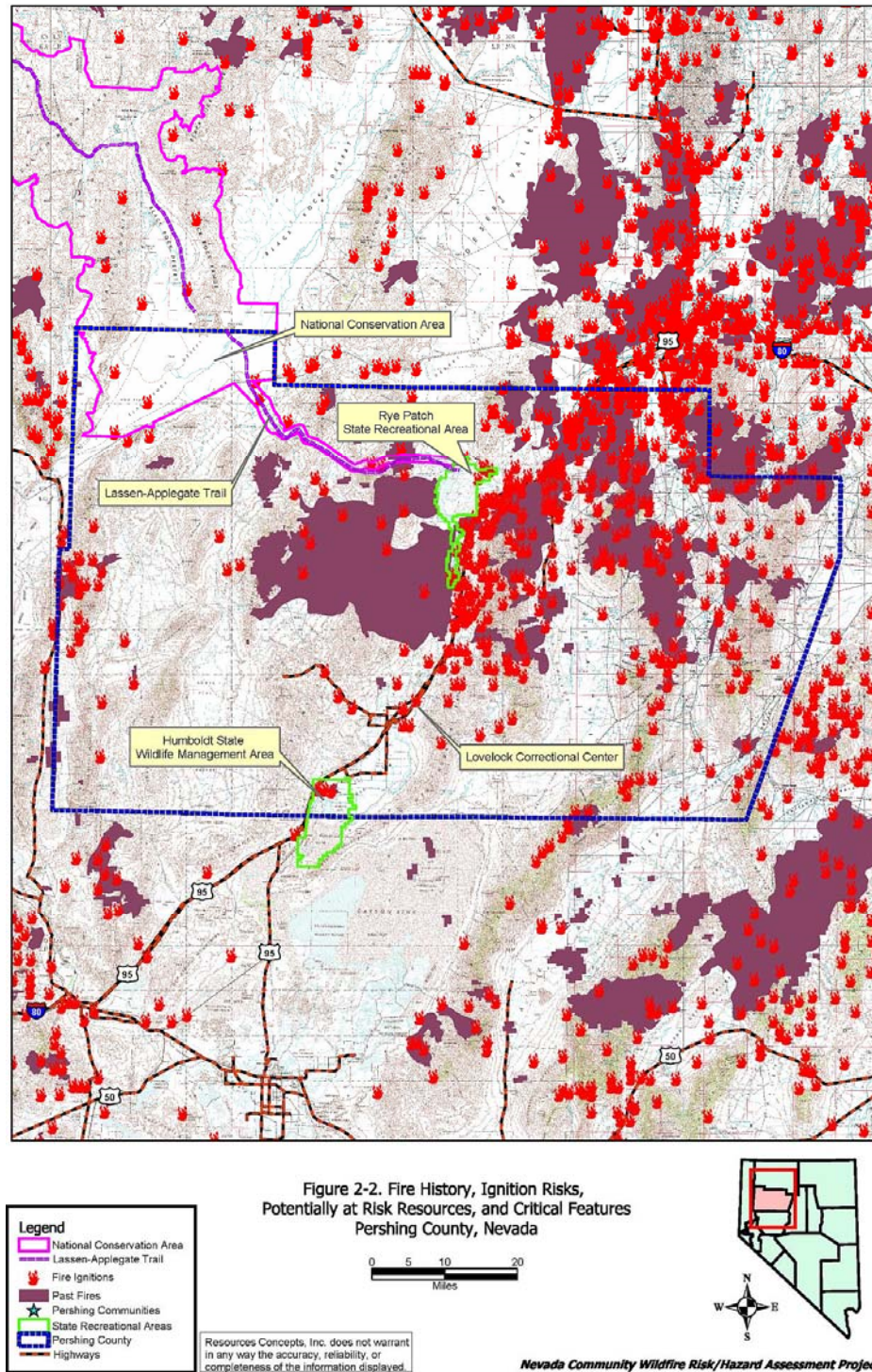


Resource Concepts, Inc.
340 N. Minnesota St.
Carson City, NV 89703
(775)-883-1600

Source: Resource Concepts Inc.

Nevada Community Wildfire Risk/Hazard Assessment Project
Resource Concepts, Inc. has made every effort to accurately compile the information depicted on this map but cannot warrant the reliability or completeness of the source data.

Figure 5.10 - Fire History for Pershing County 1980 - 2003



Location, Extent, Probability of Future Events

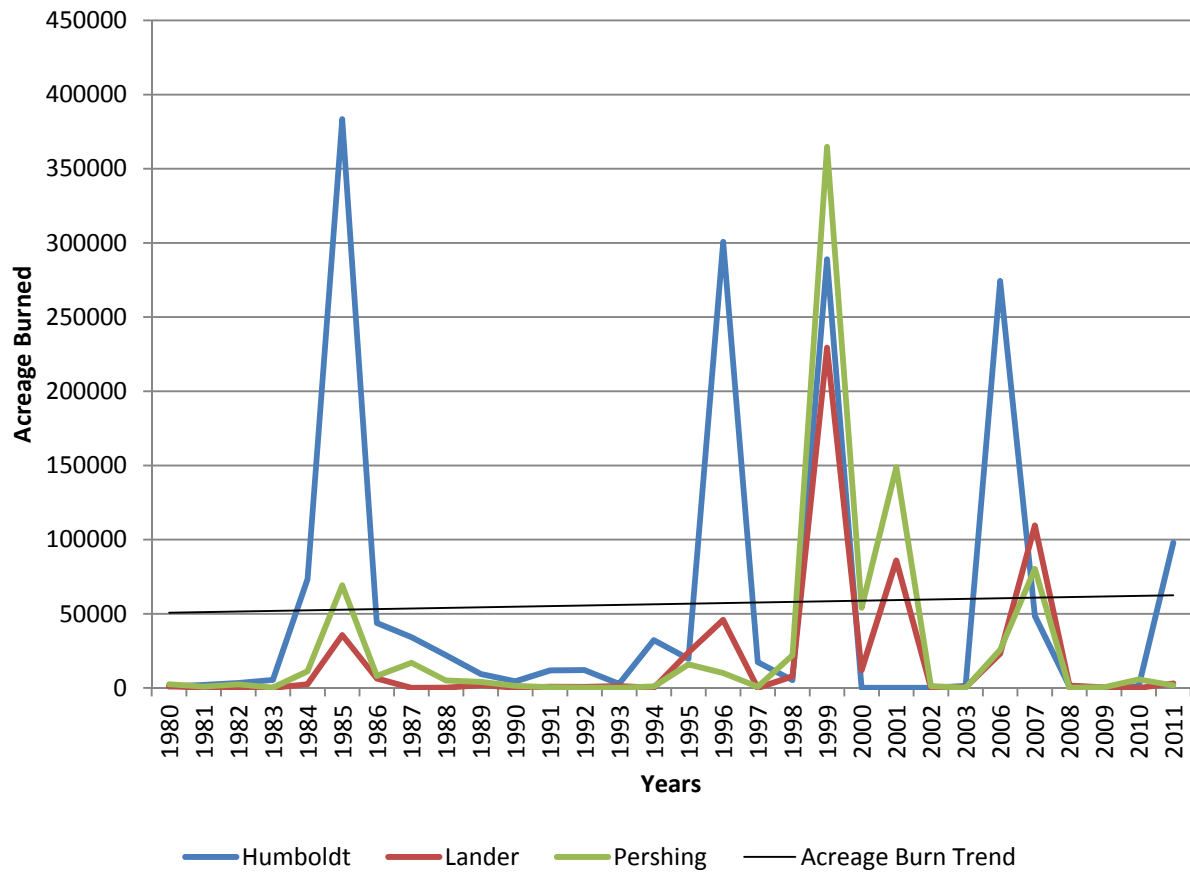
More acres burned in Nevada during the 1990s than in the previous 40 years combined. Of the 10 worst fire seasons experienced in the state, six were in the past eight years. In 2007, more than 900,000 acres burned across Nevada — a total of 784 fires (University of Nevada Cooperative Extension, 2012, www.unce.unr.edu/programs/natural/index.asp?ID=52). As the County that consistently leads the State in number of Wildland fires, Humboldt County accounts for a high percentage of those fires.

During 2004, assessment teams from RCI visited communities within the Tri-County area. Selected communities were evaluated for fire risk using criteria that included community design, existing building materials, utilities, defensible space, fire protection, and fire behavior. The assessment results are shown in Table 5.26.

Table 5.26 –Tri-County Wildland fire Risk/Hazard Ratings

	Community	Hazard Rating
HUMBOLDT	Denio	Moderate
	Denio Junction	Low
	Golconda	Moderate
	Grass Valley	Moderate
	McDermitt	Low
	Orovada	Low
	Paradise Ranchos	Moderate
	Paradise Valley	Moderate
	Valmy	Moderate
	Winnemucca	Moderate
	Fort McDermitt	High
	Austin	High
LANDER	Battle Mountain	Low
	Battle Mountain Colony	Low
	Gilman Springs	Moderate
	Hilltop	Low
	Kingston	High
	Grass Valley	Moderate
PERSHING	Humboldt	High
	Imlay	Moderate
	Lovelock	Moderate
	Mill City	Moderate
	Oreana	Moderate
	Rye Patch	Moderate
	Unionville	Extreme

On average, risk/hazard ratings for the communities in the Tri-County area are in the moderate range. However, wildland fires across the U.S. during the 2012 fire season have proven that communities in environments susceptible to wildland fire are always at risk and potential for structure damage can be high. Additionally, historical data shows an increase in the number of wildland fires and a general trend toward higher acreage burned as shown in Figure 5.11. See appendix B for maps of areas where wildland fire potential is high.

Figure 5.11 Tri-County Acreage Burned in Wildland fires, 1980 - 2011

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6.0 VULNERABILITY ASSESSMENT

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

6.1 ASSET INVENTORY

Assets within each community that may be affected by hazard events include population, residential and non residential buildings, and critical facilities and infrastructure. Assets and insured values throughout the Tri-County area are identified and discussed in detail below.

6.1.1 Population and Building Stock

Population data for the County and City was obtained from the U.S. Census data shown in Table 6.1. Estimated numbers and replacement values for residential and nonresidential buildings, as shown in Table 6.1, were derived from information obtained from the County Assessor's office(s) and were verified by parcel data. The assessor's office(s) provided the assessed value for the structures. In Nevada the assessed value is equal to 35 percent of the taxable value. According to the Nevada Department of Taxation, taxable value is equal to the market value for land, based on the use to which it is actually put, rather than highest and best use, plus replacement cost new less depreciation for improvements (Nevada Department of Taxation, *Nevada Property Tax: Elements and Application, Updated January 18, 2013*). Because of extreme market variations caused by fluctuating economic conditions and negative population growth in the Tri-County area, it is difficult to estimate the cost of structures lost to hazards. For this reason, although it is not precise, using the taxable value may be the most consistent way to estimate the value of the damaged structures over time. For this reason it is the method used in this plan.

The residential buildings considered in this analysis include single-family dwellings, mobile homes, multi-family dwellings, temporary lodgings, and nursing homes. Nonresidential buildings were also analyzed including commercial, industrial, agricultural, government, educational, and religious centers. The HAZUS-MH 2009 run for earthquakes by the Bureau of Mines & Geology, UNR, was reviewed. The HAZUS-MH software presents a data limitation by which this software identifies nonresidential buildings by square footage resulting in some nonresidential buildings not being counted. Additionally, the County's Assessor Office supplied residential and non-residential costs as much higher than the HAZUS-MH software so the Assessor's values were used as this represents the County's actual property tax base. Un-reinforced masonry (URM) building information was obtained from the Nevada Insurance Pool and Advanced Data Systems, Inc. who have compiled a statewide inventory.

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

Table 6.1 - Estimated Population and Building Inventory for Tri County Area

Entity	Population ¹	Residential ²		Non-Residential ²	
		Total No. of Buildings	Total Value of all Buildings	Total No. of Buildings	Total Value of all Buildings
Humboldt Co.	16,735	6,937	\$598,839,428	9,363	\$1,115,960,537
Lander Co.	5,841	2,671	\$167,965,368	796	\$226,361,657
Pershing Co.	6,734	2,269	\$140,202,491	4,158	\$272,122,574

¹U.S.Census, 2011 Estimates,²Humboldt, Lander, and Pershing County's Assessor's data

6.1.2 Critical Facilities and Infrastructure

A critical facility is defined as a public or private facility that provides essential products and services to the general public, such as preserving the quality of life in the County and City and fulfilling important public safety, emergency response, and disaster recovery functions. They are identified in Table 6.2.

Critical infrastructure is defined as infrastructure that is essential to preserve the quality of life and safety in the County. Existing County and City roads were not critical to evacuation or response. Critical infrastructure is identified in Table 6.2.

The resource value information in Table 6.2 was derived from the assessed values of structures provided by the Counties and estimated infrastructure values found in the HAZUS-MH Earthquake Event Reports printed in August 2009 for each County. The estimates have been adjusted by adding a two percent per year inflation rate for 2010-2013.

Table 6.2 – Tri-County Critical Facilities and Infrastructure

	Category	Type	Number	Estimated Value of Resource
Humboldt Co.	Critical Facilities	Sheriff Stations/Jail	2	\$2.3 million
		Fire Stations	7	\$584,072
		EOC and County Admin.	1	N/A
		Public Primary and Secondary Schools	7	\$44.3 million
		Hospital/Urgent Care/Ambulance	1	\$18.5 million
		Communication Centers	3	\$300,000
	Infrastructure	Federal and State Highways	303 (miles)	\$2.3 billion
		Bridges (number from National Bridge Inventory)	52	\$70.5 million
		Airport Facilities	7	\$295 million
		Utilities (Water, Waste Water, Gas, Electricity)	2	\$820 million
Lander Co.	Critical Facilities	Sheriff Stations/Jail	2	N/A
		Fire Stations	2	N/A
		EOC and County Admin.	1	N/A
		Public Primary and Secondary Schools	7	N/A
		Hospital/Urgent Care/Ambulance	1	N/A
		Communication Centers	0	0
	Infrastructure	Federal and State Highways	241(miles)	\$1.7 billion
		Bridges (number from National Bridge Inventory)	21	\$14 million
		Airport Facilities	4	\$209 million
		Utilities (Water, Waste Water, Gas, Electricity)	N/A	\$393 million
Pershing Co.	Critical Facilities	Sheriff Stations/Jail	4	\$2 million
		Fire Stations	4	\$650,000
		EOC and County Admin.	1	\$6 million
		Public Primary and Secondary Schools	4	\$26.9 million
		Hospital/Urgent Care/Ambulance	1	\$4.2 million
		Communication Centers	0	0
	Infrastructure	Federal and State Highways	236 (miles)	\$1.6 billion
		Bridges (number from National Bridge Inventory)	53	\$82 million
		Airport Facilities	1	\$79.8 million
		Utilities (Water, Waste Water, Gas, Electricity)	N/A	\$590 million

Sources: FEMA HAZUS-MH, Humboldt, Lander, and Pershing Counties, FHWA, NDOT 2013 State Highway Preservation Report, FAA

6.2 METHODOLOGY

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

Using GIS, the building footprints of critical facilities were compared to locations where hazards are likely to occur. If any portion of the critical facility fell within a hazard area, it was counted as impacted.

Using census block level information, a spatial proportion was used to determine the percentage of the population and residential and nonresidential structures located where hazards are likely to occur. Census blocks that are completely within the boundary of the hazard area were determined to be vulnerable and were totaled by count. A spatial proportion was also used to determine the amount of linear assets, such as highways and pipelines, within a hazard area. The exposure analysis for linear assets was measured in

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

Replacement values for insurance coverage were developed for physical assets. These values were obtained from the County's Assessor's Office and HAZUS-MH 2012 results. For facilities that did not have specific values per building in a multi-building scenario (e.g., schools), the buildings were grouped together and assigned one value. For each physical asset located within a hazard area, exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced). Finally, the aggregate exposure, in terms of replacement value or insurance coverage, for each category of structure or facility was calculated. A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared except for earthquake (HAZUS-MH 2009).

6.3 DATA LIMITATIONS AND FUTURE DEVELOPMENT

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

The resulting analysis was complied to the highest degree possible with the hardware, software and data availability limitations discovered during plan preparation. HAZUS was able to determine the population and critical facilities within a given hazard area and from there a limited assessment was derived. In regard to epidemic, infestation, and the effects of volcanic eruptions where structures would not usually be affected, the hazard was not included in the Table but was referenced in the footnotes.

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

6.3.1 Future Development

Humboldt, Lander, and Pershing Counties have historically low growth. Between 2000 and 2013 Lander and Pershing experienced an average negative population growth while Humboldt County had an average positive growth rate of only 0.06% (Nevada State Demographer). The State Demographer also estimated in 2013 that all three Counties would continue to experience negative growth through 2032.

Although there is a substantial amount of land in the Tri-County area, the economic downturn of the last 7 years has discouraged development and it is not expected to improve for the next 20 years. There are a number of renewable energy projects, in particular, geothermal production, that are currently in various stages of implementation. Although a significant number of people can be employed during construction of a renewable energy plant, permanent positions created are relatively few. All development will incorporate existing or future building codes and regulations that include mitigation measures and will not pose a significant vulnerability.

Population growth for the overall state is down along with high unemployment rates for the state which affect all counties. The population decline and economic issues for the State of Nevada are having

enormous impacts on residential and non-residential growth. For the purposes of this plan significant growth over the next five years is not expected and growth from 2014 to 2032 is anticipated to be negative. During the plan maintenance activities this should be reviewed and during the next plan update process growth can be revisited.

6.4 EXPOSURE ANALYSIS

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

DMA 2000 Requirements: Risk Assessment, Assessing Vulnerability, Overview

Assessing Vulnerability: Overview

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

Element

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

Source: FEMA 2008.

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

Assessing Vulnerability: Identifying Structures

Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.

Element

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

Source: FEMA 2008.

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

Assessing Vulnerability: Estimating Potential Losses

Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Element

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

Source: FEMA 2008.

The results of the exposure analysis are summarized in Tables 6.3 and 6.4 and in the discussion below. The results in this exposure analysis were greatly affected by the software and data availability limitations. The significant hazards designated as high and moderate are included in the exposure analysis below.

Table 6.3 - Potential Hazard Vulnerability Assessment – Population and Buildings

Hazard ¹	Population ²	AFFECTED STRUCTURES			
		Residential		Non-Residential	
		Number ^{3,4}	Value (\$M) ^{3,4}	Number ^{3,4}	Value (\$M) ^{3,4}
COUNTY TOTALS					
Humboldt Co.	16,735	6,937	600	9,363	517
Lander Co.	5,841	2,671	169	796	57
Pershing Co.	6,734	2,269	140	4,158	131
DROUGHT					
Humboldt Co.	16,735	N/A	N/A	N/A	N/A
Lander Co.	5,841	N/A	N/A	N/A	N/A
Pershing Co.	6,734	N/A	N/A	N/A	N/A
EARTHQUAKE, MAGNITUDE 5.5 to 6.0 (35-40% chance in 50 years)^{5,7}					
Humboldt Co.	16,735	1,008	90	20	1
Lander Co.	5,841	75	5	1	0.06
Pershing Co.	6,734	40	3	0	0
FLOOD – 100 YEAR FLOOD ZONE					
Humboldt Co.	298	246	14	146	5
Lander Co.	3,024	1,312	42	290	26
Pershing Co.	72	110	2	191	7
FLOOD – 500 YEAR FLOOD ZONE					
Humboldt Co. ⁶	298	246	14	146	5
Lander Co.	3,458	1,490	46	1,572	29
Pershing Co. ⁶	72	110	2	191	7
HAZMAT EVENT – 1 MILE RADIUS AROUND HAZARDOUS FACILITIES					
Humboldt Co.	3	1	0.1	18	2
Lander Co.	6	2	0.07	0	0
Pershing Co.	0	0	0	1	0.07
HAZMAT EVENT – 1 MILE BUFFER FOR HIGHWAY CORRIDOR					
Humboldt Co.	10,984	4,274	300	4,876	300
Lander Co.	5,564	2,084	121	676	52
Pershing Co.	3,619	1,508	87	2,756	87
HAZMAT EVENT – 1 MILE BUFFER FOR RAIL CORRIDOR					
Humboldt Co.	11,845	4,609	336	4,929	333
Lander Co.	4,090	1,482	68	491	41
Pershing Co.	3,336	1,390	78	2,441	79
SEVERE WEATHER – HIGH = 100% OF POPULATION, 0% OF BUILDINGS					
Humboldt Co.	16,735	0	0	0	0
Lander Co.	5,841	0	0	0	0
Pershing Co.	6,734	0	0	0	0
FIRE					
Humboldt Co.	16,453	6,402	522	7,474	436
Lander Co.	1,118	405	37	125	8
Pershing Co.	1,776	740	41	1,410	33

¹ Drought, Volcano, Epidemic, and Infestation were not included in the Table. The effects of these hazards could potentially affect the entire populations.

² 2011 U.S. Census Estimates. Population estimates for residential structures affected by hazards assume persons per household average of Counties and Towns.

³ Humboldt, Lander and Pershing County Assessors Data

⁴ Data acquired from HAZUS-MH 2012

⁵ Data acquired from HAZUS-MH 2009, Earthquake Event Reports. Lander and Pershing County models featured a 5.5 magnitude quake while Humboldt County featured a 6.0 magnitude.

⁶ The 100 year and 500 year flood zones in these Counties are essentially the same according to HAZUS.

⁷ Includes structures suffering moderate, extensive and complete damage

N/A = Not Applicable or Not Available

Table 6.4 - Potential Hazard Vulnerability Assessment – Critical Facilities

Humboldt Co.	EOC & Admin.Offices		Sheriff, Stations/Jail		Fire Stations		Schools		Communication Facilities		Hospital Facilities		Water/Sewer Facilities	
Hazard	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹
Drought	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake - Magnitude 6.0 ²	0	0	0	0	0	0	0	0	3	.05	0	0	0 ⁵	4
Epidemic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flood – 500 – Year Flood Zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAZMAT Event – 1-mile radius hazardous	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials Event – 1-mile buffer	1	N/A	1	2	3	.4	5	24	0	0	1	18	0	0
Hazardous Materials Event – 1-mile buffer Rail	1	N/A	1	2	4	.6 ³	5	24	0	0	1	18	0	0
Infestation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Severe Weather ⁴	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	7	44	0	0	0	0	0	0
Volcano/Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lander Co.	EOC & Admin.Offices		Sheriff Stations/Jail		Fire Stations		Schools		Communication Facilities		Hospital Facilities		Water/Sewer Facilities	
Hazard	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹
Drought	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake - Magnitude 5.5 ²	0	0	0	0	0	0	0	0	0	0	0	0	0 ⁵	3
Epidemic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	0	N/A	1	N/A	1	N/A	4	N/A	0	N/A	1	N/A	0	N/A
Flood – 500 – Year Flood Zone	0	N/A	1	N/A	1	N/A	4	N/A	0	N/A	1	N/A	0	N/A
HAZMAT Event – 1-mile radius hazardous	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials Event – 1-mile buffer	1	N/A	1	N/A	1	N/A	5	N/A	0	N/A	1	N/A	0	N/A
Hazardous Materials Event – 1-mile buffer Rail	1	N/A	1	N/A	1	N/A	5	N/A	0	N/A	1	N/A	0	N/A
Infestation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Severe Weather ⁴	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	N/A	1	N/A	1	N/A	2	N/A	0	N/A	0	N/A	0	N/A
Volcano/Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹Values provided by Humboldt, Lander, and Pershing County Assessors²Data acquired from HAZUS-MH 2009, Earthquake Event Reports. Lander and Pershing County models featured a 5.5 magnitude quake while Humboldt County featured a 6.0 magnitude.³Midas value was averaged from other outlying fire stations⁴Since these structures are generally well constructed, it is assumed that they are not damaged⁵Includes pipeline as well as treatment facilities so an exact number is not available

N/A = Not Available

Table 6.4 (cont.) - Potential Hazard Vulnerability Assessment – Critical Facilities

Pershing Co.	EOC & Admin. Offices		Sheriff Stations/Jail		Fire Stations		Schools		Communication Facilities		Hospital Facilities		Water/Sewer Facilities	
Hazard	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹	No.	Value (\$M) ¹
Drought	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake - Magnitude 5.5 ²	0	0	0	0	0	0	0	0	0	0	0	0	0 ⁴	4
Epidemic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flood - 100-Year Flood Zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flood – 500 – Year Flood Zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAZMAT Event – 1-mile radius hazardous	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials Event – 1-mile buffer	1	6	2	2	1	0.4	4	27	0	0	1	4	0	0
Hazardous Materials Event – 1-mile buffer Rail	1	6	2	2	1	0.4	4	27	0	0	1	4	0	0
Infestation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Severe Weather ³	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildland Fire	0	0	0	0	0	0	1	1	0	0	1	4	0	0
Volcano/Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹Values provided by Humboldt, Lander, and Pershing County Assessors²Data acquired from HAZUS-MH 2009, Earthquake Event Reports. Lander and Pershing County models featured a 5.5 magnitude quake while Humboldt County featured a 6.0 magnitude.³Since these structures are generally well constructed, it is assumed that they are among the 99.5% of structures not damaged⁴Includes pipeline as well as treatment facilities so an exact number is not available

N/A = Not Available

See Appendix B for maps showing areas where hazards affect population and structures.

6.4.1 Drought

According to the U.S. Seasonal Drought Monitor, the entire Tri-County area is at risk for drought. Although drought in the area may affect water usage, building and critical facilities may possibly be limited in their use but would not be damaged.

Drought has the potential to affect a number of industries and activities that rely on ground and/or surface water. Tri-County agriculture yielding a wide variety of crops and livestock on land totaling approximately 1.3 million acres is seriously affected by drought. Hydroelectric and geothermal power generation would also be adversely affected. The Nevada State Office of Energy has compiled a list of hydroelectric and geothermal power plants throughout the State. Currently there are 3 geothermal plants and no hydroelectric plants in the Tri-County area. However, there are 27 potential geothermal sites and a hydroelectric project on the Rye Patch Dam. See Table 5.6 for LEPC rankings.

6.4.2 Earthquakes

NBMG used HAZUS-MH 2009 to create earthquake models for each County. The Lander and Pershing models featured a 5.5 magnitude event and the Humboldt model a 6.0 magnitude event. All of these earthquakes have a 35-40% chance of occurring within the next 50 years. The loss estimates included in the models are based on the following specific parameters for each County:

Table 6.5 - HAZUS-MH 2009 Earthquake Modeling Parameters

County	Type	Location of Epicenter		Magnitude	Depth (Km)	Rupture Length (Km)
		Long	Lat			
Humboldt	Arbitrary	-117.74	41.0	6.0	10.0	7.76
Lander	Arbitrary	-117.08	39.49	5.5	10.0	3.31
Pershing	Arbitrary	-118.39	40.18	5.5	10.0	3.31

See Table 5.6 for LEPC rankings for each County.

6.4.2.1 Humboldt Losses

According to HAZUS, about 16.00 % of the buildings in Humboldt County will be at least moderately damaged; the extent of the damage ranging from moderate to complete. This includes approximately 1,110 residential (valued at \$96 million) and 1,498 non-residential (valued at \$83 million) structures.

HAZUS indicated that one week after the earthquake the hospital will have 72% of the beds back in service and by 30 days, 96% of the beds will be operational. The schools, EOC, and police and fire stations would all have functionality greater than 50% on the day of the earthquake. See Table 6.4 for estimated damage to infrastructure.

The entire population of the County (16,735) could be impacted by an earthquake due to the potential for infrastructure damage in addition to damaged structures. The HAZUS model estimated the number of casualties that may result from the quake. HAZUS estimates casualties for three times of the day: 2:00 AM, 2:00 PM, and 5:00 PM. For Humboldt County the worst time was 2:00 PM. A 5.5 magnitude earthquake occurring at this time could result in 12 injuries requiring medical attention, 2 hospitalizations, and 1 death.

The 16% building damage estimate was obtained from the HAZUS-MH August 11, 2009 Earthquake Event Report from the NBMG. The building inventories, including quantity and values, provided by the County Assessor's Office was used instead of the HAZUS estimates. The affected population was calculated using U.S. Census data.

NBMG worked with Advanced Data Solutions to inventory the un-reinforced masonry (URM) buildings within the State. Inventory results showed that 184 residential buildings (306,000 sq ft) and 186 non-residential buildings (1.2 million sq ft) were constructed of un-reinforced masonry. It is anticipated that these buildings would sustain more damage than other buildings during an earthquake. The estimated value of these buildings is \$16 million (residential) and \$10 million (non-residential). The value of the URM structures was estimated using the percentage of URM's compared with the total number of buildings in the County and the equivalent taxable value. The data from the inventory can be used by the County to identify structures qualified for reinforcement retrofits.

6.4.2.2 Lander Losses

According to HAZUS, about 3.00 % of the buildings in Lander County will be at least moderately damaged; the extent of the damage ranging from moderate to complete. This includes approximately 80 residential (valued at \$5 million) and 24 non-residential (valued at \$2 million) structures.

HAZUS indicated that one week after the earthquake the hospital will have 100% of the beds back in service. The schools, EOC, and police and fire stations would all have functionality greater than 50% on the day of the earthquake. See Table 6.4 for estimated damage to infrastructure.

The entire population of the County (5,841) could be impacted by an earthquake due to the potential for infrastructure damage in addition to damaged structures. The HAZUS model estimated the number of casualties that may result from the quake. HAZUS estimates casualties for three times of the day: 2:00 AM, 2:00 PM, and 5:00 PM. For Lander County only one minor injury would result from an earthquake occurring at 2:00 AM.

The 3% building damage estimate was obtained from the HAZUS-MH August 6, 2009 Earthquake Event Report from the NBMG. The building inventories, including quantity and values, provided by the County Assessor's Office was used instead of the HAZUS estimates. The affected population was calculated using U.S. Census data.

NBMG worked with Advanced Data Solutions to inventory the un-reinforced masonry (URM) buildings within the State. Inventory results showed that 168 residential buildings (130,000 sq ft) and 80 non-residential Buildings (292,000 sq ft) were constructed of un-reinforced masonry. It is anticipated that these buildings would sustain more damage than other buildings during an earthquake. The estimated value of these buildings is \$11 million (residential) and \$6 million (non-residential). The value of the URM structures was estimated using the percentage of URM's compared with the total number of buildings in the County and the equivalent taxable value. The data from the inventory can be used by the County to identify structures qualified for reinforcement retrofits.

6.4.2.3 Pershing Losses

According to HAZUS, about 2.00 % of the buildings in Pershing County will be damaged; the extent of the damage ranging from moderate to complete. This includes approximately 45 residential (valued at \$3 million) and 83 non-residential (valued at \$3 million) structures.

HAZUS indicated that one week after the earthquake the hospital will have 97% of the beds back in service and by 30 days, 100% of the beds will be operational. The schools, EOC, and police and fire stations would all have functionality greater than 50% on the day of the earthquake. See Table 6.4 for estimated damage to infrastructure.

The entire population of the County (6,734) could be impacted by an earthquake due to the potential for infrastructure damage in addition to damaged structures. The HAZUS model estimated the number of casualties that may result from the quake. HAZUS estimates casualties for three times of the day: 2:00 AM, 2:00 PM, and 5:00 PM. For Pershing County no casualties are anticipated.

The 2% building damage estimate was obtained from the HAZUS-MH August 12, 2009 Earthquake Event Report from the NBMG. The building inventories, including quantity and values, provided by the County Assessor's Office was used instead of the HAZUS estimates. The affected population was calculated using U.S. Census data.

NBMG worked with Advanced Data Solutions to inventory the un-reinforced masonry (URM) buildings within the State. Inventory results showed that 31 residential buildings (59,000 sq ft) and 37 non-residential buildings (215,000 sq ft) were constructed of un-reinforced masonry. It is anticipated that these buildings would sustain more damage than other buildings during an earthquake. The estimated value of these buildings is \$2 million (residential) and \$1 million (non-residential). The value of the URM structures was estimated using the percentage of URM's compared with the total number of buildings in the County and the equivalent taxable value. The data from the inventory can be used by the County to identify structures qualified for reinforcement retrofits.

6.4.3 Epidemics

Epidemic illness could affect the entire population of the Tri-Counties with resulting quarantines that would temporarily limit use of buildings and critical facilities. However, an epidemic would not damage structures and facilities and they could return to normal use once the epidemic subsided. See Table 5.6 for LEPC rankings. It should also be noted that the State Health Dept. provides support for epidemics.

6.4.4 Floods

Digital FIRMs for Humboldt (dated 2010), Lander (dated 2013), and Pershing (dated 2009) Counties were used together with HAZUS to estimate the amount of population and structures at risk within flood areas (see Tables 6.3 and 6.4). Regarding the 100-year floodplain, the potential for flooding in Lander County is higher than that in both Humboldt and Pershing. In Humboldt County less than 2% of the population and 2% of the structures would be affected by a 100-year flood. In Pershing only 1% of the population and 0.1% of the structures would be affected. This is in contrast to 52% of the population and 46% of the structures in Lander County lying within 100-year flood hazard areas.

Lander County is the only County the Tri-County area that has information for the 500-year floodplain. However, for Lander County the difference between the 500-year and 100-year floodplain areas is small. For example, the affected population is 3,024 to 3,458, a difference of 434. Regarding structures, only 7 additional structures would be affected by a 500-year flood. Even if 500-year flood data were available for Humboldt and Pershing Counties it is not anticipated that the amount of population and structures at risk would be much higher than that for the 100-year flood.

There are four high-hazard dams in the Tri-County area; two in Humboldt County and one each in Lander and Pershing. There is no substantial information on the effects of a failure at any of these dams but all four are located in relatively unpopulated areas. Because of this it is not anticipated that a failure would have a significant effect on population or structures. See Table 5.6 for LEPC rankings.

6.4.5 Hazardous Materials Events

A one mile radius around hazardous facilities and mile-wide buffer zones on both I-80 and the Union Pacific railway were created using GIS mapping. The maps were used to determine how much of the population and how many structures were within those boundaries and would be exposed to a HAZMAT event (see Tables 6.3 and 6.4). In all three Counties very little of the population and very few structures were within the one-mile radius around hazardous materials facilities. However, population centers including Lovelock, Battle Mountain, Winnemucca, and others straddle the interstate and the rail line. Because of this a substantial number of the population and structures in each County would be affected by a HAZMAT event. Table 6.6 shows the percentage of population and structures that could potentially be exposed to such an event.

Table 6.6 – Percentage of Population and Structures Affected by a HAZMAT Event

County	HAZMAT Event on I-80			HAZMAT Event on Rail Line		
	Population (%)	Residential (%)	Non-Res. (%)	Population (%)	Residential (%)	Non-Res. (%)
Humboldt	66	62	52	71	66	53
Lander	95	78	85	70	55	62
Pershing	54	66	66	50	61	59

The fact that a high percentage of the population and structures lie within these buffer zones does not necessarily indicate that the potential for exposure to a HAZMAT event is also high. Since the segments of road and rail passing through these towns are relatively short, the possibility of a HAZMAT event occurring in a remote less populated area may be more likely. See Table 5.6 for LEPC rankings.

6.4.6 Infestation

Buildings and infrastructure in the Tri-County area are not at risk to infestation. Agriculture and related jobs would be at risk to a significant infestation however there are too many variables relating to infestation to adequately estimate the financial loss to the Counties. See Table 5.6 for LEPC rankings.

6.4.7 Severe Weather

Although all the population and buildings are occasionally subjected to severe winter storms, building codes for Humboldt, Lander and Pershing Counties take into account excessive snow and wind loading. Thus homes and buildings within the area are built sufficiently well to withstand severe weather. Road closures due to weather areas for extended periods are rare in these Counties. I-80 runs through all of them and is cleared of snow immediately due to its importance as an interstate artery. During above average snowfall events other County roads are generally cleared within a day. Another possible effect on the population includes power outages but historically they have not lasted more than a day. LEPC committee members from the three Counties rated this hazard low to moderate. See Table 5.6 for LEPC rankings.

6.4.8 Wildland Fires

Of all the hazards that were ranked by the County LEPC's, wildland fire was the only one that received a rank of "high" or "very high" for all three Counties. Over the past several years, wildland fires have increased in number and size the Tri-County area. The potential for larger more numerous fires has increased due to continuing drought conditions. Active fire seasons have always followed droughts. Because of the fact that droughts have been increasing in severity and duration, it can be expected that wildland fires will as well.

The assessments made by RCI in 2004 (see Table 5.26) named four towns having a “high” rating for wildfire; Fort McDermitt (Humboldt), Lander County (Austin and Kingston), and Humboldt (Pershing). One town, Unionville in east central Pershing County has the highest rating of “extreme”. The rating scale includes ratings of “low”, “moderate”, “high”, and “extreme”. See Table 5.6 for LEPC rankings.

6.4.9 Volcano

The volcano risk is mainly due to the potential for ash fallout from volcanoes located in northern California. Although the total population of the Tri-County area is at risk to illness from ash in the air, the damage to buildings is limited to ventilation systems which may be contaminated from the ash. The critical facilities potentially affected by fallout include the hospitals and schools, which may have damage to their HVAC systems. Infrastructure affected by the fallout includes the sewer and water facilities. Due to the potential for contamination, water facilities would be an important concern. Regarding the costs associated with the damage, most of the cost would be attributable to debris removal. See Table 5.6 for LEPC rankings.

Appendix B includes maps showing areas affected by the various hazards. These maps were used to determine affects on population and structures.

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7.0 CAPABILITY ASSESSMENT

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

7.1 LEGAL AND REGULATORY CAPABILITIES

The Counties and Cities in the Tri-County area currently support hazard mitigation through their regulations, plans, and programs. County Building Codes outline hazard mitigation-related ordinances. County Master Plans identify goals, objectives, and actions for natural hazards, including floods, drought, and earthquakes. In addition to policies and regulations, the Counties carry out hazard mitigation activities by participating in the National Flood Insurance Program (NFIP) see section 7.4.1.

The following table, Table 7-1, summarizes the hazard mitigation legal and regulatory capabilities within the Tri-County area.

Table 7.1 - Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Title	Effect on Hazard Mitigation
Plans	Master Plans (All Counties)	Lander and Humboldt Updated 2010, Pershing 2012. Lists goals for coordination, neighborhood design, public awareness, floodplain & hazard area development, and geologic hazards to guide land use planning, economic development
	Community Wildland fire Protection Plan (All Counties)	Provides Wildland fire hazards. Enables Counties to mitigate fuel loads.
	HAZMAT Plan (All Counties)	Provides emergency response to reduce impact of HAZMAT spill.
	Emergency Operations Plan (Lander and Lovelock)	Provide directives to reduce future hazard impact
	Water System Water Conservation Plans (All Counties and Cities)	Include drought plans to mitigate the effects of droughts.
Programs	National Flood Insurance Program (All Counties)	Humboldt, Lander, and Pershing Counties adopt and enforce floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners
Ordinances and Policies	2006 International Building Code, 2006 International Residential Code, 2006 International Fire Code, 2006 International Energy Conservation Code, 2005 National Electric Code, 2006 Uniform Plumbing Code, 2006 Uniform Mechanical Code, Nevada Revised Statue Chapter 489 (Mobile Homes and Similar Vehicles; Manufactured Homes)	Master Plan, Land Use Plan Element, Building, Fire and Zoning codes and ordinances. Provides regulations to reduce hazard impact.
	Special purpose ordinances	Floodplain management, storm water management, Wildland fire ordinances, hazard set back requirements

The programs, plans, policies and regulations listed in Table 7.1 provide a basic framework for mitigation projects. These programs cover the different County's infrastructures and program needs and are effective however, funding for hazard related mitigation projects is not always available.

The small populations in the Tri-County area require that the Counties and Cities work together to provide all the services needed by their citizens. In some cases, individual local government workers must serve in multiple positions to insure important services can be provided. For example, Lovelock and Winnemucca both have police departments in addition to a County sheriff. However, Battle Mountain does not have a police department and relies on the Lander County Sheriff's Department for its law enforcement needs.

Despite population limitations, all of the Counties are able to enforce building and fire codes and ordinances, including those that limit or restrict construction within flood zones. In addition to building code enforcement, all of the Counties have programs for public safety, health and human services, public works and school districts. These programs are run by trained staffs that are provided the resources to implement and promote the programs.

7.2 ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capability assessment identifies the staff and personnel resources available within the Tri-County area to engage in mitigation planning and carry out mitigation projects. The administrative and technical capabilities of the Counties and Cities are listed in Table 7.2.

Table 7.2 - Administrative and Technical Resources for Hazard Mitigation

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

7.3 FINANCIAL CAPABILITIES

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

Table 7.3 – Financial Resources Useful to Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
Local (Counties & Cities)	
Authority to levy taxes for specific purposes	Yes. Upon approval of the County Board of Commissioners or City of Fallon City Council, staying within the stipulations set forth in the Nevada Revised Statutes.
Capital Improvement Plans and Impact Fees	Assigns impact development fees to finance fire and flood control capital improvement programs.
Community Development Block Grants	Yes. Subject to grant from Fed/State.
Incur debt through general obligation bonds	Yes. Staying within the stipulations set forth in the Nevada Revised Statutes.
Incur debt through special tax and revenue bonds	Yes. Upon voter approval, staying within the stipulations set forth in the Nevada Revised Statutes.
Incur debt through private activity bonds	Yes. Upon voter approval, staying within the stipulations set forth in the Nevada Revised Statutes.
Withhold spending in hazard-prone areas	Yes.
State	
Question #1 State Bond	Funding for Parks which can include re-vegetation.
Federal	
FEMA Hazard Mitigation Project Grants (HMPG) and Pre-Disaster Mitigation (PDM) grants	Provides technical and financial assistance for cost-effective pre-disaster and post-disaster mitigation activities that reduce injuries, loss of life, and damage and destruction of property.
FEMA Flood Mitigation Grant Program (FMA)	Mitigate repetitively flooded structures and infrastructure.
USFA Assistance to Firefighters Grant (AFG) Program	Provide equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire.
FEMA/DHA Homeland Security Preparedness Technical Assistance Program (HSPTAP)	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.
US HUD Community Block Grant Program Entitlement Communities Grants	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.
EPA Community Action for a Renewed Environment (CARE)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., storm water) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.
EPA Clean Water State Revolving Fund (CWSRF)	A loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects

Table 7.3 – Financial Resources Useful to Hazard Mitigation (cont.)

CDC Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.
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7.4 CURRENT MITIGATION CAPABILITIES & ANALYSIS

The Tri-County area's current mitigation programs, projects, plans, and/or practices, are shown in Tables 7.4 through 7.6. Note that Lander Counties needs are served primarily by the County.

Table 7.4a – Humboldt County Mitigation Capability Assessment

HUMBOLDT COUNTY						
Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Building and Safety	Code Enforcement, Permitting, Flood Plain Mgmt.	Bobby Thomas (775) 623-6322	✓	✓		Engineering and Flood Management
Planning Dept.	Economic Development	Pam Wickkiser (775) 623-6392	✓	✓		Planning support
Road Dept.	Roads	Ben Garrett (775)623-6416	✓	✓		Roads and Culverts
Emergency Management	Emergency Management, Mitigation Plan	Ed Kilgore (775) 623-6419	✓	✓		Familiar w/mitigation grants, knowledge of vulnerability
School District	Identify and implement mitigation actions for school property	Mike Bumgartner (775) 623-8103	✓	✓		Familiar w/school district infrastructure
Sherriff's Office	Public Safety	Ed Kilgore (775) 623-6419	✓	✓		Familiar w/terrorist mitigation
Health/Human Services	Public Health Nurse	Lorie Savoie (775) 623-6575	✓	✓		Familiar w/ epidemic and CDC grants, health capability

Table 7.4b – Winnemucca Mitigation Capability Assessment

WINNEMUCCA						
Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Building and Safety	Code Enforcement, Permitting, Flood Plain Mgmt.	Sherrie Chaplin (775) 623-6319	✓	✓		Engineering and Flood Management
Planning Dept.	Economic Development	Brenda Willey (775) 623-6300	✓	✓		Planning support
Public Works	Streets, Water and Sewer, Maintenance, Parks	Roger Sutton (775) 623-6381	✓	✓		Engineering, detailed knowledge of infrastructure
Police Dept.	Public Safety	Eric Silva (775) 623-6396	✓	✓		Familiar w/terrorist mitigation
State Fire Marshall, Volunteer FD	Fuels Mitigation, public education	Alan Olsen (775) 623-6329	✓	✓		Detailed knowledge of Vulnerability

Table 7.5 – Lander County Mitigation Capability Assessment

LANDER COUNTY						
Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Building and Safety	Code Enforcement, Permitting, Flood Plain Mgmt.	Joe Lindsey (775) 635-2860	✓	✓		Engineering and Flood Management
Planning Dept.	Economic Development	Gina Little (775) 635-2860	✓	✓		Planning support
Public Works	Water and Sewer, Pool	Jacob Edgar (775) 635-2728	✓	✓		Engineering, Detailed knowledge of infrastructure
Emergency Management	Emergency Management, Mitigation Plan	Jayson Cutler 635-5135	✓	✓		Familiar w/mitigation grants, knowledge of vulnerability
School District	Identify and implement mitigation actions for school property	Jim Squibb (775) 635-2886	✓	✓		Familiar w/school district infrastructure
Sherriff's Office	Public Safety	Ron Unger (775) 635-1100	✓	✓		Familiar w/terrorist mitigation
State Fire Marshall, VFD	Fuels Mitigation, public education	Battle Mountain VFD (775) 635-5102	✓	✓		Detailed knowledge of Vulnerability
Health/Human Services	Public Health Nurse	Brenda Keller (775) 635-2386	✓	✓		Familiar w/ epidemic and CDC grants, health capability

Table 7.6a – Pershing County Mitigation Capability Assessment

PERSHING COUNTY						
Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Building and Safety	Code Enforcement, Permitting, Flood Plain Mgmt.	CJ Safford (775) 273-2700	✓	✓		Engineering and Flood Management
Planning Dept.	Economic Development	Michael Johnson (775) 273-2700	✓	✓		Planning support, Flood Management
Road Dept.	Roads	Brian Greene (775) 273-7334	✓	✓		Roads and Culverts
Emergency Management	Emergency Management, Mitigation Plan	Charles Sparke (775) 273-4556	✓	✓		Familiar w/mitigation grants, knowledge of vulnerability
School District	Identify and implement mitigation actions for school property	Daniel Fox (775) 273-7819	✓	✓		Familiar w/school district infrastructure
Sherriff's Office	Public Safety	Richard Machado (775) 273-5111	✓	✓		Familiar w/terrorist mitigation
Health/Human Services	Public Health Nurse	Lorie Savoie (775) 623-6575	✓	✓		Familiar w/ epidemic and CDC grants, health capability

Table 7.6b – Lovelock Mitigation Capability Assessment

LOVELOCK						
Agency Name (Mission/ Function)	Programs, Plans Policies, Regulations, Funding, or Practices	Point of Contact Name and Phone	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Building and Safety	Code Enforcement, Permitting, Flood Plain Mgmt.	CJ Safford (775) 273-2700	✓	✓		Engineering and Flood Management
Planning Dept.	Economic Development	Michael Johnson (775) 273-2700	✓	✓		Planning support
Water District	Water	Ryan Collins (775) 273-2387	✓	✓		Engineering, detailed knowledge of infrastructure
Police Dept.	Public Safety	Mike Mancebo (775) 273-2256	✓	✓		Familiar w/terrorist mitigation
State Fire Marshall, Fire Department	Fuels Mitigation, public education	Chuck Rasco (775) 623-6329	✓	✓		Detailed knowledge of Vulnerability

7.4.1 National Flood Insurance Program

<p>DMA 2000 Requirements: Mitigation Strategy – National Flood Insurance Program</p> <p>National Flood Insurance Program (NFIP) Compliance</p> <p>Requirement: §201.6(c)(3)(iii): [The mitigation strategy] must also address the jurisdiction’s participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.</p> <p>Element</p> <ul style="list-style-type: none"> ■ Does the updated plan document how the planning team reviewed and analyzed this section of the plan and whether this section was revised as part of the update process? ■ Does the new or updated plan describe the jurisdiction(s) participation in the NFIP? ■ Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP? <p><i>Source: FEMA, March 2008.</i></p>

The Counties and Winnemucca have identified special flood-hazard areas. They entered the NFIP on the following dates:

- Humboldt – May 4, 1987
- Winnemucca – August 15, 1990
- Lander – April 5, 1983
- Pershing – June 17, 1991

Only Lander County participates in the Community Rating System (CRS). The CRS is a voluntary program for the NFIP-participating communities. The goals of the CRS are to reduce flood losses, to facilitate accurate insurance rating, and to promote the awareness of flood insurance. Currently Lander County is considered a CRS Class 8 community. Mitigation actions for flood in Lander County are detailed in Table 8.3, Mitigation Goals and Related Actions. There is one repetitive loss property and no severe repetitive loss properties (as defined by the NFIP) within the County or City. Current building code within the County and City restricts future building within a floodway.

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8.0 MITIGATION STRATEGY

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

8.1 MITIGATION GOALS AND OBJECTIVES

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

DMA 2000 Requirements: Mitigation Strategy – Local Hazard Mitigation Goals	
Local Hazard Mitigation Goals	
Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.	
Element	
■ Does the new or updated plan include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards?	
<i>Source: FEMA, March 2008.</i>	

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. The Planning Teams from each County developed 6 goals to reduce or avoid long-term vulnerabilities to the identified hazards (Table 8.1). The hazards included in Table 8.1 are those most likely to affect population and/or cause damage to structures.

Table 8.1 – Mitigation Goals

Goal Number	Goal Description
1	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters
2	Reduce the possibility of damage and losses due to drought
3	Reduce the possibility of damage and losses due to earthquakes
4	Reduce the possibility of damage and losses due to floods
5	Reduce the possibility of damage and losses due to wildland fires

8.2 IDENTIFYING MITIGATION ACTIONS

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

DMA 2000 Requirements: Mitigation Strategy	
Identification and Analysis of Mitigation Actions	
Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.	
Element	
<ul style="list-style-type: none"> ■ 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 usually grouped into six broad categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. Individual members of the Planning Committee were tasked to provide mitigation actions. Tables 8.2 through 8.4 “*Mitigation Goals and Related Actions*” list the goals and associated actions selected for this HMP.

Table 8.2 – Humboldt County: Mitigation Goals and Related Actions

Goal	Action	New or Existing Structures	Description
#1 Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters	H1B	Non-structural	Public outreach and education regarding drought at schools and public events
	H3B	N and E	Participation in “Great Nevada Shake Out” for the purpose of public outreach and education
#2 Reduce the possibility of damage and losses due to drought	H1A	Non-structural	Create Water Conservation Plans for rural areas
	H1B	Non-structural	Public outreach and education regarding drought at schools and public events
#3 Reduce the possibility of damage and losses due to earthquakes	H3A	N and E	Seismic retrofit of the County Courthouse
	H3B	N and E	Participation in “Great Nevada Shake Out” for the purpose of public outreach and education
#4 Reduce the possibility of damage and losses due to floods	H2A	N and E	Storm Drain Master Plan including modeling and mapping
	H2B	N and E	Installation of culverts and detention basins based on Master Plan recommendations
#5 Reduce the possibility of damage and losses due to wildland fires	H4A	N and E	Obtain equipment for defensible space work. Includes purchase of a tractor and flail mower
	H4B	N and E	Develop and distribute defensible space information

Table 8.3 – Lander County: Mitigation Goals and Related Actions

Goals	Action	New or Existing Structures	Description
#1 Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters	L1B	Non-structural	Development of a plan for public outreach and education in conservation measures.
	L2C	N and E	Participation in “Great Nevada Shake Out” for the purpose of public outreach and education
#2 Reduce the possibility of damage and losses due to drought	L1A	Non-structural	Drought Conservation Plan
	L1B	Non-structural	Development of a plan for public outreach and education in conservation measures.
#3 Reduce the possibility of damage and losses due to earthquakes	L2A	E	Seismic retrofit of the County Courthouse including strengthening of brick facade
	L2B	E	Seismic retrofit of historical buildings in Austin including strengthening of brick facade
#4 Reduce the possibility of damage and losses due to floods	L3A	N and E	Reconstruct the Battle Mountain levees
	L3B	N and E	Flash flood study
#5 Reduce the possibility of damage and losses due to wildland fires	L4A	N and E	New “Type 6” fire truck (2 man crew) for the Kingston Fire Dept.
	L4B	N and E	New quick response pumper truck for the Kingston Fire Dept.
	L4C	N and E	Defensible space project for Austin and Kingston

Table 8.4 – Pershing County: Mitigation Goals and Related Actions

Goals	Action	New or Existing Structures	Description
#1 Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters	GM1	Non-structural	Training for Emergency Medical Dispatch personnel
	GM2	Non-structural	Purchase computer software that tracks emergency responders (Iamresponding.com)
	D3	Non-structural	Provide public education regarding water conservation including leak detection
	E3	N and E	Provide education regarding structural and non-structural retrofit of seismically vulnerable homes
	E4	N and E	Adopt 2012 International and Residential Building Codes for City. Make copies available at Library
	E6	N and E	Educate homeowners regarding how to secure furniture and other belonging to reduce potential hazards during earthquakes
#2 Reduce the possibility of damage and losses due to drought	D1	Non-structural	Purchase monitoring equipment for placement on the Humboldt River to measure drought severity and damage to the surface water source
	D2	Non-structural	Make the irrigation canals in the Lovelock area impermeable and less susceptible to losses
#3 Reduce the possibility of damage and losses due to earthquakes	E1	N and E	Replace water transmission main with more flexible pipe
	E2	N and E	Secure general office equipment and supplies in County and City offices

Table 8.4 – Pershing County: Mitigation Goals and Related Actions (cont.)

Goals	Action	New or Existing Structures	Description
#3 Reduce the possibility of damage and losses due to earthquakes	E5	N and E	Purchase flexible hoses for pipe bypass used to restore temporary of water service due to broken lines.
#4 Reduce the possibility of damage and losses due to floods	F1	N and E	Complete the river clean-up project to lessen possibility of flooding
	F2	Non-structural	Perform flash flood study in Grass Valley (study will be used to develop mitigation measures)
	F3	N and E	Install culverts at Tungsten Road.
#5 Reduce the possibility of damage and losses due to wildland fires	WF1	N and E	Create defensible space and vulnerable vegetation ordinance for structures and utility lines
	WF2	N and E	Purchase water buffalos for fire crews

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 during the County Planning Committee meetings. At this time the Planning Committees evaluated and prioritized each of the actions. To complete this task, the Planning Committees completed the STAPLE+E evaluation criteria using rankings of one for lowest and five for highest priority, acceptance, feasibility etc. The rankings for each action were totaled and the actions with the highest number of points were evaluated by the committee. See Table 8-4 for the evaluation criteria.

Table 8.5 - 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

Mitigation actions were selected that best fulfill the goals of the HMP and were appropriate and feasible to implement during the 5-year lifespan of this version of the HMP. Actions were selected 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 the benefits (which are the reduction in expected future damages and losses) are greater than the costs considered as necessary to implement the specific action
- Actions that either address multi-hazard scenarios or address a hazard that present the greatest risk to the jurisdiction

The selected actions are shown in Table 8-6 through 8.8.

8.4 IMPLEMENTING THE MITIGATION ACTION PLAN

A Mitigation Action Plan Matrix was prepared for the Counties detailing the priority of the mitigation actions, how the overall benefit-cost were taken into consideration, and how each mitigation action will be implemented and administered.

Table 8.6 – Humboldt County Action Plan Matrix

Action No.	Action Item	Department or Division	Potential Funding Source	Projected Implementation	Economic Justification	Priority Level
H1A	Create Water Conservation Plans for rural areas	County and City Planning	NDEP, USDA, USEPA	24-36 months	Preservation of existing water resources	Medium
H1B	Public outreach and education regarding drought at schools and public events	County and City Planning, LEPC	NDEP	24 months	Preservation of existing water resources	Medium
H2A	Storm Drain Master Plan including modeling and mapping	County and City Planning, County and City Engineering	USDA, NDEP, HUD	24-48 months	Protection of lives and property	Medium
H2B	Installation of culverts and detention basins based on Master Plan recommendations	County and City Planning and Engineering, Public Works	BLM, USDA, NDEP, HUD	24-48 months	Protection of lives and property	Medium
H3A	Seismic retrofit of the County Courthouse	County Engineering	USDA, HUD, PDM	24-48 months	Protection of lives and property	High
H3B	Participation in “Great Nevada Shake Out” for the purpose of public outreach and education	County and City Planning, LEPC, Emergency Manager, Fire Dept., Sheriffs and Police Department	Local funding	Annual event	Protection of lives and property	Medium
H4A	Obtain equipment for defensible space work. Includes purchase of a tractor and flail mower	County and City Planning Public Works, Fire Dept.	USDA, BLM, U.S. Fire Service	24-36 months	Protection of lives and property	Medium
H4B	Develop and distribute defensible space information	County and City Planning, LEPC, Emergency Manager, Fire Dept.	Local Funding	12 months	Protection of lives and property	Medium

Table 8.7 – Lander County Action Plan Matrix

Action No.	Action Item	Department or Division	Potential Funding Source	Projected Implementation	Economic Justification	Priority Level
L1A	Drought Conservation Plan	County and City Planning	NDEP, Local Funding	24-36 months	Preservation of existing water resources	
L1B	Development of a plan for public outreach and education in conservation measures.	County and City Planning, LEPC, Emergency Manager	NDEP, Local funding	24-36 months	Preservation of existing water resources	
L2A	Seismic retrofit of the County Courthouse including strengthening of brick facade	County Engineering	HMPG, PDM, HUD, EMPG, Local funding	24-48 months	Protection of lives and property	
L2B	Seismic retrofit of historical buildings in Austin including strengthening of brick facade	County Engineering	HMPG, PDM, HUD, EMPG, Local funding	24-48 months	Protection of lives and property	
L2C	Participation in “Great Nevada Shake Out” for the purpose of public outreach and education	County and City Planning, LEPC, Emergency Manager, Fire Dept., Sheriffs and Police Department	Local funding	Annual event	Protection of lives and property	
L3A	Reconstruct the Battle Mountain levees	County and City Planning and Engineering	EMPG, FMA, HMGP, PDM, USACE	24-48 months	Protection of lives and property	
L3B	Flash flood study	County and City Planning and Engineering	NDEP, EMPG, FMA, HMGP, PDM	24-36 months	Protection of lives and property	
L4A	New “Type 6” fire truck (2 man crew) for the Kingston Fire Dept.	Fire Dept.	BLM, USFS, PDM, EMPG, FMA, HMPG	24-36 months	Protection of lives and property	
L4B	New quick response pumper truck for the Kingston Fire Dept.	Fire Dept.	BLM, USFS, PDM, EMPG, FMA, HMPG	24-36 months	Protection of lives and property	
L4C	Defensible space project for Austin and Kingston	County and City Planning, Fire Dept.	BLM, USFS, Local funding	24-36 months	Protection of lives and property	

Table 8.8 – Pershing County Action Plan Matrix

Action No.	Action Item	Department or Division	Potential Funding Source	Projected Implementation	Economic Justification	Priority Level
GM1	Training for Emergency Medical Dispatch personnel	Fire Dept., Sheriffs Dept, Police Dept.	SERC, RFC, USFS, Local funding	24-36 months	Protection of lives	Low
GM2	Purchase computer software that tracks emergency responders (Iamresponding.com)	Fire Dept., Sheriffs Dept., Police Dept.	SERC, RFC, USFS, Local funding	24-36 months	Protection of lives and property	Medium
D1	Purchase monitoring equipment for placement on the Humboldt River to measure drought severity and damage to the surface water source	County and City Planning, Pershing County Water Conservation District (PCWCD)	BLM, NDEP, USACE, USGS	24-48 months	Preservation of existing water resources	Medium
D2	Make the irrigation canals in the Lovelock area impermeable and less susceptible to losses	PCWCD	USDA, USACE, NDEP	24-48 months	Preservation of existing water resources	Low
D3	Provide public education regarding water conservation including leak detection	County and City Planning	NDEP, Local Funding	24-36 months	Preservation of existing water resources	High
E1	Replace water transmission main with more flexible pipe	Engineering, and Lovelock Meadows Water District (LMWD)	USDA, NDEP, HUD, Local funding	24-36 months	Protection of lives and property	Low
E2	Secure general office equipment and supplies in County and City offices	County and City Planning	Local funding	12-24 months	Protection of lives and property	Low
E3	Provide education regarding structural and non-structural retrofit of seismically vulnerable homes	County and City Planning, Engineering	SERC, Local funding	12-24 months	Protection of lives and property	Low

Table 8.8 (cont.)– Pershing County Action Plan Matrix

Action No.	Action Item	Department or Division	Potential Funding Source	Projected Implementation	Economic Justification	Priority Level
E4	Adopt 2012 International and Residential Building Codes for City. Make copies available at Library	County and City Planning and Engineering	Local funding	12-24 months	Protection of lives and property	Medium
E5	Purchase flexible hoses for pipe bypass used to restore temporary of water service due to broken lines.	County and City Planning, Engineering, and Lovelock Meadows Water District	EMPG, HMGP, PDM, Local funding	24-36 months	Protection of lives and property	Medium
E6	Educate homeowners regarding how to secure furniture and other belonging to reduce potential hazards during earthquakes	County and City Planning, LEPC	Local funding	12-24 months	Protection of lives and property	High
F1	Complete the river clean-up project to lessen possibility of flooding	County and City Planning, PCWCD	NDEP, FMA, HMGP, USACE, PDM, EMPG	24-36 months	Protection of lives and property	Low
F2	Perform flash flood study in Grass Valley (study will be used to develop mitigation measures)	County Planning	NDEP, FMA, HMGP, PDM, EMPG, BLM	24-36 months	Protection of lives and property	Medium
F3	Install culverts at Tungsten Road.	County Planning, Engineering,	EMPG, FMA, HMGP, NDEP, PDM, USACE	24-48 months	Protection of lives and property	Low
WF1	Create defensible space and vulnerable vegetation ordinance for structures and utility lines	County Planning, Fire Dept.	USFS, BLM, Local funding	24-36 months	Protection of lives and property	High
WF2	Purchase water buffalos for fire crews	County Planning, Fire Dept.	USFS, BLM, Local funding	24-36 months	Protection of lives and property	Medium

BLM= Bureau of Land Management
 EMPG = Emergency Management Performance Grant,
 FMA=Flood Management Assistance
 HMGP=Hazard Mitigation Grant Program
 HUD=Housing & Urban Development

NDEP = Nevada Division of Environmental Protection,
 NDRCS=Nevada Dept. Resource Conservation Services
 PDM = Pre-Disaster Mitigation
 RFC=Resource Finance Corporation
 SERC = State Emergency Response Commission

USACE=U.S. Army Corps of Engineers
 USDA = U.S. Department of Agriculture
 USEPA = U.S. Environmental Protection Agency
 USFS = U.S. Fire Service
 USGS = US Geological Survey

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9.0 PLAN MAINTENANCE

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

The following three process steps are addressed in detail below:

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

9.1 MONITORING, EVALUATING AND UPDATING THE HMP

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

<p align="center">DMA 2000 Requirements: Plan Maintenance Process - Monitoring, Evaluating, and Updating the Plan</p> <p>Monitoring, Evaluating and Updating the Plan</p> <p>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.</p> <p>Element</p> <ul style="list-style-type: none">■ 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? <p><i>Source: FEMA 2008.</i></p>

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

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

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

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

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

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

9.2 IMPLEMENTATION THROUGH EXISTING PLANNING MECHANISMS

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

DMA 2000 Requirements: Plan Maintenance Process - Incorporation into Existing Planning Mechanisms	
Incorporation into Existing Planning Mechanisms	
Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.	
Element	
<ul style="list-style-type: none"> ■ 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 HMP, the Committee will continue to ensure that the HMP, in particular the Mitigation Action Plan, is incorporated into existing planning mechanisms. Each member of the Planning Committee will achieve this incorporation by undertaking the following activities:

- Conduct a review of the community-specific regulatory tools to assess the integration of the mitigation strategy. These regulatory tools are identified in Table 7-1.
- Work with pertinent divisions and departments to increase awareness of the HMP and provide assistance in integrating the mitigation strategy (including the action plan) into relevant planning mechanisms. Implementation of these requirements may require updating or amending specific planning mechanisms.

9.3 CONTINUED PUBLIC INVOLVEMENT

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

DMA 2000 Requirements: Plan Maintenance Process - Continued Public Involvement

Continued Public Involvement

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

Element

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

Source: FEMA 2008.

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

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

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APPENDIX

Appendix A- Adoption Resolution

Appendix B- Maps

Appendix C- Planning Meetings

Appendix D- Public Information

Appendix E- Meeting Materials

Appendix F- Plan Maintenance Documents

APPENDIX A – SAMPLE ADOPTION RESOLUTION

Humboldt Resolution

SUMMARY: Resolution adopting the Humboldt County Hazard Mitigation Plan

RESOLUTION NO. 04-06-15

WHEREAS, Humboldt County, Nevada 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; and

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

WHEREAS, the Plan specifically addresses hazard mitigation strategies and plan maintenance procedures for Humboldt County; and

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

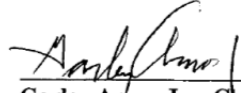
WHEREAS, a public meeting was held to present the Plan for comment and review as required by law;

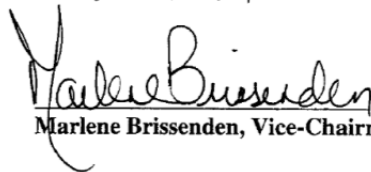
NOW THEREFORE BE IT RESOLVED
by the Humboldt County Board of Commissioner's that:

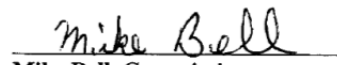
1. The Plan is hereby adopted as an official plan of Humboldt County, Nevada.
2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them.
3. Future revisions and Plan maintenance required by the 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 Humboldt County Commission by October 31st of each calendar year.

ADOPTED this 6th day of April, 2015

BY THE BOARD OF COUNTY COMMISSIONERS OF HUMBOLDT
COUNTY


Garley Amos, Jr., Chairman


Marlene Brissenden, Vice-Chairman


Mike Bell, Commissioner


Ron Cerri, Commissioner,


Jim French, Commissioner,

ATTEST:


Tami Rae Spero, County Clerk

Lander Resolution



Resolution No. 2015-09

A RESOLUTION TO ADOPT THE TRI-COUNTY HAZARD MITIGATION PLAN

WHEREAS Lander County 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 Tri Counties Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Lander County Local Emergency Planning Committee (LEPC) in association and cooperation with the Lander County Safety Committee for the reduction of hazard risk to the community;

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

WHEREAS the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural and human caused hazards that impact Lander County 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 Lander County Commission, that:

1. The Plan is hereby adopted as an official plan of Lander County.
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, Lander County Commission by October 31st of each calendar year.

PASSED AND ADOPTED this 9th day of April 2015.

THOSE VOTING AYE: Commissioner Patsy Waits

Commissioner Sean Bakker

Commissioner Art Clark III

Commissioner Doug Mills

Commissioner _____

THOSE VOTING NAY: Commissioner None

THOSE ABSENT: Commissioner Steve Stienmetz


STEVE STIENMETZ, Chair or
PATSY WAITS, Co-Chair
Lander County Board of Commissioners

ATTEST:



SADIE SULLIVAN
Lander County Clerk

Pershing Resolution

Resolution # 15-05-05

WHEREAS, PERSHING COUNTY 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 *TRI-COUNTY* Hazard Mitigation Plan (the Plan) has been developed after more than one year of research and work by the Office of Emergency Management in association and cooperation with the Pershing 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 *PERSHING COUNTY*;

WHEREAS the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural and human caused hazards that impact *PERSHING COUNTY* 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

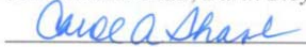
By the PERSHING COUNTY BOARD OF COMMISSIONERS, that:

1. The Plan is hereby Adopted as an official plan of *PERSHING COUNTY*.
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, Pershing County Board of Commissioners by October 31st of each calendar year.


Dated this 6th day of May, 2015


Commission Chair, *Darin Bloyed*

5-16-2015
Date


Commissioner, *Carol Shank*

5-6-15
Date

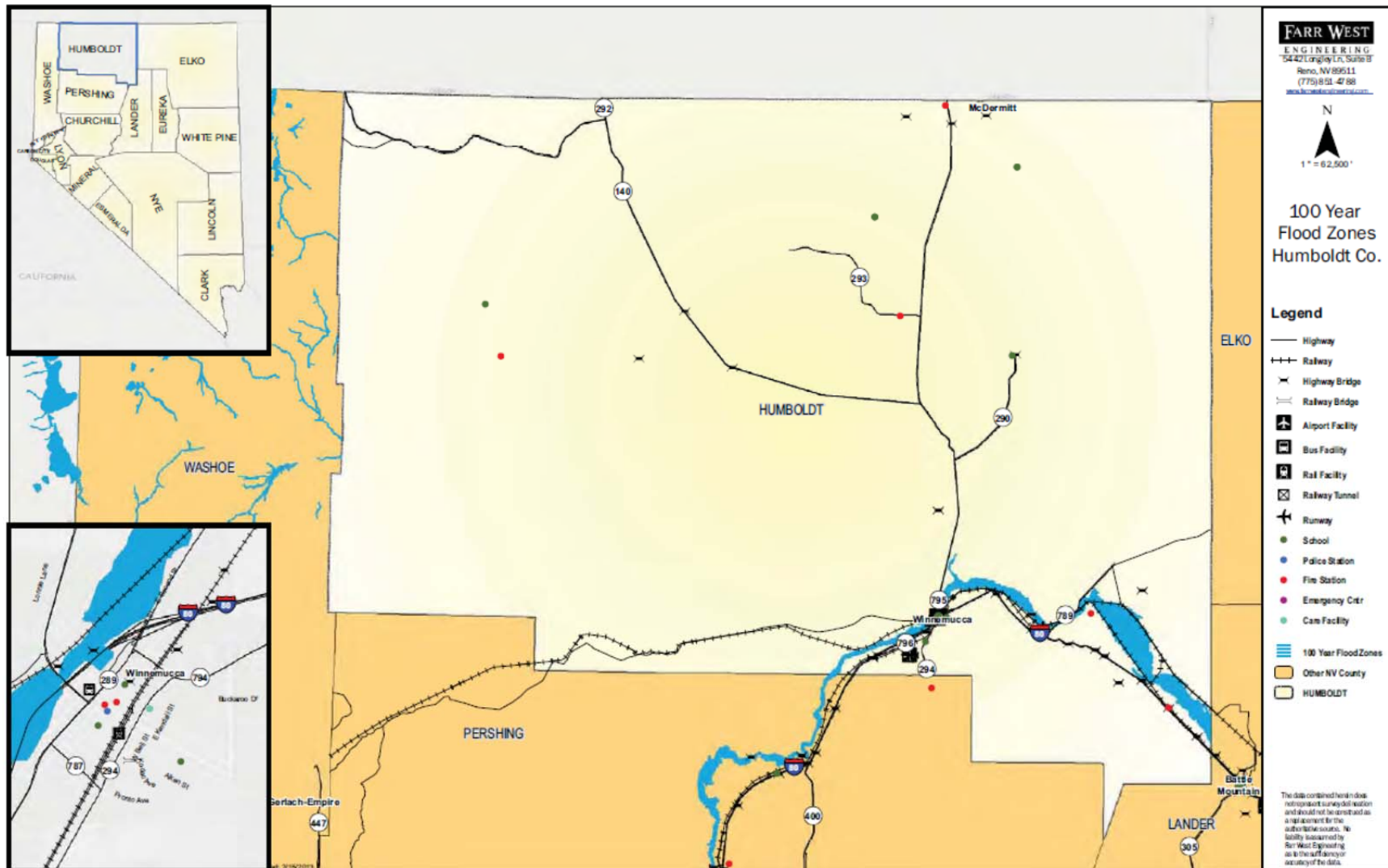

Commissioner, *Pat Irwin*

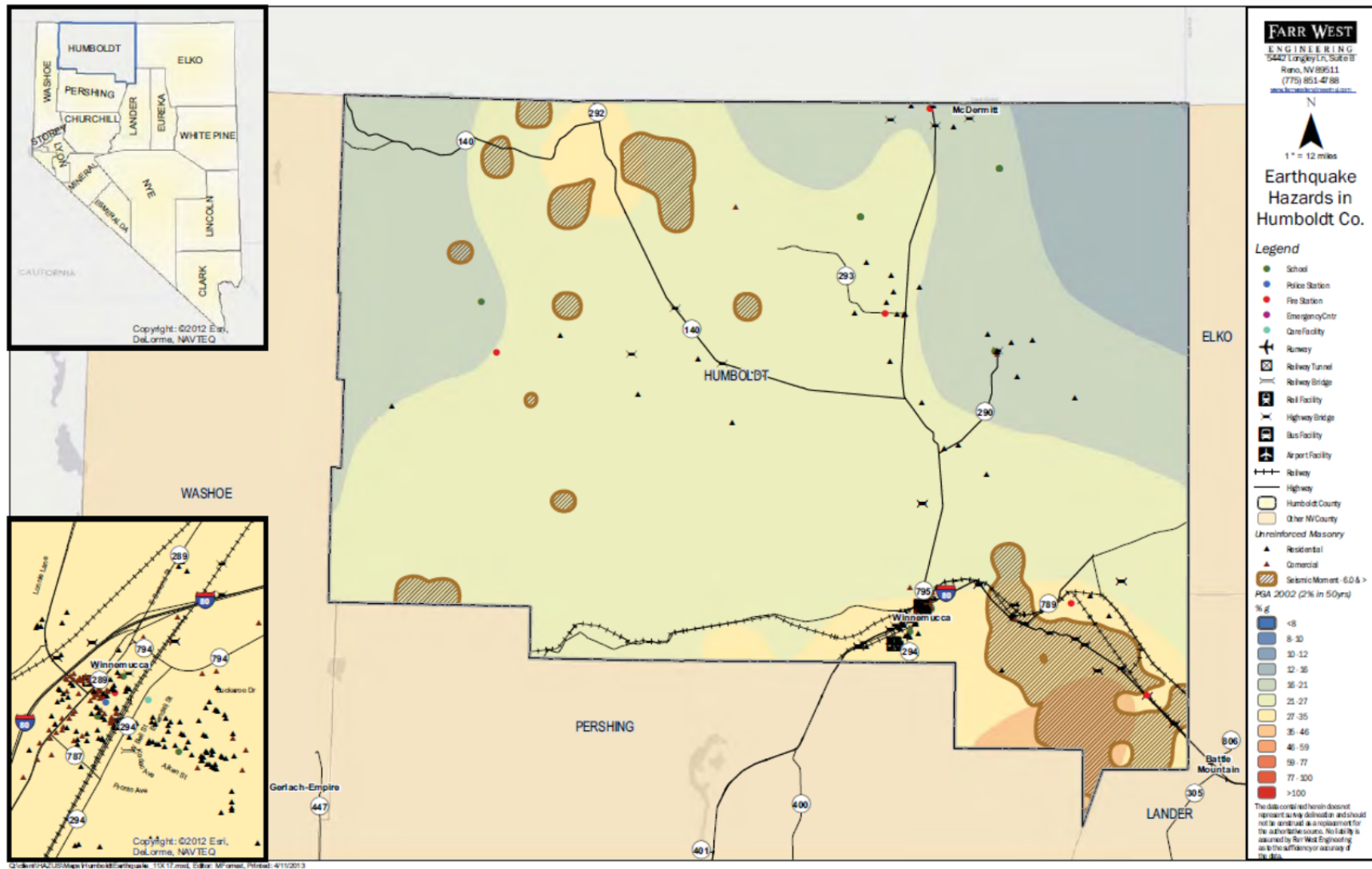
5-6-15
Date

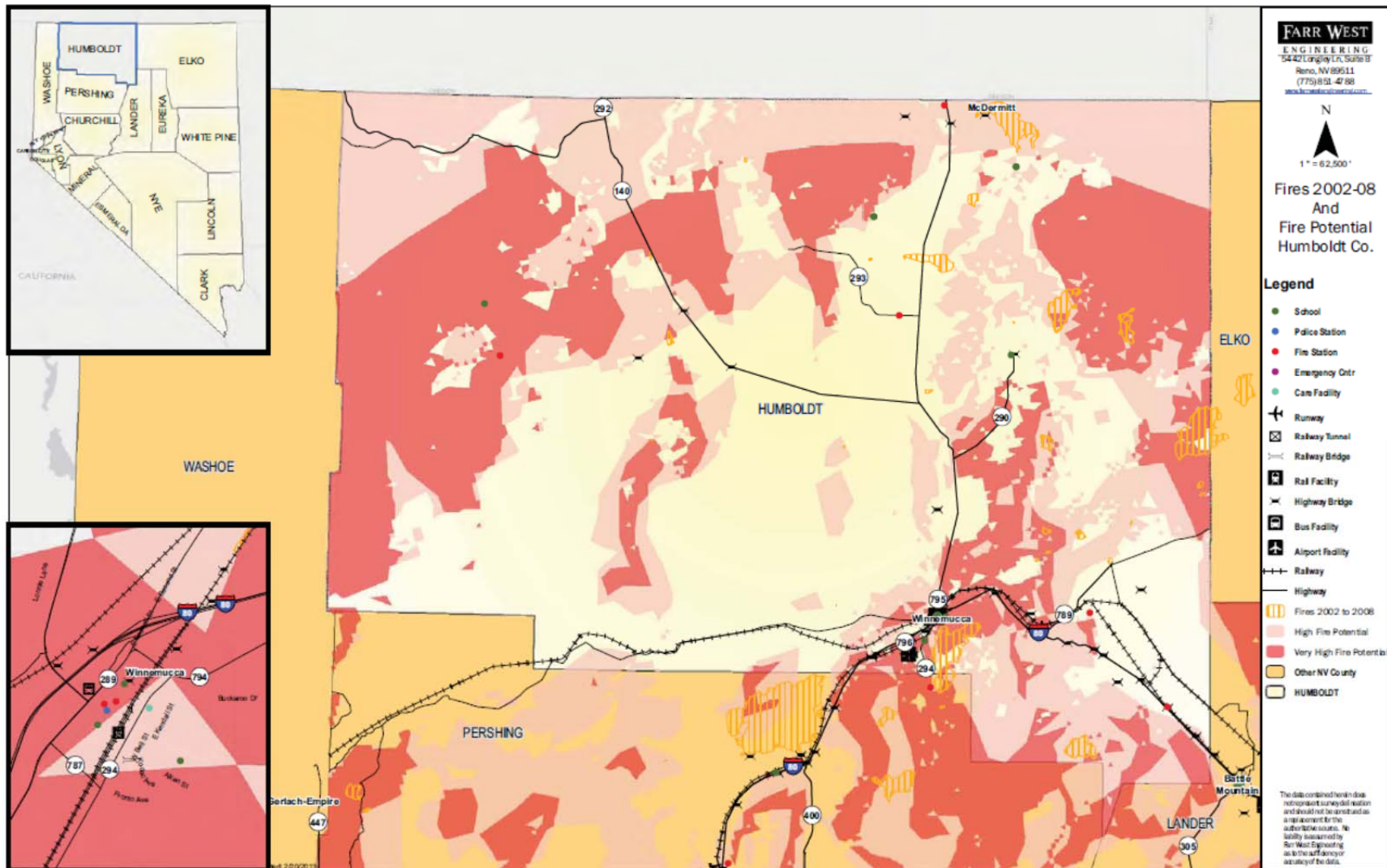
APPENDIX B – MAPS

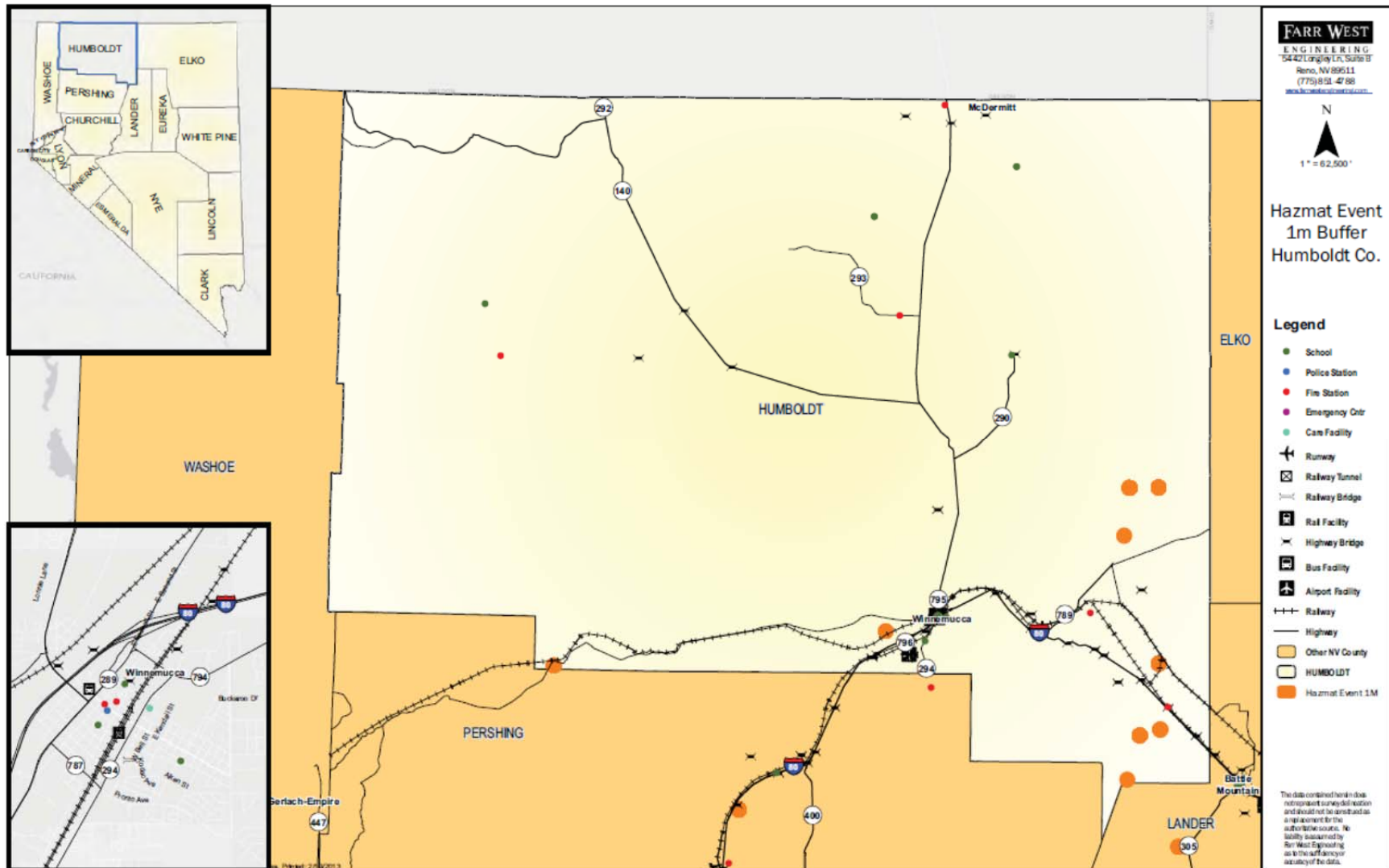
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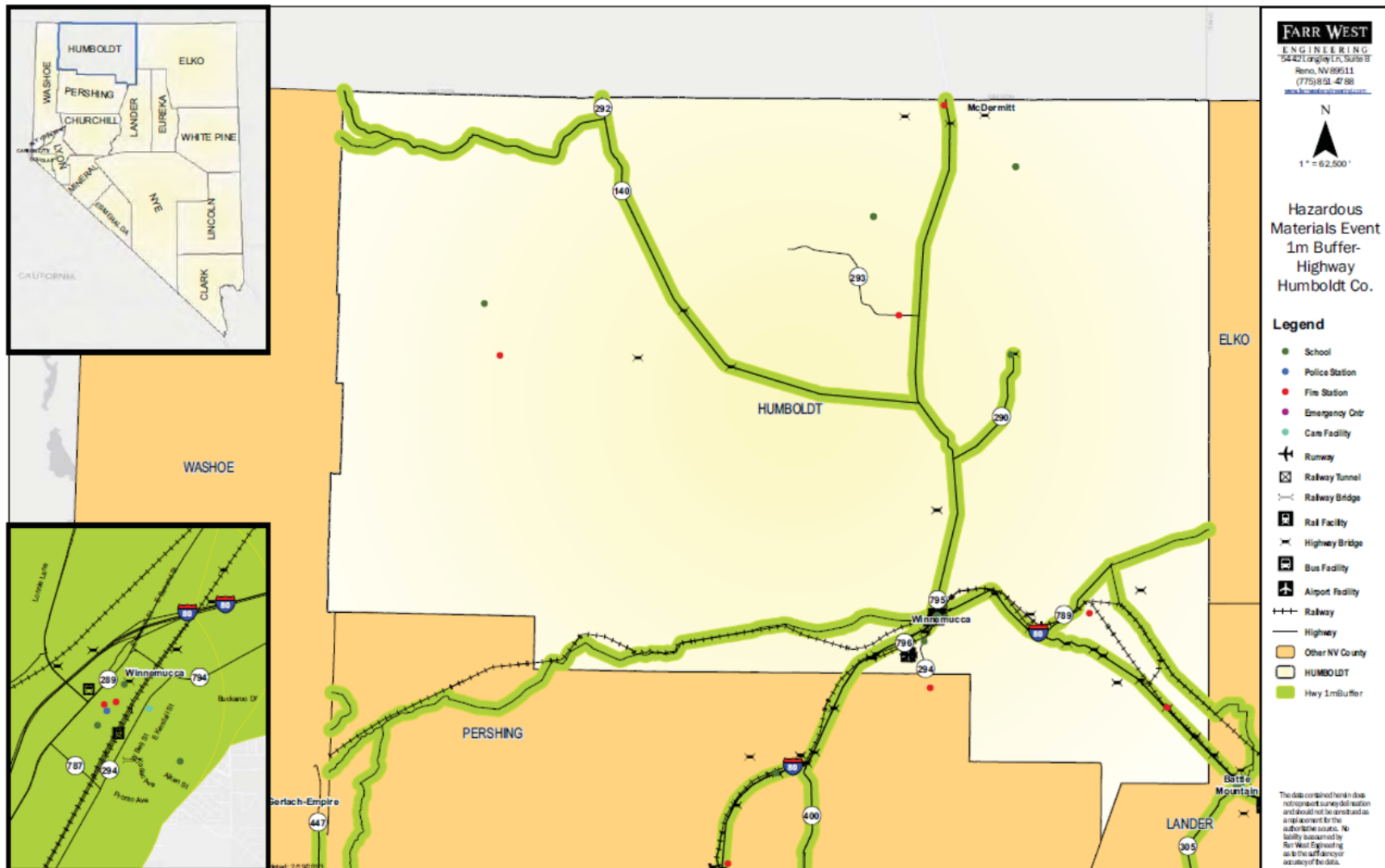
1. Humboldt County 100 Year Flood Map
2. Humboldt County Earthquake Map
3. Humboldt County Fire Map
4. Humboldt County One Mile Radius Hazmat Facility Buffer
5. Humboldt County One Mile Wide Hazmat Highway Buffer
6. Humboldt County One Mile Wide Hazmat Railroad Buffer
7. Lander County 100 and 500 Year Flood Map
8. Lander County Earthquake Map
9. Lander County Fire Map
10. Lander County One Mile Radius Hazmat Facility Buffer
11. Lander County One Mile Wide Hazmat Highway Buffer
12. Lander County One Mile Wide Hazmat Railroad Buffer
13. Pershing County 100 Year Flood Map
14. Pershing County Earthquake Map
15. Pershing County Fire Map
16. Pershing County One Mile Radius Hazmat Facility Buffer
17. Pershing County One Mile Wide Hazmat Highway Buffer
18. Pershing County One Mile Wide Hazmat Railroad Buffer

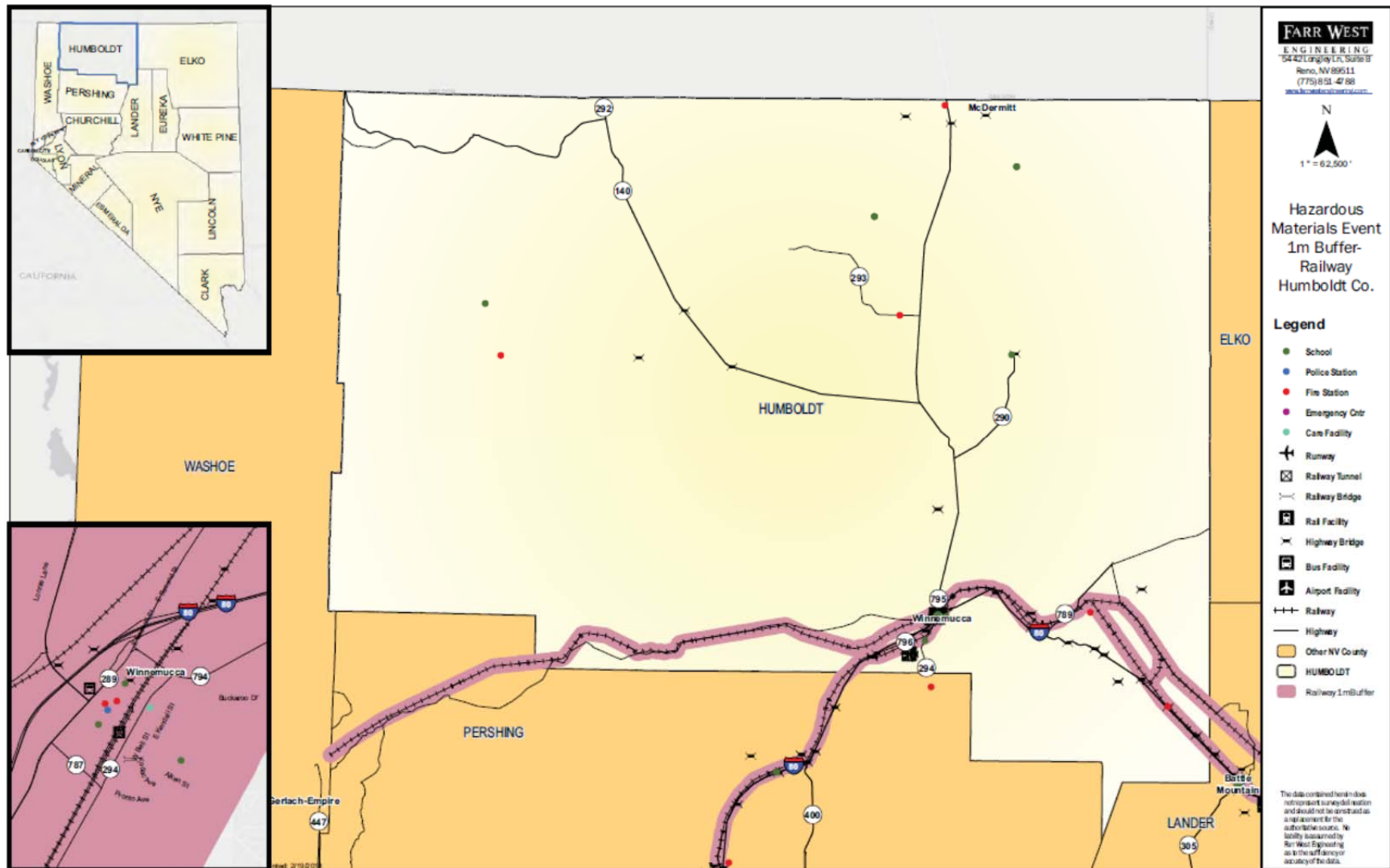


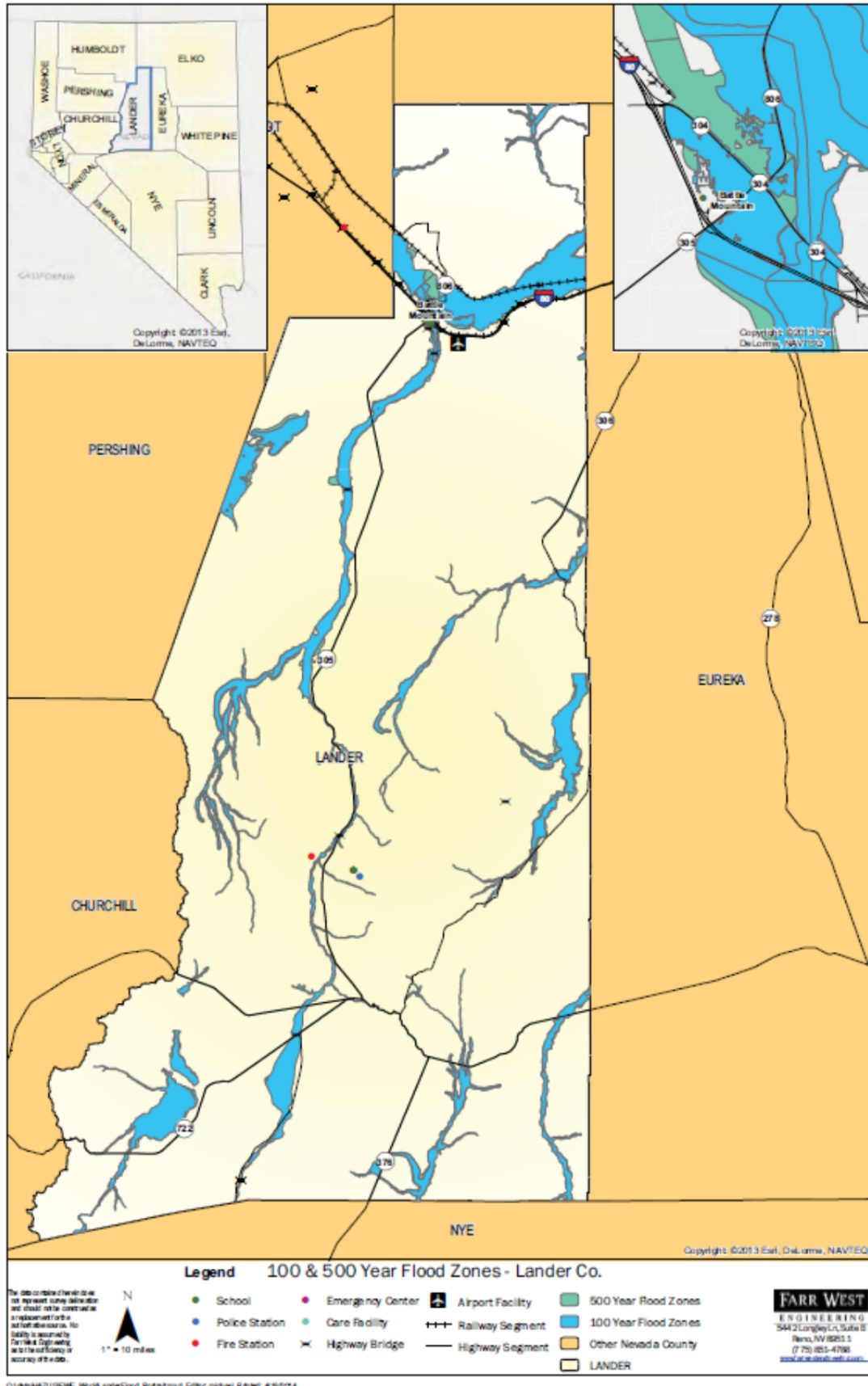


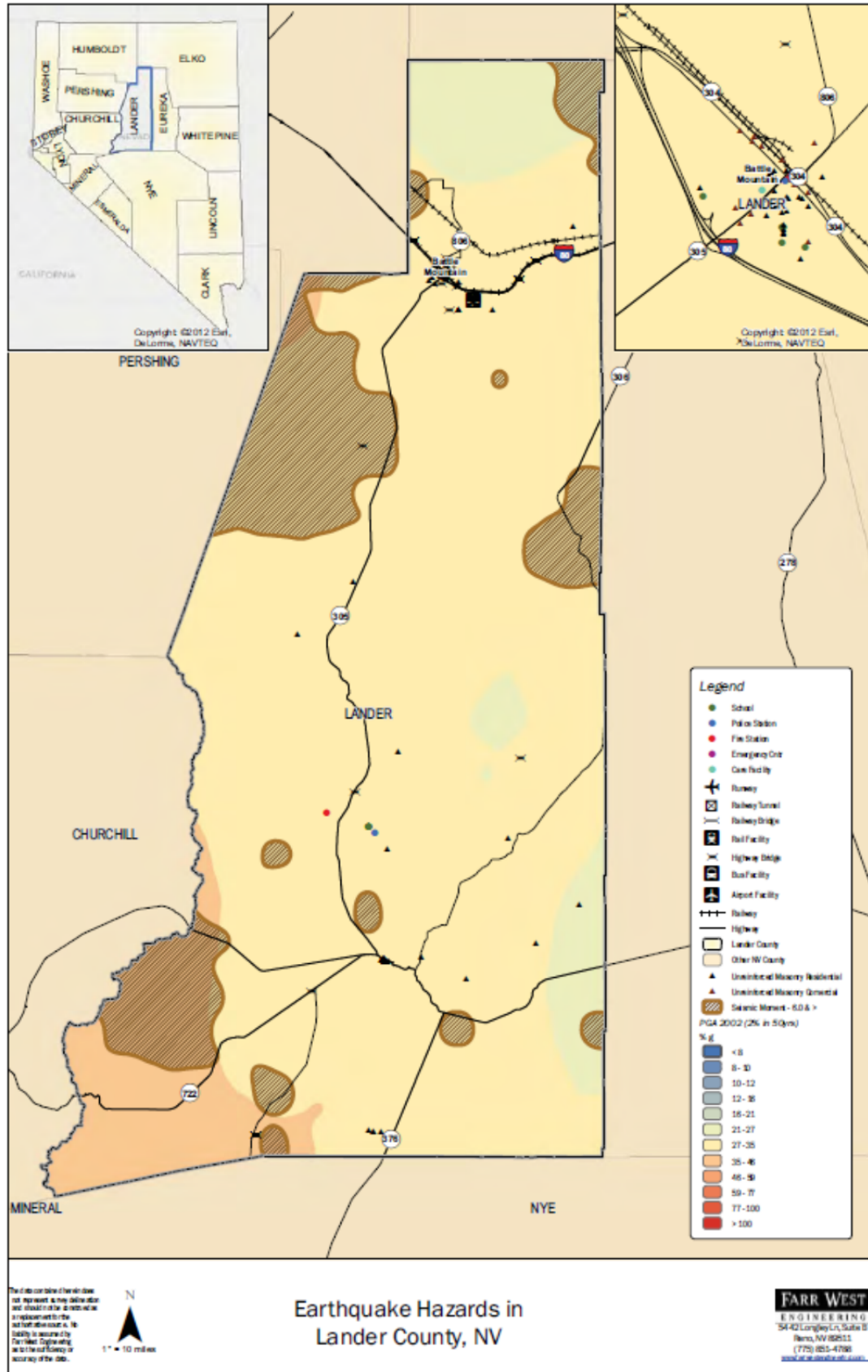


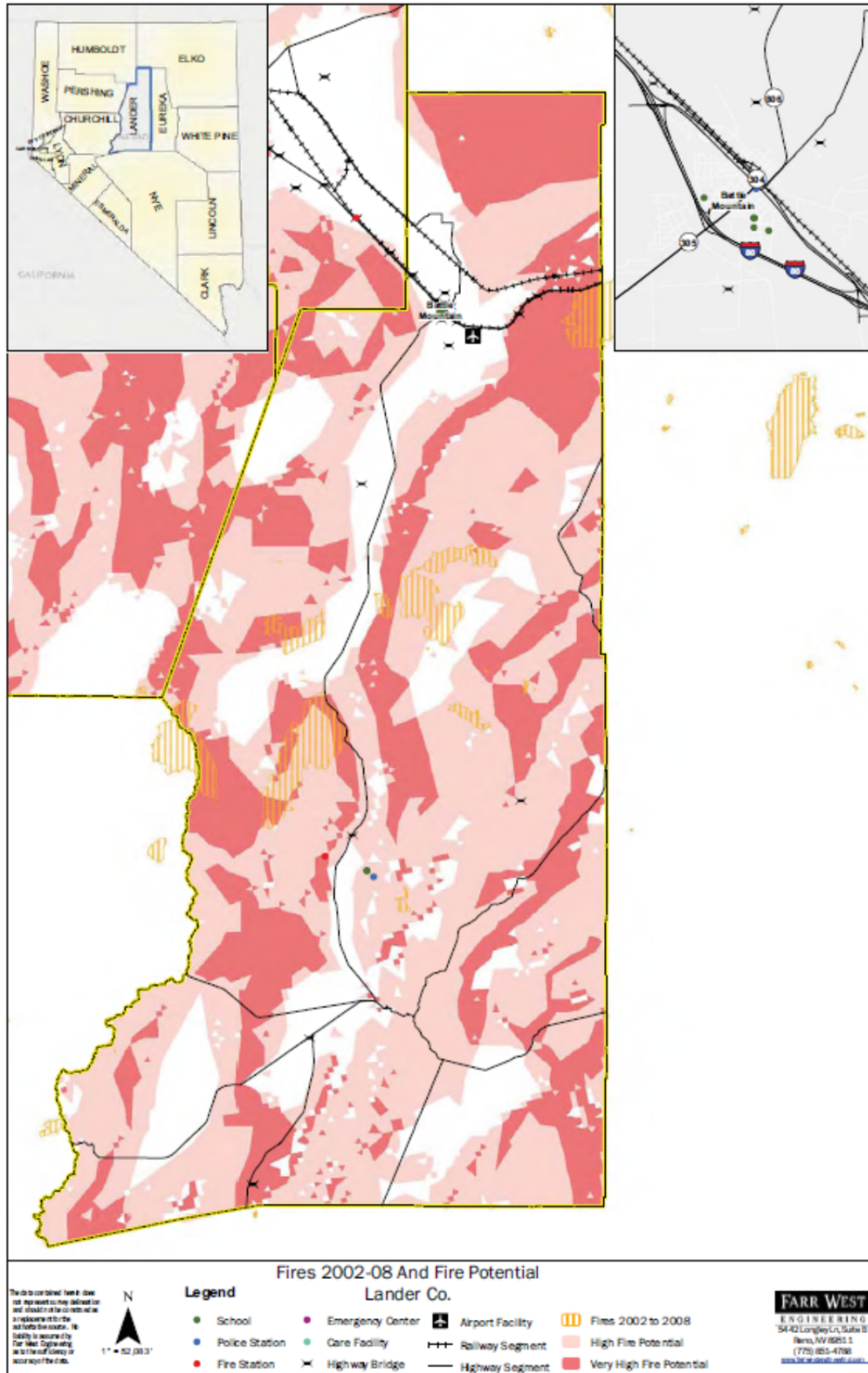


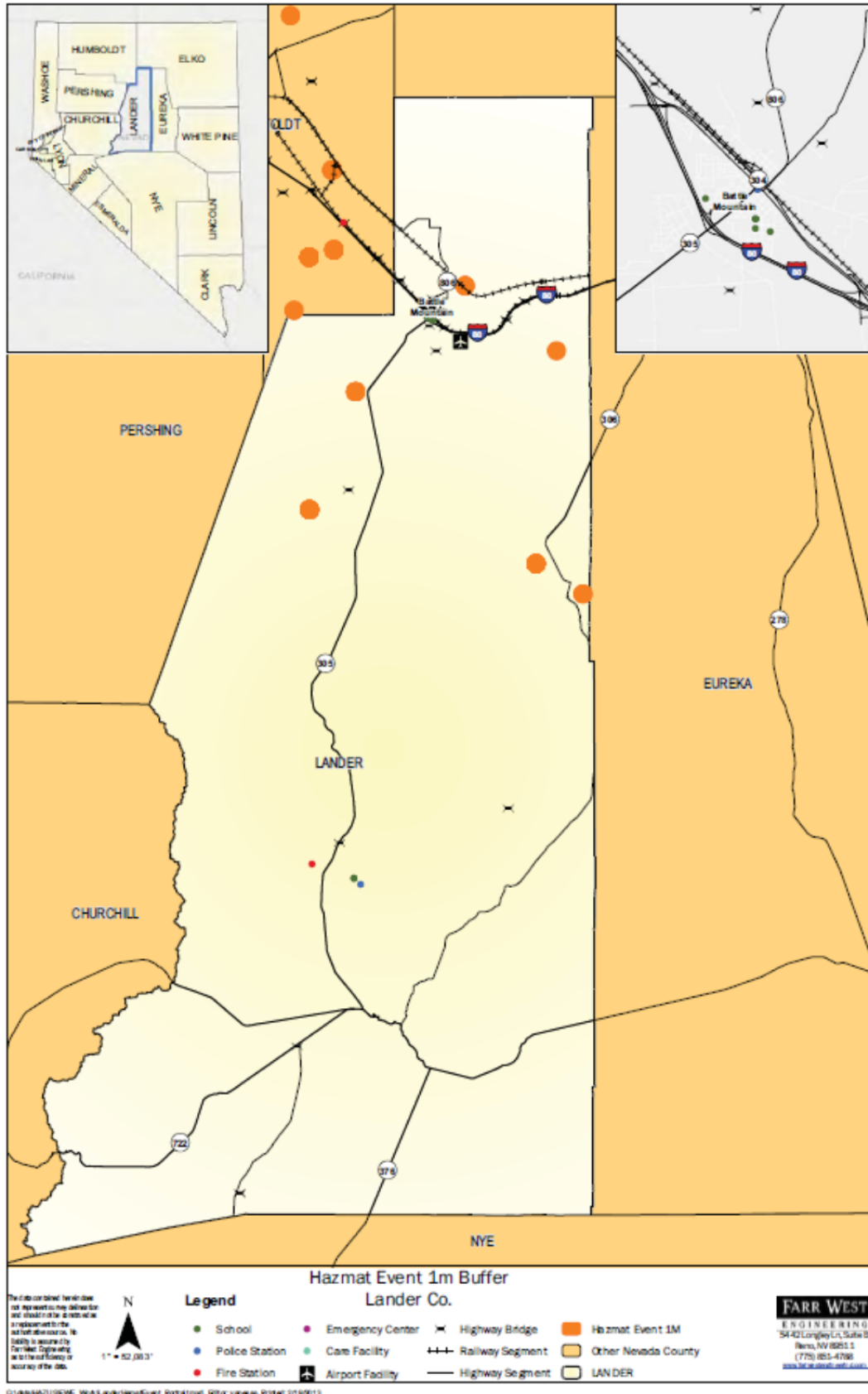


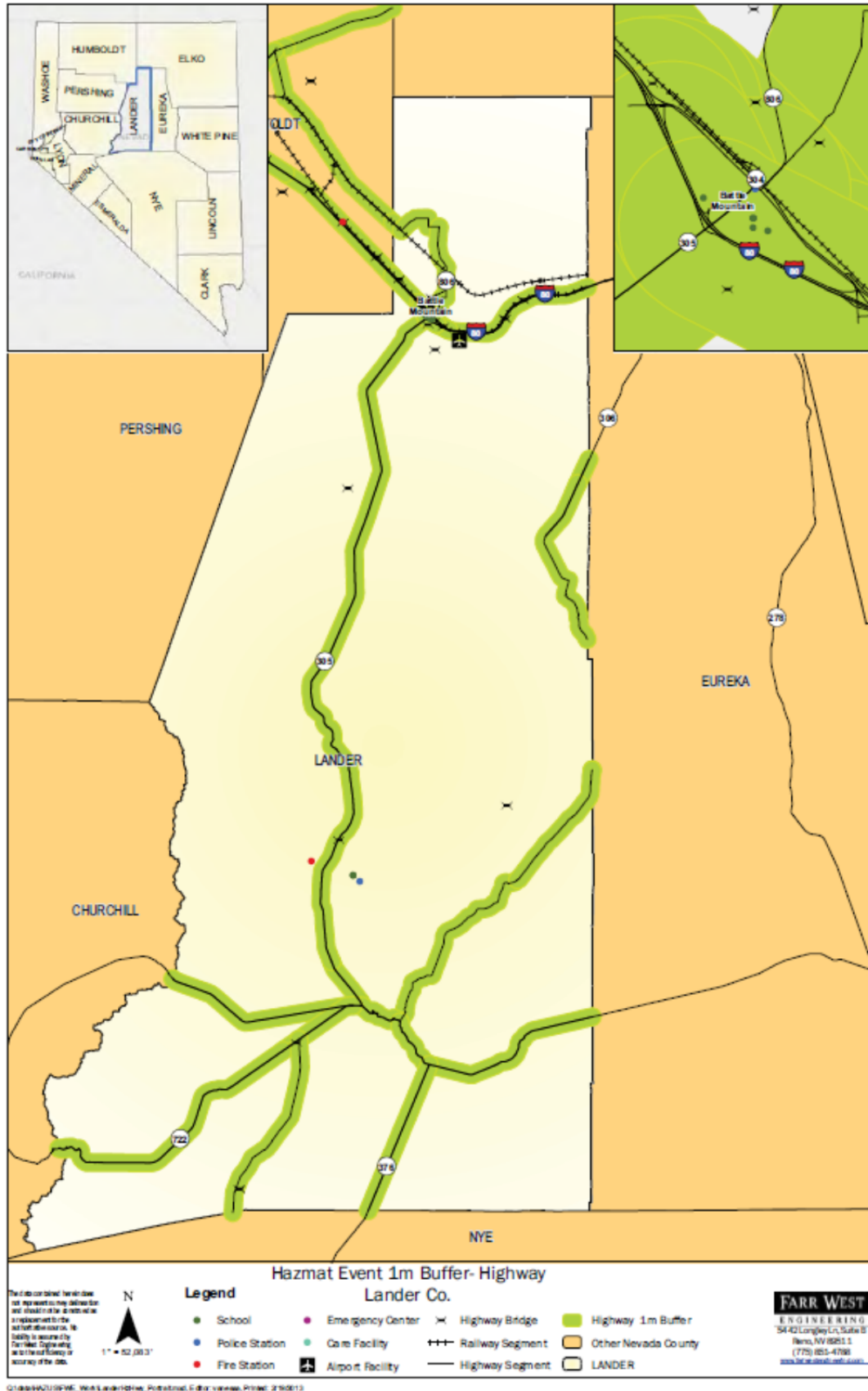


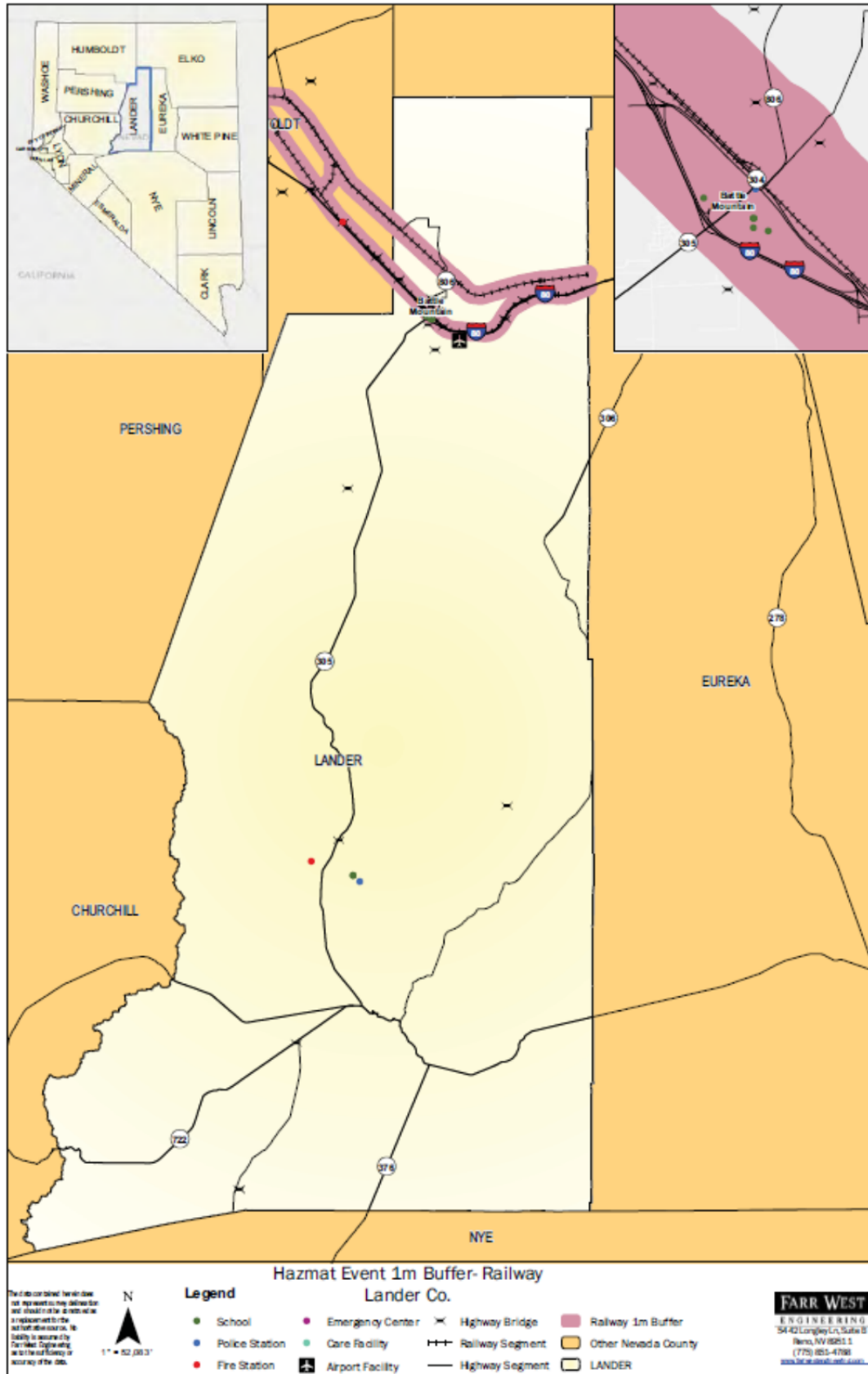




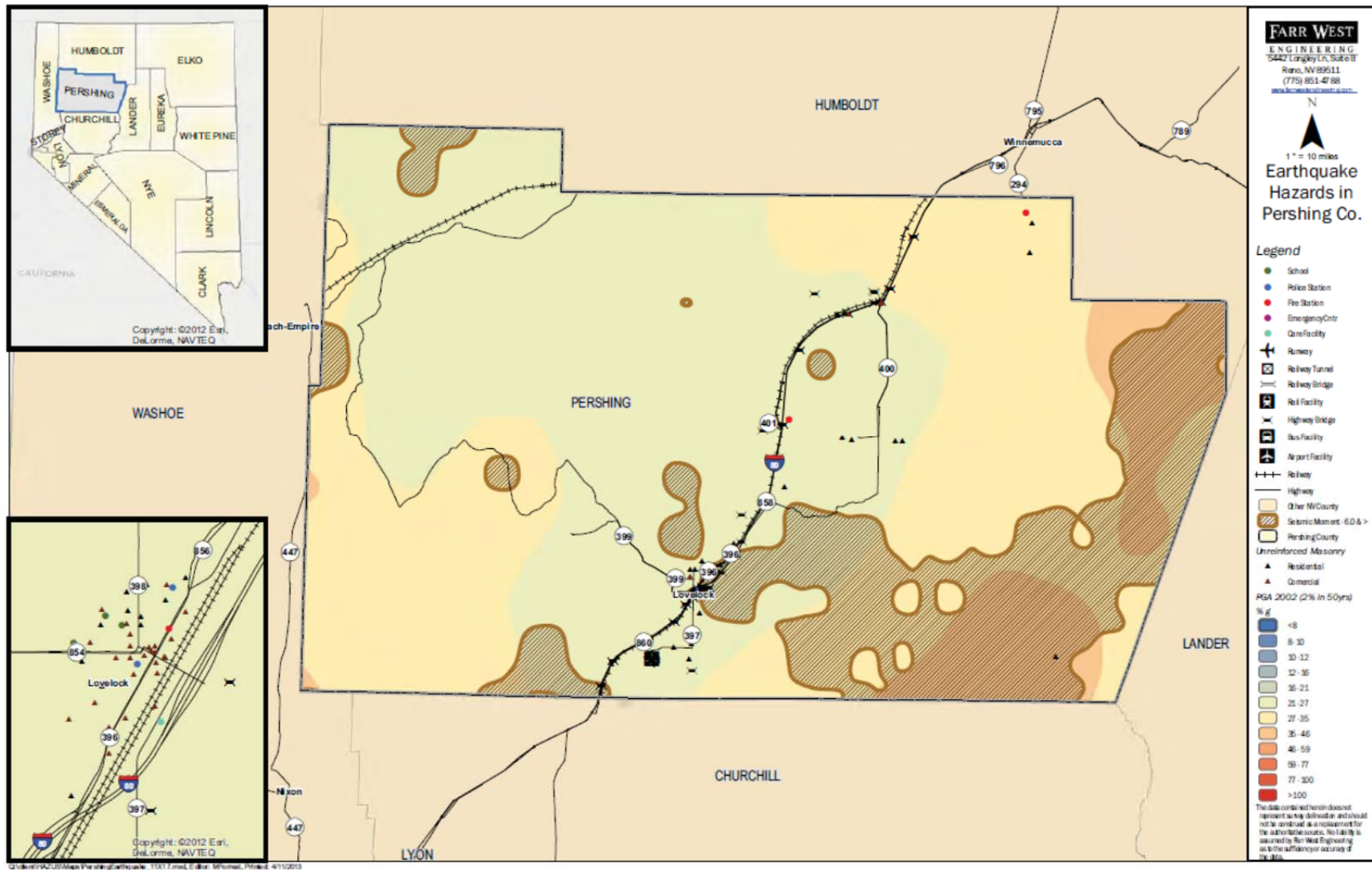


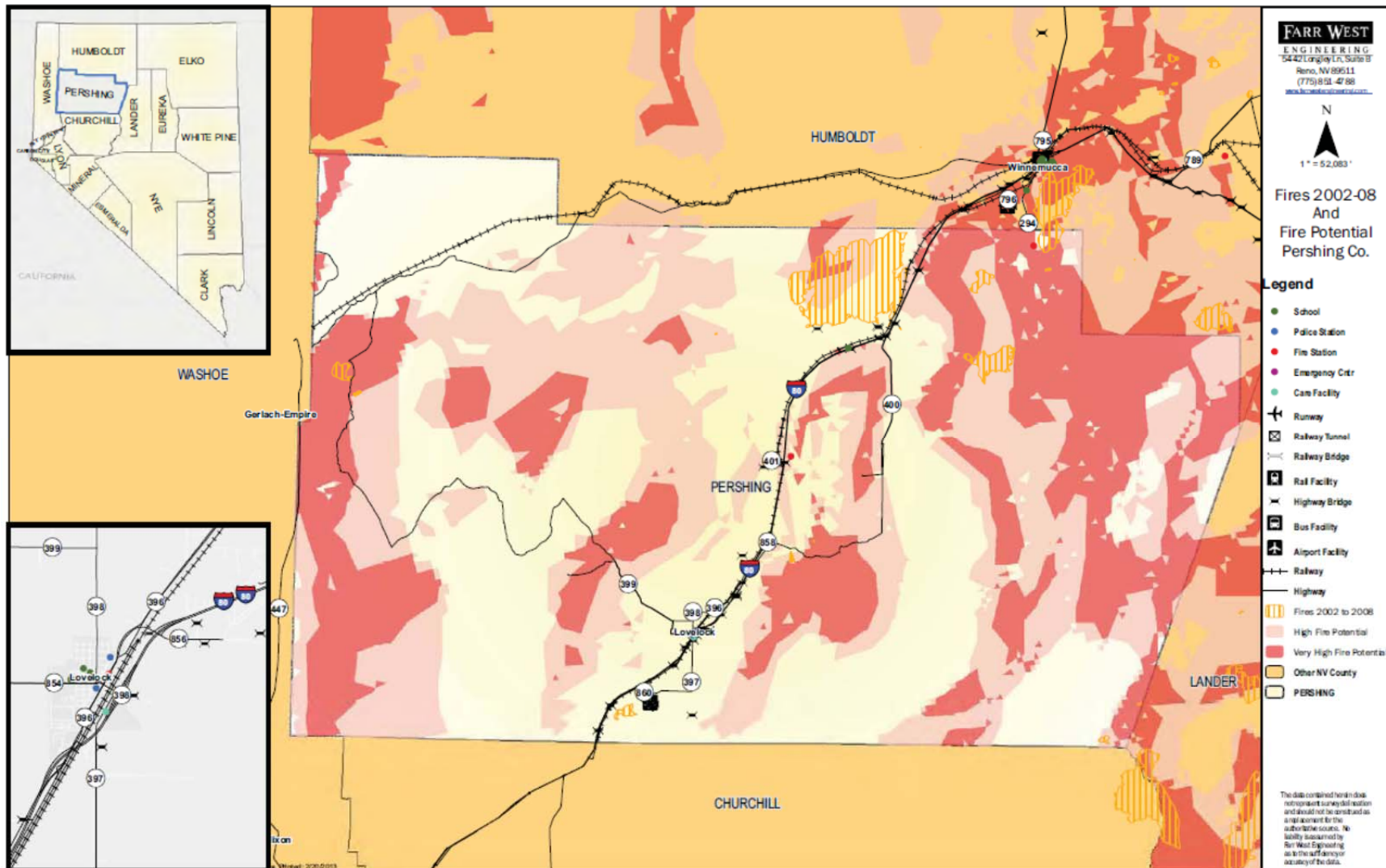


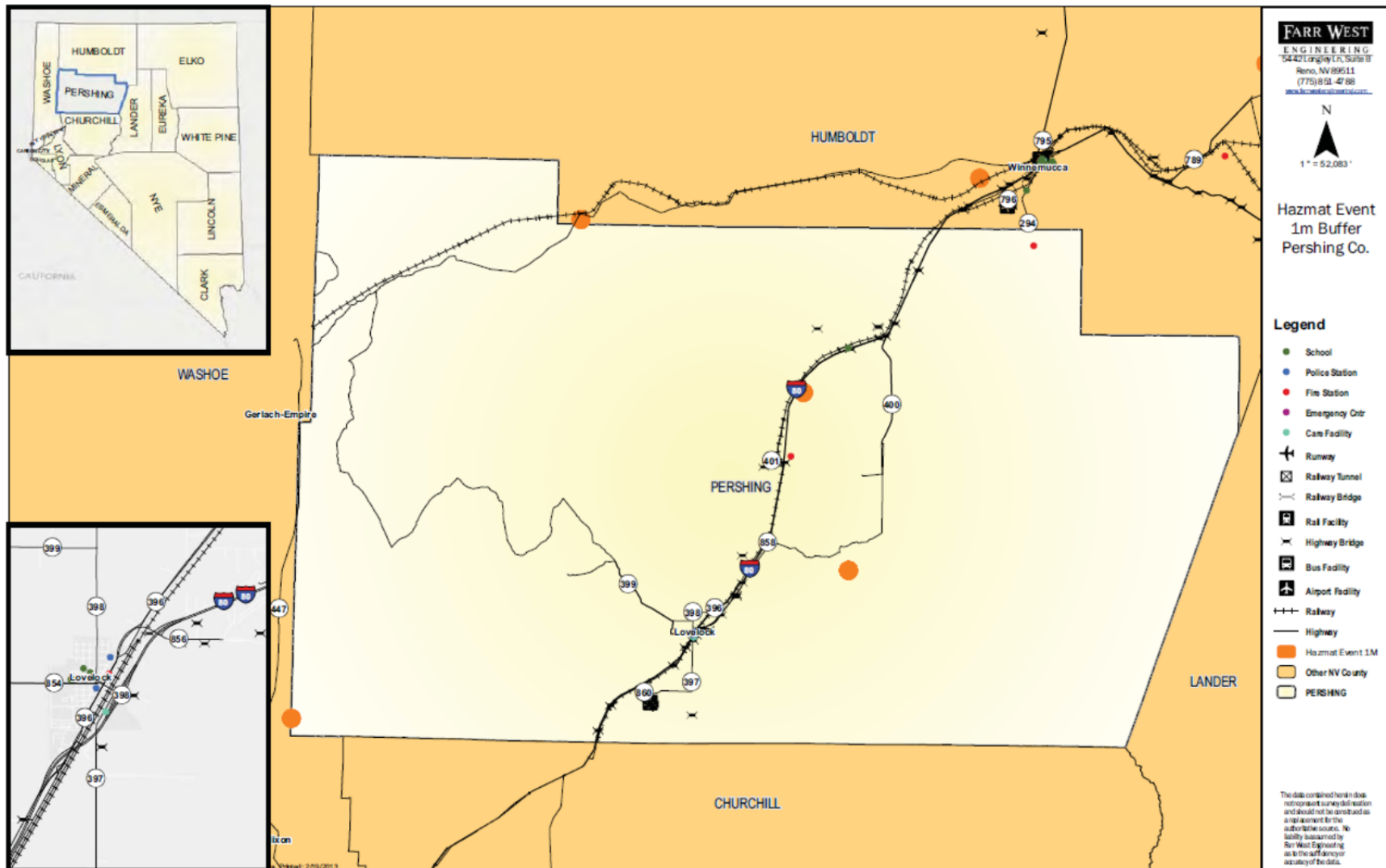
















APPENDIX C – PLANNING MEETINGS

Appendix C includes:

1. Humboldt County
 - Agenda and Sign-in 7-8-12
 - Agenda 4-8-13
 - Agenda 7-8-13
2. Lander County
 - Agenda and Sign-in 12-11-12
 - Agenda 3-12-13
 - Minutes and Sign-in 5-14-13
 - Agenda and Sign-in 5-27-14
3. Pershing County
 - Agenda and Sign-in 7-12-12
 - Agenda and Sign-in 10-4-12
 - Agenda and Sign-in 4-9-13

Humboldt Agenda Meeting No. 1

Humboldt County LEPC Special Meeting Minutes

07, August, 2012

Call to Order 5:30pm by Tony Shope

In attendance:

D. Sommers, D. Milton, D. Cain, D. Hogg, E. Ashby, T. Silva, B. Dalley, S. Rorex, C. Safford and T. Shope

Public Comment: None

Special meeting no minutes review

New Business

Met to discuss the tri county LEPC EOP, all in attendance submitted vulnerability profiling information to Danny Sommers for data collection and review, all aspects of hazardous vulnerabilities were discussed.

Chair offered the idea that a special meeting of all counties (Humboldt, Lander and Pershing) to review the overall HVA for the tri counties later in the year for review of grant opportunities.

Guests in attendance were not aware of HLEPC's drive over last 9 months to update current plan and HCLEPC advised that a copy of our current plan would be forwarded to them for review. Along with current HVA copy.

Meeting Adjourned 6:15 pm

Respectfully Submitted by:

Tony Shope

Humboldt Sign-in Meeting No. 1

Humboldt County LEPC Meeting #1 August 7, 2012

Initial	Last Name	First Name	Email	Department
	Sommers	Danny	danny@farrwestengineering.com	Farr West
DM	MILTON	DAVE	h103@hcsnv.com	HCSO
DL	CAIN	Don	bidgprnds@hcnv.us	CITY of WMCA
AWH	HOBBS	Don	juststracing@wildblue.net	ATTN
EA	Ashby	Elizabeth	eashby@aps.state.nv.us	NV. DEM
	SILVA	Thomas	WP040@wvnmwveng.org	WPD
	DALLEY	Bill	WP023@wvnmwveng.org	WPD
	RACE	Stan	TRX9@wmca.net	CAP
CS	Safford	C.S.	cjsafford@PershingCounty.net	LEPC/Planning & Budgeting Pershing Co.
	SLOPE	TONY	TREMBLE@SLOPE.net	LEPC Chair

Humboldt Agenda Meeting No. 2

Notice of Public Meeting
HUMBOLDT COUNTY LOCAL EMERGENCY PLANNING COMMITTEE
Monday, April 8, 2013 at 17:30
Sara Winnemucca Conference Room
118 East Haskell Street, Winnemucca, NV
(New hospital addition)

Consideration of items may require more or less time than is scheduled.
Public comment will generally not be permitted during discussion of individual
agenda items unless scheduled for a public meeting.

1. Call to order
2. Public Comments
This segment of the agenda is designated to give the general public the opportunity to address the committee on any subject. No action may be taken on a matter raised until the matter itself has been specifically included on an agenda as an item upon which action will be taken. Public comment will generally be limited to 5 minutes per person.
3. Approval of minutes of last meeting.
4. Old Business
 - A. Current membership list
 - B. Planning for table top exercise
 - C. Review needs assessment and prioritize needs to be addressed in 2013
 - D. Discuss development of hazmat grants, needs, equipment, etc.
 - E. Review of equipment and completion of a master list
 - F. Discuss & review template of universal MOU to be utilized by the group
 - G. Discuss & review of resources, contacts within the city, county, state & federal
 - H. Discuss plans for wild fire management & communication with other agencies
 - I. Review and discuss future LEPC truck (portable dispatch center/command post)
 - J. Review & discuss storage for all equipment
 - K. Continue review of reprogramming of communications & radio equipment
5. New Business
 - A. Hazard Mitigation Plan Review, by CJ Stafford from Pershing County
 - B. Discussion of Hazmat Training, Drills and Equipment with HGH & UPRR, by Pat Songer
 - C. Update Information regarding Planning & Training Committee for NRT-1 A
 - D. Update LEPC Plan Book
 - E. Review Incident Emergency Management System (ie. Tri-County maps)
6. Public Comments
This segment of the agenda is designated to give the general public the opportunity to address the committee on any subject. No action may be taken on a matter raised until the matter itself has been specifically included on an agenda as an item upon which action will be taken. Public comment will generally be limited to 5 minutes per person.
7. Adjourn

CERTIFICATE OF POSTING

PLACES POSTED: Humboldt Co. Courthouse, Room 201, Sheriff's Office Bulletin Board
Humboldt County Library, 85 E. 5th Street
County Annex Building, 4th & Bridge Streets
Humboldt General Hospital, 118 E. Haskell Street
Post Office, 850 Hanson Street

MEETING DATE: April 8, 2013 POSTED BY: A. Murdock
DATE POSTED: April 2, 2013

NOTICE TO PERSONS WITH DISABILITIES – Reasonable efforts will be made to assist and accommodate physically disabled persons desiring to attend this meeting. Please call the Humboldt County Administrator's Office at 623-6300 in advance so that arrangements may be conveniently made.

Humboldt Agenda Meeting No. 3

Notice of Public Meeting
HUMBOLDT COUNTY LOCAL EMERGENCY PLANNING COMMITTEE
Monday, July 8, 2013 at 17:30
Sara Winnemucca Conference Room
118 East Haskell Street, Winnemucca, NV
(New hospital addition)

Consideration of items may require more or less time than is scheduled.
Public comment will generally not be permitted during discussion of individual
agenda items unless scheduled for a public meeting.

1. Call to order
2. Public Comments
This segment of the agenda is designated to give the general public the opportunity to address the committee on any subject. No action may be taken on a matter raised until the matter itself has been specifically included on an agenda as an item upon which action will be taken. Public comment will generally be limited to 5 minutes per person.
3. Approval of minutes of last meeting.
4. Old Business
 - A. Hazard Mitigation Plan Review, by CJ Stafford from Pershing County
 - B. Discussion of Hazmat Training, Drills and Equipment with HGH & UPRR, by Pat Songer
 - C. Update Information regarding Planning & Training Committee for NRT-1 A
 - D. Update LEPC Plan Book
 - E. Review Incident Emergency Management System (ie. Tri-County maps)
5. New Business
 - A. Delyne Kirkman, National Weather Service, Storm Ready Presentation
 - B. C.J. Stafford, Pershing County
 - C. Lori Savoie, Update HazMat drill with Union Pacific RR, schedule for July 30
 - D. Update on HazMat book from 2008
 - E. Open discussion about changing meeting times/dates
 - F. Update on HazMat plan and a report on HazMat material exercise, pursuant to NAC & SERC policies
 - G. Discuss Nevada HAZMAT Conference & Expo on October 22-24, 2013 in Reno, NV
6. Public Comments
This segment of the agenda is designated to give the general public the opportunity to address the committee on any subject. No action may be taken on a matter raised until the matter itself has been specifically included on an agenda as an item upon which action will be taken. Public comment will generally be limited to 5 minutes per person.
7. Adjourn

CERTIFICATE OF POSTING

PLACES POSTED: Humboldt Co. Courthouse, Room 201, Sheriff's Office Bulletin Board
Humboldt County Library, 85 E. 5th Street
County Annex Building, 4th & Bridge Streets
Humboldt General Hospital, 118 E. Haskell Street
Post Office, 850 Hanson Street

MEETING DATE: July 8, 2013
DATE POSTED: July 3, 2013

POSTED BY: A. Murdock

NOTICE TO PERSONS WITH DISABILITIES – Reasonable efforts will be made to assist and accommodate physically disabled persons desiring to attend this meeting. Please call the Humboldt County Administrator's Office at 623-6300 in advance so that arrangements may be conveniently made.

Lander Agenda Meeting No. 1



LANDER COUNTY LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

Scheduled Meeting Agenda

December 11, 2012 – 5:30 p.m.

Lander County Sheriff's Office

#2 State Route 305

Battle Mountain, Nevada

The Lander County, Local Emergency Planning Committee (LEPC) is scheduled to meet for a regular session at the Public Safety Building (Sheriff's Office), in Battle Mountain, Nevada, on December 11, 2012. The meeting will begin at 5:30 PM.

Regular Session

- I. Call to Order**
- II. Pledge of Allegiance**
- III. *Approval of the Agenda Notice**
- IV. *Approval of Meeting Minutes for November 13, 2012.**
- V. Discussion for possible action regarding review of the LEPC budget**
 - A. Expenses since the last meeting.
 - B. Quarterly Financial Report if available.









Public Comment – For non-agendized items only. Persons are invited to submit comments in writing and/or attend and make comments on any agenda item at the Committee meeting. All public comment may be limited to three (3) minutes per person, at the discretion of the Committee. Reasonable restrictions may be placed on public comments based upon time, place and manner, but public comment based upon viewpoint may not be restricted.

VI. Business

- A. Discussion and possible action regarding updating the current LEPC membership – Jayson Cutler
 - a. Public Comment
- B. Discussion and possible action regarding Lander Hazardous Mitigation Plan. – Danny Sommers (Farr West Engineering), Elizabeth Ashbey (State hazard mitigation officer).
 - a. Public Comment
- C. Discussion and possible action regarding Hazardous material exercise drill. – Vickie Hinton, Mike Hay
 - a. Public Comment
- D. Discussion on new copper leach project at Phoenix Mine.- Kerry Tucket
 - a. Public Comment

Lander Sign-in Meeting No. 1

Lander County LEPC Meeting #1 December 11, 2012

Initial	Last Name	First Name	Email	Department
	Ashby	Elizabeth	eashby@dps.state.nv.us	State of NV
	Sommers	Danny	danny@farrwestengineering.com	Farr West
	Stienmetz	Steven	dogwangler51@gmail.com	Public
	Hanna	Philip	phanna@bmgch.org	Public
KT	Tuckett	Kerry	Kerry.tuckett@newmont.com	LSSAR
	Robinson	Rick	Robinson@Bmgch.org	Hospital
	Rick Bell	Rick	rbell@Bmgch.org	LC EMS
	Vicki Hinton	Vicki	mds@bmgch.org	Hospital
KT	Kelley Puce	Kelley	dns@bmgch.org	Hospital
	Keith WESTENGARD	KEITH	KWESTENGARD@LanderCountyNV.org	PUBLIC
	CHAMBLISS	STEVE	stephen.chambliss@goldcorp.com	MARIGOLD MINE
EA				

Lander Agenda Meeting No. 2



Lander County Local Emergency Planning Committee (LEPC)

Scheduled Meeting Agenda

March 12, 2013 – 5:30 p.m.
Lander County Sheriff's Office
#2 State Route 305
Battle Mountain, Nevada

The Lander County, Local Emergency Planning Committee (LEPC) is scheduled to meet for a regular session at the Public Safety Building (Sheriff's Office), in Battle Mountain, Nevada, on March 12, 2013. The meeting will begin at 5:30 PM.

Regular Session

- I. Call to Order**
- II. Pledge of Allegiance**
- III. *Approval of the Agenda Notice**
- IV. *Approval of Meeting Minutes for February 12, 2013.**
- V. Discussion for possible action regarding review of the LEPC budget**
 - A. Expenses since the last meeting.
 - B. Quarterly Financial Report if available.

Public Comment – For non-agendized items only. Persons are invited to submit comments in writing and/or attend and make comments on any agenda item at the Committee meeting. All public comment may be limited to three (3) minutes per person, at the discretion of the Committee. Reasonable restrictions may be placed on public comments based upon time, place and manner, but public comment based upon viewpoint may not be restricted.

VI. Business

- A. Discussion and possible action regarding the Tri County Hazard Mitigation Plan Review – CJ Stafford
 - a. Public Comment
- B. Discussion and possible action regarding Committee Member Steve Stienmetz as the primary member for Lander County Commission - Keith Westengard
 - a. Public Comment
- C. Discussion and possible action for new member Jim Peterson as an alternate for ERPCA-Marigold – Keith Westengard
 - a. Public Comment
- D. Discussion and possible action regarding new member Tom Ames - Public – Keith Westengard

Lander Minutes Meeting No. 3



Lander County Local Emergency Planning Meeting Minutes

Date 05/14/2013 – 4:30 p.m.

Lander County Sheriff's Office
#2 State Route 305
Battle Mountain, Nevada 89820

The Lander County Local Emergency Planning Committee met in regular session in the Public Safety Building (Sheriff's Office), in Battle Mountain, Nevada on May 14, 2013 at 4:30 p.m.

COMMITTEE MEMEBERS PRESENT:

Steve Stienmetz – Committee Member (Commission)
Bart Negro – Committee Member (BM Volunteer Fire Dept)
Rick Lawson – Committee Member (BM General Hospital)
Brenda Keller – Committee Member (Lander Co. Health Nurse)
Mike Hay – Committee Member (BM Ambulance Alternate)
Meshell Young – Committee Member (Lander. Co SAR)
Steve Chambliss – Committee Member (ERPCA Marigold)
Kerry Tuckett – Committee Member (ERPCA Newmont)
Sarah Edgar – Committee Member (ERPCA Barrick - Alternate)
Phil Hanna - Public
Blair Keller - Public
Keith Westengard - Public
Barry Burt – Additional Attendant BLM
Adam Greenfield – Additional Attendant
C.J. Stafford – Additional Attendant Pershing County
David Roukie – Additional Attendant Nevada State Health Division
Mary Ann Laffoon – Additional Attendant CERT

Let the record reflect that a quorum was met after 4:42pm. The meeting started with Public Comment, then returned to agenda item 1 after the quorum was met.

Lander Minutes Meeting No. 3 (cont.)

V. * DISCUSSION FOR POSSIBLE ACTION REGARDING REVIEW OF THE LEPC BUDGET

To date the LEPC budget contains \$800 remaining for clerical and \$970 for operations. \$200 has been paid out for clerical and \$35 out of operations. The SERC grant has been approved. Another \$4000 will be deposited in July. The money for the SCBA's was also approved.

PUBLIC COMMENT – C.J. Stafford (Pershing County) did a presentation on the updates of the tri-county hazard mitigation plan. He stated that we are to the point of planning projects to put into the plan for seeking funds in the future. He brought along a spreadsheet to help foster ideas for projects to develop. Some projects can point to multiple scenarios in the future. He showed the group projects that Pershing County is planning to use. C.J. Stafford also stated that the train accident practice in Hawthorne will be in October, not July. Also, the LEPC in Pershing County will have a task force meet for practice for an active shooter at the school next month.

VI. BUSINESS

A. *Discussion and possible action regarding presentation on “Community Emergency Response” – Mary Ann Laffoon

Mary Ann Laffoon (CERT Coordinator) would like to hold a class in Lander County. It is a 21-hour, 2 to 3 day course. It would be no cost for attendants, and she only need a location and time. She is willing to combine with other counties to hold the class. Laffoon states that teens can also attend, with parent/guardian written permission. Committee Member Kerry Tuckett made the motion to continue working with Mary Ann Laffoon to hold a CERT class in Lander County. Committee Member Mike Hay (Alternate) seconded the motion. The motion was voted on and carried unanimously. **Approved.**

a. Public comments – No public comments.

B. *Discussion and possible action regarding update of the PHP Summit in Fallon May 30-31 – David Roukie

David Roukie (Nevada State Health Division – Clinical Health Services) updated the committee on the Public Health Preparedness Summit to be held in Fallon, Nevada on May 30 and 31. So far registration is full, but a waitlist has been established. There will be 3 keynote speakers, discussing active shooter, first aid, and Federal expectations coalitions. Three topics to be discussed at the summit are the current state of PHP, the future of PHP and constraints/barriers/and resources to PHP in Nevada. Expenses including travel, boarding, and food will be covered for those who wish to go.

Lander Sign-in Meeting No. 3

Lander County LEPC Meeting Sign In Sheet			
Category	Agency	Primary	Secondary
1	Elected Local Official	Lander County Commission Steve Strienmetz <i>Steve Strienmetz</i>	Brian Garner
2	Law Enforcement/ Civil Defense	Lander County Sheriff Ron Unger <i>Ron Unger</i>	Robert Quick
3	Fire Fighting	BM Volunteer Fire Department Bart Negro <i>Bart Negro</i>	Dan Baldini
4	First Aid	BM General Hospital Rick Lawson <i>Rick Lawson</i>	Lisa Andre/ Kelly Price
5	Hospital	BM General Hospital	
6	Health	Lander County Health Nurse Brenda Keller <i>Brenda Keller</i>	Reita Newgard
7	Transportation	Lander County School District Tammy Lowe <i>Tammy Lowe</i>	Amber Goddard
8	Community Groups	BM Ambulance Rick Bell <i>Rick Bell</i>	Mike Hay <i>Mike Hay</i>
9	Community Groups	Lander County SAR MeShell Young <i>MeShell Young</i>	Glen Wiley
10	ERPCA Facility	Goldcorp - Marigold Steve Chambliss <i>Steve Chambliss</i>	Matt Zietlow
11	ERPCA Facility	Newmont Kerry Tuckett <i>Kerry Tuckett</i>	Jason Jury
12	ERPCA Facility	Barrick Ester Gandolfo (Co-Chair) <i>Ester Gandolfo</i>	Sarah Edgar <i>Sarah Edgar</i>
13	Additional Members	Battle Mountain Band Mark Oppenien <i>Mark Oppenien</i>	Laura Snyder <i>Laura Snyder</i>
14	Additional Members	Public Blair Keller <i>Blair Keller</i>	Keith Westergaard <i>Keith Westergaard</i>
		Phil Hanna <i>Phil Hanna</i>	Tom Ames <i>Tom Ames</i>
		Chris Spring <i>Chris Spring</i>	Gina Little <i>Gina Little</i>
			Marla Sam <i>Marla Sam</i>

Additional Attendants	
Name (Please Print)	Signature
Adam Greenfield	<i>Adam Greenfield</i>
C.J. Safford P.C. P&B	<i>C.J. Safford</i>
DAVID ROUNE US&B	<i>David Rounes</i>
Barry Burt	<i>Barry Burt</i>
MARY ANN LAFFAM	<i>Mary Ann Laffam</i>

Note: Representation from at least 8 agencies is required for a quorum.

Date: *May 14, 2013*

Lander Agenda Meeting No. 4



**Lander County Local Emergency
Planning Committee (LEPC)**

Scheduled Meeting Agenda

May 27, 2014 – 5:30 p.m.
Lander County Sheriff's Office
#2 State Route 305
Battle Mountain, Nevada

The Lander County, Local Emergency Planning Committee (LEPC) is scheduled to meet for a special session at the Public Safety Building (Sheriff's Office), in Battle Mountain, Nevada, on May 27, 2014. The meeting will begin at 5:30 PM.

Special Session

- I. Call to Order**
- II. Pledge of Allegiance**
- III. *Approval of the Agenda Notice**
- IV. *Approval of Meeting Minutes for May 13, 2014.**
- V. Discussion for possible action regarding review of the May 27, 2014 budget**
 - A. Expenses since the last meeting.
 - B. Quarterly Financial Report if available.

Public Comment – For non-agendized items only. Persons are invited to submit comments in writing and/or attend and make comments on any agenda item at the Committee meeting. All public comment may be limited to three (3) minutes per person, at the discretion of the Committee. Reasonable restrictions may be placed on public comments based upon time, place and manner, but public comment based upon viewpoint may not be restricted.

VI. Business

- A. Discussion and possible action regarding removal of Kingston VFD from LEPC roster – Keith Westengard
 - a. Public Comment
- B. Discussion and possible action regarding update on hazard mitigation plan and collection of surveys – Keith Westengard
 - a. Public Comment
- C. Discussion and possible action regarding United We Stand Grant – Keith Westengard
 - a. Public Comment

Pershing Agenda Meeting No. 1

Notice of Public Meeting

**Pershing County Local Emergency Planning Committee and Pershing County
Emergency Management
Agenda**

Thursday, July 12, 2012, 9:00 a.m.
Pershing County Courthouse
400 Main St, Round Room, Lovelock, NV

All items on this agenda are approximate.
Consideration of items may require more or less time than is scheduled.
Items assigned times will not be discussed prior to their assigned times.

*Items so marked may have formal action taken on them.

9:00 a.m.

1. Call to order;
2. Establishment of quorum;
3. **PUBLIC INPUT:** (Public comments and discussion. No action may be taken on 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 will be taken. Public commentary will generally be limited to 5 minutes per person.);
4. Public/Personal Communication or Correspondence;
5. Approval of minutes;*
6. Discussion/Update/Action of current status/ Financial/Grant Updates (SERC,EMPG, UWS, HMEP);*
7. Danny Sommers, Farr West Engineering:
 - a. Planning Process Overview
 - b. Incorporation of Existing Plans
 - c. Hazard Identification Table and Hazard Ranking
8. Update on Communications;
9. Training Schedule Update;
10. Staff/Board Reports;
11. Setting date and time for future meetings;
12. Board member discussion;
13. Legal counsel comments;
14. **PUBLIC INPUT:** (Public comments and discussion. No action may be taken on 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 will be taken. Public commentary will generally be limited to 5 minutes per person.);
15. Adjourn.*

Notice to Persons with Disabilities

Members of the public who are disabled and require special assistance or Accommodations at the meeting are requested to notify the County Clerk, 775-273-2208, as soon as possible.

CERTIFICATE OF POSTING

This Agenda is posted at the following locations:

Lovelock City Hall
Lovelock Post Office
Courthouse Entrance

MEETING DATE: Thursday, July 12, 2012
DATE POSTED: Friday July 6, 2012

Commission Meeting Room
Pershing County Library

POSTED BY: _____

Pershing Sign-in Meeting No. 1

Pershing County LEPC Meeting #1 July 12, 2012

Initial	Last Name	First Name	Email	Department
MRJ	Johnson	Michael	mjohnson@pershingcounty.net	Pershing Co.
KJ	Johnson	Karen	kijohnson@dps.state.nv.us	State of NV
	Sommers	Danny	danny@farrwestengineering.com	Farr West
	Pilon	MARK		CITY OF LOVELL PUBLIC WORKS
	Mark	Jeffrey	drutten@frontiercommunity	FCC
	SHANK	Carol	CAROLSHANK47@GMAIL.COM	COUNTY
	Whyte	Jerry	jwhyte1545@yahoo.com	SAR
	Reid	Debra	d.reid@winneymusepublishing.net	Review - miner
	Ashby	Elizabeth	ashby@dps.state.nv.us	NSEM
	Stoekman	Bonnie	bstoekman@health.nv	HEALTH
	Saiford	C.S.	cjsaiford@pershingcounty.net	Building / LVFD
	Mance Bo	Darrell	Dmancebo@cityoflovelock.com	LPD
	Hico Larson	Nicole	nlarson@pershingcounty.com	DA (secretary) SCITROOL / CNLP
	Murray	DAN	Dmurray@pershing-k12.nv.us	K12, NV, US
	Sparkle	Charles	clsparkle@att.net	PC-DEM
	OREGA	MARC	oregamae74@GMAIL.COM	PCSD / LVFD

Pershing Agenda Meeting No. 2

Notice of Public Meeting

**Pershing County Local Emergency Planning Committee and Pershing County
Emergency Management
Agenda**

Thursday, Oct. 4, 2012, 9:00 a.m.

**Pershing County Courthouse
400 Main St, Round Room, Lovelock, NV**

All items on this agenda are approximate.
Consideration of items may require more or less time than is scheduled.
Items assigned times will not be discussed prior to their assigned times.

*Items so marked may have formal action taken on them.

9:00 a.m.

1. Call to order;
2. Establishment of quorum;
3. **PUBLIC INPUT:** (Public comments and discussion. No action may be taken on 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 will be taken. Public commentary will generally be limited to 5 minutes per person.);
4. Public/Personal Communication or Correspondence;
5. Approval of minutes;*
6. Discussion/Update/Action of current status/ Financial/Grant Updates (SERC,EMPG, UWS, HMEP);*
7. Danny Sommers, Farr West Engineering;
8. Update on Communications;
9. Training Schedule Update;
10. Staff/Board Reports;
11. Setting date and time for future meetings;
12. Board member discussion;
13. Legal counsel comments;
14. **PUBLIC INPUT:** (Public comments and discussion. No action may be taken on 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 will be taken. Public commentary will generally be limited to 5 minutes per person.);
15. Adjourn.*

Notice to Persons with Disabilities

Members of the public who are disabled and require special assistance or Accommodations at the meeting are requested to notify the County Clerk, 775-273-2208, as soon as possible.

CERTIFICATE OF POSTING

This Agenda is posted at the following locations:

Lovelock City Hall
Lovelock Post Office
Courthouse Entrance

MEETING DATE: Thursday, July 12, 2012
DATE POSTED: Friday July 6, 2012

Commission Meeting Room
Pershing County Library

POSTED BY: _____

Pershing Sign-in Meeting No. 2

SIGN-IN SHEET
PLEASE PRINT

October
LEPC meeting 2012
Pershing County

DATE:
BOARD:

TYPE OF MEETING Regular

MEMBERS PRESENT:

- 1 [Signature]
- 2 Randy Bitker - VIO CARE Salt City →
- 3 Ryan Collins
- 4 C. J. Duff
- 5 [Signature]
- 6 CAROL SHANK
- 7 Richard Machado
- 8 Roger Mancebo
- 9 [Signature] Charles L. Sparks
- 10 Leslie Millican
- 11 _____
- 12 _____
- 13 _____
- 14 _____
- 15 _____
- 16 _____

PUBLIC PRESENT:

- 17 _____
- 18 Enviro Care (Sunny)
- 19 _____
- 20 _____
- 21 _____
- 22 _____
- 23 _____
- 24 _____
- 25 _____
- 26 _____
- 27 _____
- 28 _____
- 29 _____
- 30 _____
- 31 _____
- 32 _____

Pershing Agenda Meeting No. 3

Notice of Public Meeting

**Pershing County Local Emergency Planning Committee and Pershing County
Emergency Management**

Agenda

Tuesday, April 9, 2013, 9:00 a.m.

Pershing County Courthouse

400 Main St, Round Room, Lovelock, NV

All items on this agenda are approximate.
Consideration of items may require more or less time than is scheduled.
Items assigned times will not be discussed prior to their assigned times.

*Items so marked may have formal action taken on them.

9:00 a.m.

1. Call to order;
2. Establishment of quorum;
3. **PUBLIC INPUT:** (Public comments and discussion. No action may be taken on 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 will be taken. Public commentary will generally be limited to 5 minutes per person.);
4. Public/Personal Communication or Correspondence;
5. Approval of minutes;*
6. Discussion/Update/Action of current status/ Financial/Grant Updates;*
7. Update on Communications;
8. Danny Sommers and CJ Safford, Farr West Engineering:
 - a. Hazard Mitigation Plan Review
9. Training Schedule Update;
10. Shelly Nee, Channel 14
11. Staff/Board Reports;
12. Setting date and time for future meetings;
13. Board member discussion;
14. Legal counsel comments;
15. **PUBLIC INPUT:** (Public comments and discussion. No action may be taken on 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 will be taken. Public commentary will generally be limited to 5 minutes per person.);
16. Adjourn.*

Notice to Persons with Disabilities

Members of the public who are disabled and require special assistance or Accommodations at the meeting are requested to notify the County Clerk, 775-273-2208, as soon as possible.

CERTIFICATE OF POSTING

This Agenda is posted at the following locations:

Lovelock City Hall
Lovelock Post Office
Courthouse Entrance

MEETING DATE: Tuesday, April 2, 2013

Commission Meeting Room
Pershing County Library

Pershing Sign-in Meeting No. 3

SIGN-IN SHEET PLEASE PRINT

DATE: 4-9-13

BOARD: LEPC

TYPE OF MEETING Regular

MEMBERS PRESENT:

- 1 Jerry Whyte Sr. SAR
- 2 Ryan Collins L.M.W.D
- 3 Dan MURPHY PC (SAR)
- 4 Chuck Rasco LVFD
- 5 Darrell Mancebo LPD
- 6 Dan Hill PCRD
- 7 CAROL SHANK
- 8 Shelly Nee Channel 14
- 9 C. J. S. Ford
- 10 Patty Brannen
- 11 [Signature]
- 12
- 13
- 14
- 15
- 16

PUBLIC PRESENT:

- 17 JEFF MULL FCC
- 18 Elizabeth Abby NDEM
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APPENDIX D – PUBLIC INFORMATION

Appendix C includes:

1. Lovelock Miner Public Notice
2. Battle Mountain Bugle Public Notice
3. Humboldt Sun Public Notice
4. Tri-County Hazard Mitigation Questionnaire Results
5. Tri-County Hazard Mitigation Questionnaire
6. Letter to neighboring Counties
7. Letter to Tri-County Public

10 - The Lovelock Review-Miner, Sept. 20 - 26, 2012

SPORTS

Contact Sports Reporter: David E. Harrison
dharrison@reviewminerpublishing.net
(775) 273-7245 office, (775) 421-5646 cellWALTER BRINKERHOFF • Special to the Review-Miner
Pershing County quarterback Seth Montes rolls right as left tackle Chris Franco (No. 63) and left guard Bobby Gibson (No. 54) seal off the backside during the Mustangs' 50-0 win last Friday in West Wendover.DAVID E. HARRISON • The Lovelock Review-Miner
JV Mustangs Marcus Nester (No. 3) and Michael Gonsalves (No. 63) attempt to bring down Silver Stage's Joseph Kellogg last Thursday at PCHS. The JV Mustangs are off to a winning start to the season.

Mustangs wallop Wolverines; JV squad posts dramatic win

By David E. Harrison
The Lovelock Review-Miner

LOVELOCK — Last Friday, the Pershing County High School football team (2-1, 1-0) rolled out of West Wendover (0-4, 0-2) with a 50-0 win.

In the Mustangs' league opener, junior tailback Jacob Flores scored four touchdowns while running for 187 yards on 11 carries, fueling an offensive attack which produced 469 total yards and 37 first-half points.

Senior tailback Jared Jensen added 61 yards on eight carries, while junior wideout Colten Davis had 91 yards combined on five carries and two receptions.

Senior quarterback Seth Montes (4-for-8) threw for 110 yards. Jensen led the defense in tackles with 10, the third linebacker in as many weeks to do so. The Mustangs held the Wolverines to 146 total yards.

Junior linebacker Miguel Rodriguez booted two of three extra point attempts through the uprights for a place kicking game which Head Coach Dave McLean views perennially as a "work in

progress."

"That's a big, strong team," said McLean. "But we overcame the long drive and played well."

Future Foe

The Mustangs next welcome North Tahoe (0-3, 0-2) on Friday, Sept. 21, at 7 p.m.

Last Saturday afternoon, Yerington (4-0, 2-0) went to Tahoe City (Calif.) and surfed over the Lakers, 46-2. Nine different Lions shared 16 carries for a total of 286 yards, while five different receivers split six receptions for 76 yards.

Around the D-III

On Friday afternoon, Incline (3-0, 2-0) went to Silver State/ROP (1-3, 0-1), and trimmed the Rams, 14-11.

Highlander senior Brendon Steinmeyer returned a fumble 30 yards for one score while senior fullback Sean Herrera rushed for 115 yards on 18 carries and the team's other touchdown.

Neither squad had more than 190 yards of total offense.

In the evening, Battle Mountain (2-1, 2-0) welcomed Whittell (1-2, 0-1) and completely subdued the

Warriors, 40-0.

JV Report

Last Thursday, the JV Mustangs (3-0) hosted the varsity squad from Silver Stage (1-2) and left the field with a dramatic 8-0 win.

For more than 47 minutes, the squads swapped miscues throughout the middle of the field, struggling to get within sniffing distance of the end zone.

Figuring among the seven (or more?) turnovers in the first half alone were an interception and fumble recovery by Pershing County freshman defensive back Vincent Evenson.

A powerful run for 12 yards by freshman tailback Jared Brinkerhoff on a fourth-and-1 from the Silver Stage 46 with less than five minutes left in the game looked at the time to be a crucial play, but even that drive stalled, allowing the Nighthawks to take over at their own 20.

The JV Mustang defense, though, forced a punt, and with less than a minute and no timeouts, freshman quarterback Angel Ramirez found Drew Jaramillo not once, but twice, the second of

DAVID E. HARRISON • The Lovelock Review-Miner
JV Mustang quarterback Angel Ramirez (No. 12) loads a pass while Mickey Carmichael (No. 30) fends off a Nighthawk.

which tosses landing in the junior wideout's arms after being tipped at the 15-yard line and with nothing between him and the end zone.

Ramirez then added two more points with a pass to sophomore tight end Jesus "Chooch" Cruz.

With 17 seconds remaining, Silver Stage junior quarterback Tim Murray threw for 12 yards, but then

was picked off by Ramirez on the game's final play.

PCHS senior Madison Christiansen opened the evening by singing the National Anthem.

The thrilling and undefeated JV Mustangs are back on Joe Yanni Field this Friday, Sept. 21, playing against the Lowry frosh at 4:30 p.m.

PUBLIC NOTICE
REGIONAL TRI-COUNTY HAZARD
MITIGATION PLAN COMMENT PERIOD

In recent years nature has been restless in Nevada; there have been earthquakes, drought, flooding, and wild-land fires. All of these events have demonstrated to us all that all Nevada Counties can be vulnerable to disasters. The risks posed by these and other hazards will continue to increase as the population continues to grow.

The Counties of Lander, Humboldt, and Pershing, have launched a planning effort, known as the Regional Tri-County Hazard Mitigation Plan. The purpose of the plan is to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

The Tri-Counties began this planning process in March 2012 and are sending out a questionnaire to various local utilities to include with the September or October utility bill for public input. The Counties anticipate submittal of the draft plan to the Board of Supervisors for adoption in spring 2013 and then expect to submit the final version of this plan to FEMA by mid-2013.

Public comments and participation is welcomed. If you would like to participate, submit comments, or need additional information, please contact: Michael K. Johnson, Pershing County Planning & Building Director at (775) 273-2700.

Looking for something?
Check the CLASSIFIEDS

Great Looking Property

MLS# 120007353
4 Bedroom, 3 Full Bath, 2 Car Garage, Home located in a cul-de-sac.
With Lots of Upgrades! Built in 1963. Listed for just \$169,900.
Call Andy with Nevada Attitude R.E.S. 775-273-2733.
Today To set up an Appointment.

The Battle Mountain Bugle, Sept. 19 - 25, 2012 - 15

Battle Mountain Motorsports Complex to get fencing, lighting improvements

The racetrack upgrades will cost about \$558,500

By Heather Hill
The Battle Mountain Bugle

BATTLE MOUNTAIN — The Battle Mountain Motorsports Complex will soon be seeing new lighting and fencing around the outside. Bids were awarded at the Aug. 9 county commission meeting to Tholl Fencing and Nelson Electric.

The county is funding both projects, said Public Works Foreman Jake Edgar, who is overseeing the projects. The property is owned by the county.

Grants were originally awarded to the Battle Mountain Stock Car Racing Association and the Battle Mountain Motocross Association.

ciation for a total of \$562,800 for the lighting and fencing, said Lander County Executive Director Gene Etcheverry. The grants had to be taken back and the county will be paying for both projects directly.

The total cost for the projects came in at \$558,500, with \$140,500 going toward the fencing and \$418,000 going toward the lighting. The county had to add an additional \$45,000 to the projects to cover the engineering cost and electric hook-up fees.

A bid was awarded at the Aug. 9 county commission meeting to Tholl Fencing for \$140,500 and to Nelson Electric for \$418,000 for the lighting.

The county is working with the Battle Mountain Stock Car Racing Association and the Battle Mountain Motocross Association on both projects.



HEATHER SINGER • The Battle Mountain Bugle
The Battle Mountain Motorsports Complex will soon be seeing improvements. Bids were awarded Aug. 9 to Tholl Fencing and Nelson Electric.

Nevada gas prices stabilize after hitting record highs

LAS VEGAS — As summer winds down, Nevada motorists continue to deal with climbing gas prices.

According to the latest report from AAA Nevada, which tracks gas prices as a service to consumers, every metro area in Nevada saw an increase of at least 15 cents over the past month.

The average price in Nevada for regular, unleaded gasoline last week was \$3.81, an increase of 12 cents from last month. Last year at this time, the average price in Nevada was \$3.70 a gallon. That means there has been a year-to-year increase of eleven cents. The national average price of \$3.84 is up by 14 cents, which is 18 cents more than the national price on this date last year, when it was \$3.66.

The highest gas price of the Nevada metro areas tracked by AAA is in Sparks. The average price in this metro area is \$4.07 for regular, unleaded. North Las Vegas has the Silver State's lowest pump price found in metro areas tracked by AAA. Drivers in

that metro area are seeing an average price of \$3.64.

"A weaker global economy typically means that demand for crude oil is less than it would be in a stronger economy," said AAA Nevada spokesperson Cynthia Harris. "Global forces aside, here in the United States, demand for gasoline has been up slightly over the past week."

AAA expects the national average to decline in the coming months as demand drops off following the busy summer driving period. During this time, refineries switch from summer-blend to less expensive winter-blend gasoline and the hurricane season draws to a close.

Nevada is the 15th cheapest average state price in the nation. Among the lower 48 states, the highest average state price reported by AAA was achieved by California, which reached an average price of \$4.17. It was also the second highest in the nation. The highest state price in the entire country is Hawaii, at \$4.37.

Members of Nevada Youth Legislature sworn in

Special to the Bugle

CARSON CITY — Nevada Supreme Court Justice Kristina Pickering swore in 15 new members of the Nevada Youth Legislature during ceremonies on Sept. 8.

Justice Pickering presided over the swearing in at the Grant Sawyer Building in Las Vegas. Justice Pickering will be Chief Justice in 2013 and represent the Nevada Judiciary at the 2013 Legislature.

The Nevada Youth Legislature is a unique opportunity for the young people of Nevada to learn about, affect, and serve our state

government. The goal is for the teenagers to engage in the legislative process and ultimately propose a bill to the Legislature and testify in support of it, according to a news release.

"It is an honor for the Supreme Court to be involved in this important program to educate some of Nevada's brightest students about the legislative process," said Chief Justice Michael Cherry.

"Justice Pickering's involvement means the world to our Youth Legislators," said David Byerman, secretary of the Nevada Senate and Executive of the Nevada Youth Legislature Foundation. "The

swearing-in ceremony conveys the significance of the role our Youth Legislators play in representing the youth of Nevada. This is a day they will not soon forget."

The Nevada Youth Legislature is composed of 21 high school age students who are selected from each of Nevada's senatorial districts.

Each member of the Youth Legislature is appointed by a Nevada state senator with input from members of the Nevada state assembly. There are six returning Youth Legislators for the upcoming legislative session and 15 new members.

Youth to be recognized at awards ceremony

Special to the Bugle

BATTLE MOUNTAIN — The Frontier Community Coalition would like to invite the community to an awards ceremony honoring the community service of select youth on Saturday, Sept. 22, at 6 p.m. in the Conistock Room of the Winnemucca Convention Center.

These youth serve their communities in Humboldt and Lander counties. They serve in the following groups: Longhorn Youth Team,

Choices, Life is Good Youth, Fearless Courageous Crew and the Winnemucca Host Lions Leos Youth Group.

These select youth will be receiving awards from Sen. Dean Heller, Senator Harry Reid, Congressman Mark Amodei, Gov. Brian Sandoval, the Frontier Community Coalition, Lions Club International and the Nevada National Guard Military and Family Support Services.

Keynote speakers will be Mayor Di An Putnam of Winnemucca,

Terri Fairfield — rural outreach coordinator, Sen. Heller's office, Elyse Monroy — field representative, Congressman Mark Amodei's office, Lia Versaevel-District Governor, District 46, Lions Club International, 1st Lt. David Iatuman, Nevada National Guard — Military and Family Support Services.

A reception of cookies and punch (donated by Raley's Supermarket & Drug Center and Khoury's Market) will immediately follow the ceremony.



We've got your picture!



The Humboldt Sun sells reprints of the many photos published throughout the sports year. Come by our office to browse back issues and choose your favorite photos for purchase. Reprints are a great alternative to yellowed clippings!

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THANK YOU

As the swimming pool comes to an end I want to thank Jana Moyes and all my lifeguards for making this another successful year. Without good help you could not run a swimming pool. It takes every one of us doing our jobs to keep everyone safe. If you are interested in becoming a lifeguard next year you need to be 15 years old by April of 2013, swim, love the water and love children. Thanks again for another great year.

See you next year!
Rita Rogers
Manager

PUBLIC NOTICE REGIONAL TRI-COUNTY HAZARD MITIGATION PLAN COMMENT PERIOD

In recent years nature has been restless in Nevada; there have been earthquakes, drought, flooding, and wild-land fires. All of these events have demonstrated to us all that all Nevada Counties can be vulnerable to disasters. The risks posed by these and other hazards will continue to increase as the population continues to grow.

The Counties of Lander, Humboldt, and Pershing, have launched a planning effort, known as the Regional Tri-County Hazard Mitigation Plan. The purpose of the plan is to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. The plan is required under the Federal Disaster Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

The Tri-Counties began this planning process in March 2012 and are sending out a questionnaire to various local utilities to include with the September or October utility bill for public input. The Counties anticipate submittal of the draft plan to the Board of Supervisors for adoption in spring 2013 and then expect to submit the final version of this plan to FEMA by mid-2013.

Public comments and participation is welcomed. If you would like to participate, submit comments, or need additional information, please contact: Michael K. Johnson, Pershing County Planning & Building Director at (775) 273-2700.

Pershing County Planning

10 - The Humboldt Sun, Sept. 18 - 20, 2012

Nevada holds on to beat Northwestern State

RENO (AP) — Stephon Jefferson rushed for 247 yards and two touchdowns to lead Nevada to a 45-34 victory against Northwestern State in front of 20,000 fans on Saturday night at Mackay Stadium in Reno.

"I saw us playing on our heels," said Nevada coach Chris Ault said. "They didn't quit, they didn't go on the sidelines and hang their heads, but you cannot play on-your-heels defense. That's coaching. That starts with me and works right on down to the coaches. That has to cease."

The contest featured 1,240 yards of offense, 655 by Nevada (2-1). Jefferson, who had 27 attempts, shattered his previous career high of 147 rushing yards and had the Wolf Pack's best ground production since Colin

Kacernick ran for 240 yards against UNLV in 2008.

Nevada quarterback Cody Fajardo added 118 yards and three touchdowns on 16 carries. Brad Henderson passed for 357 yards and two touchdowns and rushed for 102 yards for the Demons (1-2).

In the second half, Jefferson had scoring runs of 48 and 32 yards, and Fajardo rushed for touchdowns from 10 and 22 yards, giving

Jefferson and Fajardo both eclipsed 100 yards rushing for the second straight game. Fajardo was 21 of 33 passing for 237 yards with a touchdown and interception.

Nevada travels to Hawaii Saturday for a 7:30 p.m. kickoff. The game will be shown on NBC Sports Network.

Lowry reclaims top spot in Division I-A North

Kieser leads Lowry with 83 in South Tahoe

By Tony Erquaga
The Humboldt Sun

WINNEMUCCA — The final four weeks of the Division I-A North girls golf season is going to be interesting to say the least, if the results of the first three weeks are any indication.

Lowry High School and Elko won the first two tournaments of the year in Fallon and Spring Creek, but the Lady Bucks grabbed the top spot once again, this past Wednesday in South Tahoe, defeating the Indians by two shots.

Lowry shot a 371 on the par-66 Tahoe Paradise Golf Course, while the Indians were second at 373. Spring Creek shot 400, placing third for a third consecutive week. Fernley (424) and Churchill County (461) rounded out the top five, and Truckee (471) and Dayton (484) accounted for the final team scores.

"It was fun to watch," said LHS head coach Andrew Meyer. "It is nice to see the rivalry with Elko kick back up. Even though it was a par-66 course, it played tough. The fairways were narrow and the greens small. Some of their greens were smaller than ours and we have some of the smallest in the state. It was a good test for them."

Elko's Kaily Beatty shot an 80 to claim the low medalist honors, while Lowry's Courtney Kieser was second at 83. Kieser's teammate, Ning Landt, a transfer from Round Mountain, turned in her best finish of the year and tied for third with an 89.

Fernley freshman Brittany Evans, who was the low medalist for the first two weeks, also shot 89 to tie with Landt. The Lady Bucks' Alyssa Dendary carded a 90 to place fifth overall.



Courtney Kieser



Alyssa Dendary

"Courtney and Alyssa are coming around and their game will be there," said the coach. "They know they can shoot better, but they were both happy after the tournament. The whole team had a good attitude in general. Ning came back and played well after everything she went through in Spring Creek."

After not playing last week, Caitlin Orr had her best outing of the season, with a 109 for the final key score for the Lady Bucks. Tori Echeverria carded a 111 and Macy Alvarez a 134.

"I think Caitlin earned the MVP for us in the tournament," Meyer said. "She stepped up and shot a personal best for herself. It was nice to see because I know she can do it and she is a player. She is getting more comfortable with the atmosphere."

Lowry is in sole possession of the lead in the Division I-A North standings with 23 points, one ahead of Elko (22). Spring Creek (18) is in third and Fernley (15) is fourth. The top three teams in the final regular season standings advance to the NIAA State Championships at Wildcreek Golf Course in Sparks on Monday, Oct. 15, and Tuesday, Oct. 16.

"We came out of South Tahoe feeling pretty good," Meyer said.



Caitlin Orr

"The girls responded after the loss in Spring Creek. The rest of the season is going to be like it was in South Tahoe. A couple of shots can make the difference and this fun for everybody involved."

The Lady Bucks travel to Dayton for a noon tee time on Thursday for its next conference meet.

"If we can have four or five solid scores every week, it will be tough for anybody to keep up with us in the north," Meyer said. "We still have to put it together as a team. The girls have to realize that one or two shots can be the difference in winning or losing a tournament."

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Pershing County Planning

TRI-COUNTY HAZARD MITIGATION QUESTIONNAIRE RESULTS

1.

General Household Information						
Response by Zip Code			Internet Access		Own or Rent	
89418	89419	89445	Yes	No	Own	Rent
10	80	5	69	24	88	5
Years in County						
1-5	5-10	10-20	20-40	40+		
11	17	16	13	34		

2.

Hazard Priorities				
	Level of Concern			
	Not	Somewhat	Moderate	Very
Floods	43	27	15	2
Fire	4	25	30	43
Levee Failure	51	12	9	5
High Winds	11	21	39	27
Dam Failure	42	20	16	6
Health Alert/Mass Disease	17	40	19	9
Landslide/Mudslide	58	14	5	1
Earthquake	22	36	22	14
Biological plant or animal	27	33	18	5
Transportation Loss	25	24	24	13
Telecommunications Failure	13	28	29	19
Radiological Incident	26	29	18	9
Terrorism	28	29	14	11
Utilities Interruption	2	26	27	39

3.

Most Effective Way to Receive Information							
News- paper	Television	Internet	Utility Bill	Radio	Mail	Public Meetings	Billboard
46	51	38	41	30	43	18	7

4.

Have you or someone in your household:	Have Done	Plan to Do	Not Done	Unable to Do
Attended meetings or received written information on natural disasters or emergency preparedness?	48	4	52	1
Talked with family members about what to do in case of a disaster or emergency?	56	8	39	5
Developed a "Household/Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?	33	16	48	2
Prepared a "Disaster Supply Kit" (extra food, water, medications, batteries, first aid items and other emergency supplies)?	26	25	49	1
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	56	3	39	0

5.

How much time (per year) are you willing to spend on disaster/emergency preparedness?					
0-1 Hrs.	2-3 Hrs.	4-7 Hrs.	8-15 Hrs.	16+ Hrs.	Other
23	35	20	10	7	4

6. through 9.

	Yes	No
6. Did you consider the possible occurrence of a natural hazard when you bought/moved into your current home?	24	78
7. Would you be willing to spend more money on a home that has features that make it more disaster resistant?	44	48
8a. Do you carry flood insurance?	5	80
8b. Average Annual Cost.	N/A	
8c. If no was it available?	5	18
9. Would you be willing to make your home more resistant to natural disasters?	50	32

10.

What modifications for earthquakes and floods have you made to your home?			
Non-Structural		Structural	
Anchor bookcases, cabinets to wall	17	Secure home to foundation	50
Secure water heater to wall	36	Brace inside of cripple wall with sheathing	19
Install latches on drawers/cabinets	4	Brace unreinforced chimney	5
Fit gas appliances with flexible connections	51	Brace unreinforced masonry & concrete walls and foundations	6
Flood proof	1	Elevate home	25
Other	0		

11.

Mitigation Priorities					
Issue	Importance				
	Very	Somewhat	Neutral	Not Very	Not
Protecting private property	74	17	10	1	0
Protecting critical facilities (hospitals, transportation, fire stations)	92	4	5	0	0
Preventing development in hazard areas	57	30	18	1	1
Protecting natural environment	48	21	21	5	3
Protecting historical and cultural landmarks	42	30	17	6	2
Promoting cooperation among public agencies, citizens, non-profit organizations and businesses	57	31	11	0	1
Protecting and reducing damage to utilities	67	17	8	0	1
Strengthening emergency services (police, fire, ambulance)	66	19	12	2	0

12.

Strategy Opinion				
Communitywide Strategies	Agree	Neutral	Disagree	Not Sure
I support a regulatory approach to reducing risk.	27	35	28	9
I support a non-regulatory approach to reducing risk.	51	35	8	10
I support policies to prohibit development in areas subject to natural hazards.	57	30	6	6
I support the use of local tax dollars to reduce risks and losses from natural disasters.	53	27	14	7
I support protecting historical and cultural structures.	45	31	11	5
I would be willing to make my home more disaster-resistant.	49	31	7	6
I support steps to safeguard the local economy following a disaster event.	69	18	2	4
I support improving the disaster preparedness of schools.	75	15	0	3

13.

	Yes	No
To the best of your knowledge, is your property located in a designated floodplain?	10	68

14.

	Yes	No
If your property were located in a designated “high hazard” area, or had received repeated damages from a natural hazard event, would you consider a “buyout”, elevation of the structure, or relocation offered by a public agency?	40	40

15.

Please rank how prepared you feel you and your household are for the probable impacts of natural hazard events likely to occur within your county. Rank on a scale of 1 to 5 with 5 being the most prepared.				
1	2	3	4	5
11	24	33	13	11

Other Comments:

1. “People in the community need to realize that it is possible to have a disaster at any time. Some have the idea that nothing has ever happened so it isn’t necessary to prepare. More education for all is needed.”
2. “My landlord is a slum landlord. He will not do anything to fix anything in or around my home.”
3. “Communities pull together in times of trouble, without the interference of government. In fact, government usually just gets in the way of progress, with their illogical regulations.”
4. “I believe historical and cultural structures should be protected by private funds not community funds or taxes. Building in high risk areas can be done if building codes are established – however establishing blanket building codes only creates hardships and financial loss for those buildings not in the high risk areas. This could lead to business going elsewhere.”
5. “Common sense, balanced reactions, and well thought out insights are valuable”
6. “Have alternate home out of area that I could live in. Most worried about poisonous train spill. Think of how serious last year’s train wreck could have been if it was wrecked in Lovelock and train carried hazardous materials.”
7. “The county and city need to take care of abandoned houses with high weeds fire danger. No burning on windy days!”
8. “I live alone with my dog.”
9. “People need to be more self reliant, not always depending on the government. Government needs to get out of private individuals lives.”
10. “Wildland fires #1 priority.”
11. “The value of this questionnaire is very questionable!”
12. “Why does the County not support the water district’s back flow program?”
13. “Need better steps taken for Homeland Security.”
14. “Question #9 – If as a senior w/static income, I could get subsidized for upgrades then yes – but if not, I could not afford an upgrade! – This home and property have been in my family for 60 yrs- house, property-100 yrs and never have had a hazardous incident even when we had the earthquake in the 50s.”
15. I live near the river but I’m not sure of flood plain designation or how to proceed in getting flood insurance. More public awareness (comm. Info) would be a benefit as many others live near the river and may have the same concerns/need.”
16. “Mail info to people in community”

TRI-COUNTY HAZARD MITIGATION QUESTIONNAIRE

This questionnaire is designed to help the Tri-County Hazard Mitigation Steering Committee (Humboldt, Lander and Pershing Counties) identify the community's concerns about natural and human-caused hazards. The questionnaire should be completed by an adult, preferably the homeowner or the head of the household. All individual responses are strictly confidential and for research purposes only. **If you have any questions call (775) 273-2700, (ask for Michael K Johnson).**

GENERAL HOUSEHOLD INFORMATION

1. ZIP CODE _____, INTERNET ACCESS? Y / N, OWN or RENT? _____, # YEARS IN COUNTY? _____
2. How concerned are you about the following disasters affecting your community? Please give each hazard a priority rating as follows: **0 = Not concerned; 1 = Somewhat concerned; 2 = Moderately concerned; 3 = Very concerned**

Natural		Health Alert/Mass Disease	Telecommunications Failure
Floods		Landslide/Mudslide	Radiological Incident
Fire		Earthquake	Terrorism
Levee Failure		Biological plant or animal	Utilities Interruption
High Winds		Human Caused	
Dam Failure		Transportation Loss	

3. What is the most effective way for you to receive information about how to make your home safer from natural disasters? **(Check all that apply)**

- ☐ Newspaper ☐ Internet ☐ Radio ☐ Public Meetings
☐ Television ☐ Utility Bill ☐ Mail ☐ Billboard

4. In the following list, please check those activities that apply.

Have you or someone in your household:	Have done	Plan to do	Not done	Unable to do
Attended meetings or received written information on natural disasters or emergency preparedness?				
Talked with family members about what to do in case of a disaster or emergency?				
Developed a "Household/Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?				
Prepared a "Disaster Supply Kit" (extra food, water, medications, batteries, first aid items and other emergency supplies)?				
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?				

5. Building a disaster supply kit, receiving First Aid training and developing a household/family emergency plan are all inexpensive activities that require a personal time commitment. How much time (per year) are you willing to spend on disaster/emergency preparedness? **(Check only one)**

- ☐ 0-1 hour ☐ 2-3 hours ☐ 4-7 hours ☐ 8-15 hours ☐ 16+ hours ☐ Other _____

6. Did you consider the possible occurrence of a natural hazard when you bought/moved into your current home? _____

7. Would you be willing to spend more money on a home that has features that make it more disaster resistant? _____

8. Do you carry flood insurance? _____ If yes what is the annual cost? \$ _____ If no was it available _____

9. Would you be willing to make your home more resistant to natural disasters? Y / N _____

10. What modifications for earthquakes and floods have you made to your home? **(Check all that apply)**

Nonstructural	Structural
Anchor bookcases, cabinets to wall	Secure home to foundation
Secure water heater to wall	Brace inside of cripple wall with sheathing
Install latches on drawers/cabinets	Brace unreinforced chimney
Fit gas appliances with flexible connections	Brace unreinforced masonry & concrete walls and foundations
Flood proof	Elevate home
Other _____	

MAIL to: PO Box 1656, Lovelock, NV, 89419; or drop off at: Planning & Building, 398 Main Street in Lovelock, NV
By October 31, 2012

Tri-County Hazard Mitigation Questionnaire (Cont'd)

11. Natural & human caused disasters can have a significant impact on a community but planning for these events can help lessen the impact. The following statement will help us determine community priorities for planning for those hazards.

Statement	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
Protecting private property					
Protecting critical facilities (hospitals, transportation, fire stations)					
Preventing development in hazard areas					
Protecting natural environment					
Protecting historical and cultural landmarks					
Promoting cooperation among public agencies, citizens, non-profit organizations and businesses					
Protecting and reducing damage to utilities					
Strengthening emergency services (police, fire, ambulance)					

12. Please check the box that best represents your opinion of the following strategies to reduce the risk and loss associated with natural disasters.

Communitywide Strategies	Agree	Neutral	Disagree	Not Sure
I support a regulatory approach to reducing risk.				
I support a non-regulatory approach to reducing risk.				
I support policies to prohibit development in areas subject to natural hazards.				
I support the use of local tax dollars to reduce risks and losses from natural disasters.				
I support protecting historical and cultural structures.				
I would be willing to make my home more disaster-resistant.				
I support steps to safeguard the local economy following a disaster event.				
I support improving the disaster preparedness of schools.				

13. To the best of your knowledge, is your property located in a designated floodplain? **Y / N** _____

14. The term mitigation means to make something become less harsh or severe, to alleviate. Mitigation activities are those types of actions you can take to protect your home and property from natural hazard events such as floods. The Tri-Counties are preparing an All-Natural Hazard Mitigation Plan to formulate and document mitigation strategies that will aid our communities in protecting life and property from the impacts of future natural disasters.

If your property were located in a designated "high hazard" area, or had received repeated damages from a natural hazard event, would you consider a "buyout", elevation of the structure, or relocation offered by a public agency?
Y / N _____

15. Please rank how prepared you feel you and your household are for the probable impacts of natural hazard events likely to occur within your county. Rank on a scale of **1 to 5** with 5 being the most prepared. _____

Other Comments:

**MAIL to: PO Box 1656, Lovelock, NV, 89419; or drop off at: Planning & Building, 398 Main Street in Lovelock, NV
By October 31, 2012**

September 12, 2012

Dear Counties Adjoining Lander, Humboldt or Pershing Counties:

Lander, Humboldt, and Pershing Counties have launched a planning effort known as the *Regional Tri-County Hazard Mitigation Plan* to assess risks posed by natural and manmade disasters and identify ways to reduce those risks. This plan is required under the Federal Disaster mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal disaster assistance.

These Counties share common borders with your jurisdiction/organization and we may share some mutual corresponding risks, such as fire, flood, earthquake, dam failure, transportation, hazardous materials, and other hazards. Planning efforts will focus on potential impacts of disasters including earthquake, fire, flood, dam failure, transportation, hazardous material events, and other hazards. Mitigation measures will focus on prevention, property and natural resource protection, public education and awareness, enhanced emergency services, and improved management practices for structural projects.

The public, including local, State and Federal entities is invited to participate in this planning process. A task force consisting of the Local Emergency Planning Committees (LEPC) for each of these Counties is supervising the creation of this plan. The LEPC's for these Counties meet at the following locations and times:

County	Location	Time
Humboldt	Humboldt General Hospital 118 E. Haskell Street, Winnemucca, Nevada 89445	? Time and date not determined.
Lander	2 State Route 305 S Battle Mountain, NV 89820	Second Tuesday every month, 5:30pm
Pershing	Pershing County Courthouse 400 Main St, Round Room, Lovelock, NV	October 4, 2012, 9:00am

You are welcome to attend any of these regular meetings or you may contact me directly at (775) 273-2700, email: mjohnson@pershingcounty.net, or submit written comments to the Task Force at the address below.

Michael K. Johnson
Pershing County Planning and Building Department (398 Main Street)
P.O. Box 1656
Lovelock, NV 89419

Your concerns and hazard mitigation strategy input would be both helpful and welcome.

Sincerely,

Michael Johnson,
Pershing County Planning & Building Director

September 12, 2012

Dear Residents of Lander, Humboldt and Pershing Counties:

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Pershing County Planning and Building Director

APPENDIX E – MEETING MATERIALS

Appendix E includes:

1. Hazard Profiling Worksheet
2. Mitigation Profiling Criteria
3. Hazard Mitigation Planning Overview
4. State of Nevada Hazards
5. Humboldt County Hazard Survey Results
6. Lander County Hazard Survey Results
7. Pershing County Hazard Survey Results
8. Staple-E Evaluation Worksheet

Name: _____

Date: _____

Agency: _____

Hazard Profiling Worksheet

Legend: 1 = lowest; 5 = highest

Hazard Type	Magnitude	Duration	Economic	Area Affected	Frequency	Degree of Vulnerability	State & Community Priorities	Total
Avalanche								
Canal Failure								
Dam Failure								
Drought								
Earthquakes								
Epidemic								
Expansive Soils								
Flood								
Subsidence								
Infestations								
Landslide								
Severe Weather								
Extreme Heat								
Hail and Thunderstorms								
Severe Winter Storm								
Tornado								
Windstorm								
Tsunami/Seiche								
Volcano								
Wildfire								
Human-caused								
Hazmat								
Terrorism/WMD								

MITIGATION PROFILING CRITERIA

These criteria will be used to categorize the identified hazards into high, medium and low risk hazards.

Criterion One: Magnitude

Magnitude refers to the physical and economic impact of the event. Magnitude factors are represented by:

1. Size of event
2. Life threatening nature of the event
3. Economic impact of the event
4. Threat to property
 - a. Public Sector
 - b. Private Sector
 - c. Business and Manufacturing
 - d. Tourism
 - e. Agriculture

Value:

- | | |
|---------------------|-----------------------------------|
| 1. Very Low | Handled by community |
| 2. Low | Handled at city/town level |
| 3. Medium | Handled at county level |
| 4. High | State must be involved |
| 5. Very High | Federal declaration needed |

Criterion Two: Duration

Duration refers to the length of time the disaster affects the State and its citizens. Some disaster incidents have far-reaching impact beyond the actual event occurrence such as the September 11, 2001 event.

Duration factors include the following:

1. Length of physical duration during emergency phase
2. Length of threat to life and property
3. Length of physical duration during recovery phase
4. Length of time affecting individual citizens and community recovery
5. Length of time affecting economic recovery, tax base, business and manufacturing recovery, tourism, threat to tax base and threat to employment

Value:

- | | |
|---------------------|---|
| 1. Very Low | Critical facilities and/or services lost for 1 to 3 days |
| 2. Low | Critical facilities and/or services lost for 4 to 7 days |
| 3. Medium | Critical facilities and/or services lost for 8 to 14 days |
| 4. High | Critical facilities and/or services lost for 15 to 20 days |
| 5. Very High | Critical facilities and/or services lost for more than 20 days |

Criterion Three: Economic Impact

Distribution of the event refers to the depth of the effects among all sectors of the community and State, including both the geographic area affected as well as distribution of damage and recovery of the economy, health and welfare, and the State/community infrastructure. Distribution factors include the following:

1. How widespread across the state are the effects of the disaster?
2. Are all sectors of the community affected equally or disproportionately?
3. How will the distribution of the effects prolong recovery from the disaster event?

Value:

- | | |
|---------------------|--|
| 1. Very Low | Only the immediate community or part of a town/city is affected |
| 2. Low | City/Town – entire town/city is affected |
| 3. Medium | County – effects are felt at the county level |
| 4. High | State – the entire state will be affected by the event |
| 5. Very High | Federal effects are felt |

Criterion Four: Area Affected

Area affected refers to how much area is physically threatened and potentially impaired by a disaster risk. Area affected factors include of the following:

1. Geographic area affected by primary event
2. Geographic, physical, and economic areas affected by primary risk and potential secondary effects.

Value:

- | | |
|---------------------|------------------|
| 1. Very Low | Community |
| 2. Low | City/Town |
| 3. Medium | County |
| 4. High | State |
| 5. Very High | Federal |

Criterion Five: Frequency

The frequency of the risk refers to the historic and predicted rate of recurrence of a hazardous event (generally expressed in years, such as the 100 year flood).

Value:

- | | |
|---------------------|--|
| 1. Very Low | Occurs less than once in 1,000 years |
| 2. Low | Occurs less than once in 100 to once in 1,000 years |
| 3. Medium | Occurs less than once in 10 to once in 100 years |
| 4. High | Occurs less than once in 5 to once in 10 years |
| 5. Very High | Occurs more frequently than once in 5 years |

Criterion Six: Degree of Vulnerability

The degree of vulnerability refers to how susceptible the population, community infrastructure and state resources are to the effects of the risk. Vulnerability factors include the following:

1. History of the impact of similar events
2. Mitigation steps taken to lessen impact
3. Community and State preparedness to respond to and recover from the event

Value:

- | | |
|---------------------|--|
| 1. Very Low | 1 to 5% of property in affected area severely damaged |
| 2. Low | 6 to 10% of property in affected area severely damaged |
| 3. Medium | 11 to 25% of property in affected area severely damaged |
| 4. High | 26 to 35% of property in affected area severely damaged |
| 5. Very High | 36 to 50% of property in affected area severely damaged |

Criterion Seven: State and Community Priorities

State and community priorities refer to the importance placed on a particular risk by the citizens and their elected officials. Priorities factors consist of the following:

1. Long term economic impact on portions of the State or community
2. Willingness of the State or community to prepare for and respond to a particular risk
3. More widespread concerns over one particular risk than other risks
4. Cultural significance of the threat associated with a risk.
5. Potential for long term community or cultural disruption presented by the hazard
6. Matrix Prioritization of Hazards Results

Value:

- | | |
|---------------------|--|
| 1. Very Low | Advisory |
| 2. Low | Considered for further planning in the future |
| 3. Medium | Prompt action necessary |
| 4. High | Immediate action necessary |
| 5. Very High | Utmost immediacy |

Vulnerability Ratings

- **High Risk Hazard:** Event has most likely occurred in the past and/or is likely to occur in the future. Of substantial magnitude, with loss and financial impact to the State considered beyond the State's available resources and ability to respond.
- **Moderate Risk Hazard:** Event has most likely occurred in the past and/or is likely to occur in the future. Of moderate magnitude, may be considered beyond the State's available resources and ability to respond.
- **Low Risk Hazard:** Event has a very low occurrence rating and not likely to cause major damage to property or loss of lives in the future. Not likely to exceed the State's available resources or ability to respond.
- **No Substantial Risk Category:** Event would be considered a State/local emergency incident within the jurisdiction's response capability and needing no additional resources to respond.
- **Special Risk Category:** A hazard with an identified mitigation plan or lead agency that provides the expertise to establish mitigation strategies.

Hazard Mitigation Planning and General Information

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DEFINITIONS

Hazard Mitigation is any sustained action taken to eliminate or reduce long term risk to human life, property and the environment posed by a hazard.

Hazard Mitigation Planning is the process of making any sustained plan or course of action taken to reduce or eliminate long-term risk to people and property from both natural and technological hazards and their effects. The planning process includes establishing goals and recommendations for mitigation strategies.

Hazard Mitigation may occur during any phase of a threat, emergency or disaster. Mitigation can and should take place during the preparedness (before), response (during), and recovery (after) phases.

The process of hazard mitigation involves evaluating the hazard's impact and identification and implementation of actions to minimize the impact.

PLANNING EFFORT

_____ County, Emergency Management & Building Department

The _____ Co. Emergency Planning Committee is the lead agency and is chair in coordinating the efforts of the Hazard Mitigation Planning Committee.

Purpose of the Plan

1. The purpose of this plan is to integrate Hazard Mitigation strategies into the activities and programs of the County, and to the extent practical, into the activities of private sector organizations.
2. The plan identifies and evaluates specific _____ County Hazard Mitigation strategies to be considered by the county and its agencies and offers a support document, as well as planning support, for those strategies developed by its political subdivisions, agencies, special districts and organizations.

It is understood that the mitigation strategies adopted in this plan will be recommendations only, and they must be approved and funded in order to be implemented as official Hazard Mitigation Strategies.

Reviewing Hazard Mitigation Planning Tasks

1. Coordinate multi-hazard mitigation planning tasks and activities to develop an all-hazards multi-jurisdictional mitigation plan and support the county's EM oversight of the planning process.
2. Assist in carrying out the goals of the county's Hazard Mitigation Plan in compliance with FEMA DMA 2000 Hazard Mitigation Act.
3. Prioritize Risks for implementing mitigation strategies.
4. Select designated Critical Facilities and ascertain risk exposure analysis for those facilities.

5. Select highest and best mitigation recommendations and develop those recommendations for further action by the county.
6. Review mitigation planning drafts, recommendations and updates.
7. Develop and implement long and short term goals.
8. Integrate the plan with all phases of Comprehensive Emergency Management Planning.
9. Provide for the implementation of committee decisions.
10. Encourage, coordinate and provide a methodology for the implementation of public input including the following:
 - Questionnaire given to the citizens of _____ County.
 - Press Release
 - Announcement at Chamber of Commerce Meeting
 - Meetings open to the public. Meeting agendas posted in public

STATE OF NEVADA CATEGORIZATION OF HAZARDS

Very High Risk

Earthquake, Terrorism

High Risk

Flood, Wildfire

Medium Risk

Epidemic, Severe Winter Storm

Low Risk

Drought, Hazmat Event, Severe Windstorm, Seiche

Very Low Risk

Avalanche, Expansive Soils, Extreme Heat, Hail and Thunderstorm,

Infestation, Subsidence, Tornado, Volcano

The Tables summarize the results of hazard rankings by the LEPC of each County. These summaries were shared with the LEPC and were carried through to the Vulnerability Analysis.

Humboldt Co.	
Hazard	Ranking
Drought	Moderate
Earthquake	High
Epidemic	Moderate
Extreme Heat	High
Flood ¹	Moderate
Infestations	Moderate
Severe Weather ²	Moderate
Wildfire	Very High
Hazmat	Moderate
Terrorism	High

¹Flood includes dam and/or canal failure

²Severe Weather includes thunderstorm/hail, snow, tornado, and windstorm

Lander Co.	
Hazard	Ranking
Drought	Moderate
Earthquake	Moderate
Epidemic	Moderate
Extreme Heat	Moderate
Flood ¹	Moderate
Severe Weather ²	Moderate
Wildfire	High
Hazmat	Moderate
Terrorism	Moderate

¹Flood included dam and/or canal failure

²Severe Weather includes thunderstorm/hail, snow, tornado, and windstorm

Pershing County Hazards		
Hazard	Pershing	State of Nevada
Drought	Moderate	Low
Earthquake	Moderate	Very High
Flood ¹	Moderate	High
Wildfire	High	High

¹Flood includes dam and/or canal failure

[illegible]

FARR WEST ENGINEERING 187 Tri-County HMP

APPENDIX F – PLAN MAINTENANCE DOCUMENTS

Appendix F includes:

1. Sample Press Releases for Annual Plan Maintenance Meeting
2. Mitigation Action Progress Report
3. Hazard Mitigation Plan Annual Review Questionnaire

Sample Press Releases for Annual Plan Maintenance Meeting

Humboldt County, Nevada will be meeting to review its Hazard Mitigation Plan. The plan assesses risks posed by natural and manmade disasters and identifies ways to reduce those risks. The plan is required under the Federal Disaster Mitigation Act of 2000 as a prerequisite for receiving certain forms of Federal disaster assistance. It can be found on the County's website at <http://www.hcnv.us/>

The purpose for the review is to determine if all elements of the plan meet the current hazard mitigation requirements of the County.

Public comments and participation are welcomed. For additional information or to request to participate, or to submit comments, please contact _____, at (775) _____ .

Lander County, Nevada will be meeting to review its Hazard Mitigation Plan. The plan assesses risks posed by natural and manmade disasters and identifies ways to reduce those risks. The plan is required under the Federal Disaster Mitigation Act of 2000 as a prerequisite for receiving certain forms of Federal disaster assistance. It can be found on the County's website at <http://landercountynv.org/>

The purpose for the review is to determine if all elements of the plan meet the current hazard mitigation requirements of the County.

Public comments and participation are welcomed. For additional information or to request to participate, or to submit comments, please contact _____, at (775) _____ .

Pershing County, Nevada will be meeting to review its Hazard Mitigation Plan. The plan assesses risks posed by natural and manmade disasters and identifies ways to reduce those risks. The plan is required under the Federal Disaster Mitigation Act of 2000 as a prerequisite for receiving certain forms of Federal disaster assistance. It can be found on the County's website at <http://pershingcounty.net/>

The purpose for the review is to determine if all elements of the plan meet the current hazard mitigation requirements of the County.

Public comments and participation are welcomed. For additional information or to request to participate, or to submit comments, please contact _____, at (775) _____ .

Mitigation Action Progress Report

Progress Report Period: _____ To: _____
Date Date

Project Title: _____ Project ID#: _____

Responsible Agency: _____

Address: _____

City: _____

Contact Person: _____

Phone #(s): _____ Email: _____

List Supporting Agencies and Contacts:

Total Project Cost: _____

Anticipated Cost Overrun/Underrun: _____

Date of Project Approval: _____ Project Start Date: _____

Anticipated Completion Date: _____

Description of the project (include a description of each phase, if applicable, and the time frame for completing each phase: _____

Milestones	Completed	Projected Date of Completion

Mitigation Action Progress Report (cont.)

Project Status:

- ☐ Project on schedule
☐ Project completed
☐ Project cancelled
☐ Project delayed*

*Explain _____

Project on Schedule:

- ☐ Cost Unchanged
☐ Cost overrun**
☐ Cost underrun**

**Explain _____

Summary of Progress 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 solved?

What are the next steps to be accomplished during the next reporting period?

Hazard Mitigation Plan Annual Review Questionnaire

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 Strategies	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?			