
Pyramid Lake Paiute Tribe Annex – Washoe County Regional Hazard Mitigation Plan



2020 Plan Update

THIS PAGE LEFT INTENTIONALLY BLANK

TABLE OF CONTENTS

1. Introduction.....	1-1
1.1 Pyramid Lake Paiute Tribal Hazard Mitigation Program.....	1-1
1.2 What’s New in the 2020 Update?.....	1-1
1.3 Plan Adoption.....	1-2
2. Community Profile.....	2-1
2.1 Tribal Sovereignty and Governance.....	2-1
2.2 Geography and Climate	2-1
2.3 Population and Demographics.....	2-1
2.4 Tribal Enterprises	2-2
2.5 Tribal Lands and Ownership Trends.....	2-3
2.6 Natural Resources.....	2-4
3. Hazard Profiles and Vulnerability Assessments.....	3-1
3.1 General.....	3-1
3.2 Hazard Ranking Methodology.....	3-2
3.3 Hazard-Specific Profiles and Risk Assessments.....	3-2
3.3.1 Wildland Fire.....	3-4
3.3.2 Flooding	3-5
3.3.3 Earthquake.....	3-8
3.3.4 Energy Emergency	3-10
3.3.5 Drought.....	3-11
3.4 Vulnerability Assessment.....	3-13
3.4.1 Asset Inventory.....	3-13
3.4.2 Repetitive Loss Properties	3-13
3.4.3 Exposure Assessment	3-14
3.5 Land Use and Development Trends.....	3-16
4. Capability Assessment.....	4-1
4.1 Human and Technical Resources	4-1
4.2 Financial Resources.....	4-2
4.3 Legal and Regulatory Resources	4-4
4.4 National Flood Insurance Program Participation.....	4-7

4.5 Integration of Mitigation into Existing Planning Mechanisms.....4-7

 4.5.1 Existing Plans 4-7

5. Mitigation Strategy.....5-1

 5.1 Review of 2015 Hazard Mitigation Actions.....5-1

 5.2 2020-2025 Mitigation Implementation Plan5-1

6. References.....6-1

1. INTRODUCTION

1.1 Pyramid Lake Paiute Tribal Hazard Mitigation Program

The Pyramid Lake Paiute Tribe (PLPT or Tribe) has a fully integrated approach to hazard mitigation planning and program implementation. Throughout the 2020 update process, the following Hazard Mitigation Plan (HMP) participation roles were recorded:

Name	Position	Role in Hazard Mitigation
Don Pelt	Emergency Response Coordinator	Mitigation Program Lead
Cassandra Darrough	Advanced Emergency Medical Technician	Subject Matter Expert and program implementation

1.2 What's New in the 2020 Update?

With the 2020 HMP update, Washoe County and its regional partners have recognized changes in planning priorities by placing an added emphasis on incorporating actionable strategies in the mitigation implementation plan and moving away from including ongoing coordination activities. Recent disasters and emerging hazards have also influenced the planning priorities and development of mitigation actions for the 2020 HMP update.

In the years since the release of the 2015 HMP, the Tribe has continued to implement strategies to reduce its vulnerability to hazards, including development of renewable energy projects on the Pyramid Lake Reservation, and has managed long-term recovery efforts from the 2017 flooding that significantly impacted the Tribe's main source of revenue, Pyramid Lake. The 2020 HMP update includes mitigation actions intended to address vulnerabilities identified following the 2017 flooding.

The 2020 update of the Washoe County Regional HMP includes the following major revisions to the 2015 plan:

- Incorporation of additional hazards and more comprehensive risk assessments (see Chapter 3);
- Expanded capability assessment (see Chapter 4);
- Integration of hazard mitigation planning into existing mechanisms (see Section 4.5); and
- Comprehensive and focused mitigation strategy with prioritized mitigation actions (see Chapter 5).

See Appendix C of the Basic Plan for the completed Federal Emergency Management Agency Local Plan Mitigation Review Tool for the Washoe County Regional HMP.

1.3 Plan Adoption

44 CFR §201.6(c)(5) requires that the HMP be formally adopted by elected officials from each participating jurisdiction. Tribal Council formally adopted the 2020 update of the Washoe County Regional HMP on [Date].

This HMP was approved by FEMA Region IX on [Date]. A copy of the Tribe's adoption resolution is included in Appendix H of the Basic Plan.

2. COMMUNITY PROFILE

2.1 Tribal Sovereignty and Governance

The following governance information is provided from the Tribe's website (as well as within the [Constitution and By-Laws of the Pyramid Lake Paiute Tribe](#)):

The Pyramid Lake Paiute Tribe is governed by 10 Tribal Council members who are elected bi-annually in December and on staggered two-year terms. The Tribe operates under the Indian Reorganization Act Constitution and By-Laws approved on January 26, 1936 by the Department of Interior.

The Pyramid Lake Paiute Tribe has a Government to Government Relationship with the Federal Government. Therefore, the Tribe contracts with or receives grants directly from Federal Agencies or the State of Nevada, to provide services to the Tribal members and residents of the Reservation. The revenue generated by the Tribe is used to support local Tribal government activities and to supplement the programs that provide direct services to the Tribal members or residents. (Pyramid Lake Paiute Tribe 1996-2004)

2.2 Geography and Climate

The Pyramid Lake Reservation is located 35 miles northeast of Reno, in a remote desert area. The reservation contains about 475,000 acres, of which approximately 112,000 acres cover the surface of a terminal desert lake, Pyramid Lake. This lake is the geographic sink of the basin of the Truckee River, and is located 40 miles northeast of Reno. It is one of the most valuable assets of the Tribe and is entirely enclosed within the boundaries of the reservation. Pyramid Lake, one of the largest natural lakes in the state of Nevada, is approximately 15 miles long and 11 miles wide. The lake measures 350 feet at its deepest point.

Based on data from 1967 to 2016 from the Western Regional Climate Center, the average precipitation based on Sutcliffe, Nevada—located on the shore of Pyramid Lake—is 7.3 inches per year, and an average 5.5 inches of snowfall annually. Temperatures average the upper 80s and lower 60s (degrees Fahrenheit [°F]) in July and August and reach an average high and low of mid 40s (°F) and upper 20s/lower 30s (°F) in January and February. (WRCC n.d.)

2.3 Population and Demographics

The 2013–2017 American Community Survey 5-year estimates report a population of 1,504 people within the Pyramid Lake County Subdivision (CCD), which encompasses about 714 acres of land, including reservation land within Washoe County (U.S. Census Bureau 2017). As of February 2017, 1,300 people lived on the reservation. Approximately 10% of the reservation's population lived in Sutcliffe, 33% in Nixon, and 57% in Wadsworth. The PLPT has approximately 2,288 enrolled members. The membership statistic is an approximate number as this total changes from month to month based on membership approvals and other actions taken by the 10-member Tribal Council. The majority of enrolled Tribal members reside on the reservation; approximately 12% of this membership resides in

other areas throughout the Western United States. The majority of the reservation resident population is young, comprised of individuals under the age of 35. The median age is 22.

The 2013–2017 American Community Survey 5-year estimates that approximately 43% of the population over 16 years old within the Pyramid Lake CCD was employed, and the unemployment rate in the CCD was approximately 21% (U.S. Census Bureau n.d.). Per capita income in the Pyramid Lake CCD was approximately \$17,597, about half of the per capita income in Washoe County of \$31,879, and approximately 24% of people living in the CCD lived below the poverty line (U.S. Census Bureau 2017).

2.4 Tribal Enterprises

Much of the economy on the Pyramid Lake Reservation is centered on fishing and recreational activities at Pyramid Lake. The lake is fed primarily by the Truckee River and was named one of the best fisheries in the world by Fly Fishing and Tying Journal in 2010. In addition to permit fees for fishing, day use and overnight camping, the Tribe also receives lease revenue and tax revenue. Several Tribal members belong to the Pyramid Lake Cattleman’s Cooperative Association, and the Association utilizes the reservation desert open range to operate and manage the individual cattle herds.

Per its website, the Tribal Council is advancing implementation of the Tribe’s Economic Development Plan and accessing the Pyramid Lake Paiute Economic Development Fund created by Public Law 101-618, signed into law under President George H.W. Bush in 1990. The \$40,000,000 fund was created when Congress passed the Truckee-Carson-Pyramid Lake Water Rights Settlement Act (PL 101-618) to address legal disputes over the waters of the Truckee River and Pyramid Lake (which were significantly impacted by construction of the Derby Dam in 1905). The Tribe’s [economic development plan implementation process](#) is a long-term effort that has involved adoption of a 2-volume Pyramid Lake Economic Development Plan (approved in 2011), coordination with the federal government, numerous opportunities for Tribal education and input into the process, and that results in economic stimulus payments distributed directly to Tribal members.

In 2018 the Tribe was approved by the Bureau of Indian Affairs to withdraw 50% of the Pyramid Lake Paiute Economic Development Fund’s interest. A [press release issued by Tribal Chairman Vinton Hawley in April 2018](#) states that per Economic Development Plan, Vol. 2, all living members are entitled to equal economic stimulus payment from the withdrawal, which equated to 1,875 adults and 1,042 minors.

The lump sum payment to adults from the fund is intended to stimulate Tribal enterprise over time, as referenced in the [Economic Development Plan](#): “The purpose of the plan is to use the Pyramid Lake Paiute Economic Development Fund created by Public Law 101-618 to create long term profit making opportunities, to create optimum employment opportunities and to establish a high quality recreation area at Pyramid Lake for the Tribe and its members.”

The Tribe has also received federal funds recently through a 2018 award from the U.S. Environmental Protection Agency for investment in environmental programs. [Per the EPA](#), “The Pyramid Lake Paiute Tribe will use \$203,200 to model and evaluate the impact of Truckee River nutrient loads on Pyramid

Lake's water quality, ecology, and trophic status. Funds will also support the cleanup and closure of three illegal dump sites and assess the operations of several transfer stations to reduce illegal dumping.”

Per a [2016 profile](#) on the website's economic development page, 274 kilowatts of solar facilities have been installed on the reservation, and the Tribe is working with the University of Nevada, Reno and Desert Research Institute to develop a utility-scale geothermal project. The Tribe also was awarded a \$9.5 million American Recovery and Reinvestment Act stimulus grant to build a fiber optic cable line to bring broadband internet to households and businesses.

Tourism is an important source of revenue for the Tribe; in 2015 the Tribe estimates over 200,000 visitors to Pyramid Lake.

BUSINESS HIGHLIGHTS



Pictured here is the I80 Smokeshop and Campground. The Paiute Tribe also operates the Big Bend RV Park.



Much of the economy on the Pyramid Lake Reservation is centered on fishing and recreational activities at Pyramid Lake. Pictured is a Lahonton cutthroat trout caught in Pyramid Lake. Photo credit U.S. Fish and Wildlife Service via AP.

2.5 Tribal Lands and Ownership Trends

The reservation land was first set aside for the Northern Paiute by request of the Bureau of Indian Affairs in 1859. The reservation was not surveyed until 1865. The status of the reservation was very uncertain until President Ulysses S. Grant affirmed its existence by Executive Order on March 23, 1874. At that time, the creation of reservations by the executive branch was novel—most previous reservations were created by treaty or congressional legislation. Subsequent court decisions have affirmed the validity of reservations created by the executive branch, and have set the establishment date for the Pyramid Lake Reservation at 1859, not 1874. This earlier date is important both with regards to the priority date of Tribal water rights, and the status of non-tribal claims to land within the reservation. The Tribe has fought a long series of legal battles on both of these issues.

With passage of the Nevada Native Nations Land Act in 2016, 6,357 acres of land managed by Bureau of Land Management was transferred to be held in trust for the Pyramid Lake Paiute Tribe. This expanded upon the nearly half-million acres already contained within the Pyramid Lake Reservation, with the

intention of further incorporating the watershed of Pyramid Lake into Tribe ownership, and for potential economic development opportunity.

2.6 Natural Resources

The Tribe's connection to its natural resources is expressed in its website. "Deeply grounded in their environment, the Paiutes believed that power (pooha) could reside in any natural object including animals, plants, stones, water and geographical features."

Pyramid Lake features riparian ecosystems, agricultural lands, rangelands, and wetlands and has numerous species of willows, tule, as well as, chokecherry and elderberries in canyons with perennial streams and springs. Pine nuts are a traditional harvest food.

The reservation encompasses five Major Land Resource Areas and over 80 different ecological sites. The Tribe's Pyramid Lake Natural Resources Department aims to "preserve, protect, enhance, and restore land, air, and water resources, and environmental health for the longer term sustainability of the natural resources of the Pyramid Lake Indian Reservation" through "sound administration, ecological, cultural, socioeconomic and educational methods to ensure that our future generations can continue to enjoy the benefits of those places that are of significant historical, cultural, and of environmental importance" (<https://www.plptnaturalresources.org/>).

The Natural Resource Department runs programs related to water resources, water quality, brownfields response, air quality, and invasive species. Invasive species include saltcedar, tall whitetop, and Russian olive; these species are displacing native cottonwoods, willows, and other riparian vegetation along the lower Truckee River.

According to the website, Pyramid Lake itself is known as North America's most beautiful desert lake. "Pyramid Lake was designated as the first National Scenic Byway entirely on an Indian reservation and has been recently named Nevada's first Preserve America Tribal Community. The lake occupies 112,000 surface acres inside the reservation boundary and has a shoreline of approximately 125 miles. The lake has no outlet and is a residual body remaining from the prehistoric Great Lake Lahontan water body that covered most of Northwestern Nevada thousands of years ago."

The lake is also home to the Anaho Island National Wildlife Refuge, which supports one of the largest breeding colonies of American white pelicans in North America.



Pyramid Lake and Truckee River provide habitat for the endemic and endangered Cui-ui (pictured here) and threatened Lahontan Cutthroat Trout.

Pyramid Lake is home to five different species of fish: Lohanton cutthroat trout, cui-ui, Tahoe sucker, tui chub, and Sacramento perch. Pyramid Lake is the only place on earth where the cui-ui can be found. In 2010 Pyramid Lake Fisheries replanted over 700,000 fish in the lake. Since 2006, Desert Terminus Lake Program funds have been used to remodel the Numana, Dunn, and Big Bend fish hatcheries. Pyramid Lake Fisheries micro tagged over 120,000 fish for research in 2010. Wildlife includes jack rabbits, which were traditionally netted for food and clothing.

3. HAZARD PROFILES AND VULNERABILITY ASESMENTS

Chapter 3 contains hazard profiles and vulnerability assessments to determine the potential impact of hazards to the people, economy, and built and natural environments of the PLPT. The profiles have been streamlined to increase the effectiveness and usability of the HMP. Additional details are provided in Appendix F of the Basic Plan.

 FEMA	<p>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect the tribal planning area? (Requirement §201.6(c)(2)(i))</p> <p>B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for the tribal planning area? (Requirement §201.6(c)(2)(ii))</p> <p>B3. Does the plan include a description of each identified hazard’s impact as well as an overall summary of the vulnerability of the tribal planning area? [44 CFR § 201.6(c)(2)(ii)]</p>
---	---

3.1 General

Washoe County has experienced several major disaster declarations that may have affected the PLPT. In total, the County has received 20 major disaster declarations, including four since the previous HMP update. Table 3-1 identifies the declarations since 2015 that affected the Tribe.

Table 3-1 Major Disaster Declarations in Washoe County since 2015

Disaster Number	Individual Assistance Program Declared	Public Assistance Program Declared	Hazard Mitigation Program Declared	Declaration Date	Title
4307	No	Yes	Yes	3/27/2017	Severe Winter Storms, Flooding, and Mudslides
4303	No	Yes	Yes	2/17/2017	Severe Winter Storms, Flooding, and Mudslides
4303	No	Yes	Yes	2/17/2017	Severe Winter Storms, Flooding, and Mudslides
4303	No	Yes	Yes	2/17/2017	Severe Winter Storms, Flooding, and Mudslides

Source: FEMA 2019

The hazard profiles and vulnerability assessments contained in this annex represent a considerable amount of work performed by the Mitigation Planning Team (MPT). MPT members ranked hazards using several key considerations, followed up by activities, to validate hazard analysis results and identify specific areas of risk. Table 3-2 displays the hazards that Tribal representatives to the MPT selected for further assessment.

Table 3-2 Hazards Addressed in the Plan

Hazard Type	Hazard Name
Natural Hazards	Wildland Fire Flooding Earthquake Drought
Technological Hazards	Energy Emergency

3.2 Hazard Ranking Methodology

The hazards identified in the HMP were initially ranked based on MPT feedback during MPT Meeting #1.

Following the individual hazard ranking activity, the results were added up and aggregated to show an average score for all PLPT MPT members (see Table 3-3).

3.3 Hazard-Specific Profiles and Risk Assessments

The following sections profile and assess the risks associated with hazards that are high planning priorities for the PLPT, which are hazards that were scored an average of 3.00 or higher during the hazard ranking activity. No natural hazards that have the potential to affect the tribe were omitted from the initial hazard assessment and ranking activity. The hazard profiles and risk assessments align with EMAP standards by focusing on hazards with a high magnitude or high probability. Each risk assessment considers the following attributes:

- **Location:** An indication of geographic areas that are most likely to experience the hazard.
- **Past Occurrences/History:** Similar to location, a chronological highlight of recent occurrences of the hazard accompanied by an extent or damage cost, if available.
- **Extent/Probability:** A description of the potential magnitude of the hazard, accompanied by the likelihood of the hazard occurring (or a timeframe of recurrence, if available).
- **Vulnerability:** A description of the potential magnitude of losses associated with the hazard. Vulnerability may be expressed in quantitative or qualitative values depending upon available data. Identifies development trends impact on the Tribe's vulnerability to each hazard since the 2015 plan development (increased, decreased, or unchanged).

Note: Hazard Descriptions, Potential Impacts from Future Climate Conditions, and Cascading Impacts can be found in Chapter 4 of the HMP Basic Plan, as these are not place-specific.

Table 3-3 Pyramid Lake Paiute Tribe Hazard Rankings

Jurisdiction: Pyramid Lake Paiute Tribe - Hazards									
	<i>Probability (1=lowest, 5=highest)</i>	<i>Magnitude (1=lowest, 5=highest)</i>	<i>Frequency (1=lowest, 5=highest)</i>	<i>Onset (1=slowest, 5=fastest)</i>	<i>Duration (1=shortest, 5=longest)</i>	<i>Change in Risk (↑, ↓, ↔ since 2015)</i>		<i>Average</i>	<i>Rank</i>
Wildland Fire	5.00	3.00	5.00	5.00	4.00	1.00		4.40	1
Flooding	4.00	3.00	3.00	3.00	5.00	1.00		3.60	2
Earthquake	4.00	3.00	1.00	5.00	5.00	1.00		3.60	2
Energy Emergency	2.00	1.00	5.00	5.00	3.00	1.00		3.20	4
Drought	4.00	1.00	4.00	1.00	5.00	1.00		3.00	5
Severe Storms (Winter Storm)	2.00	1.00	5.00	3.00	3.00	0.00		2.80	6
Criminal Acts and Terrorism	2.00	2.00	4.00	5.00	1.00	1.00		2.80	6
Hazardous Materials Incident	2.00	1.00	1.00	5.00	5.00	-1.00		2.80	6
Infectious Disease	2.00	2.00	3.00	3.00	4.00	0.00		2.80	6
Avalanche and Landslide (Landslide)	1.00	2.00	1.00	4.00	5.00	-1.00		2.60	10
Severe Storms (Windstorm)	2.00	1.00	4.00	3.00	2.00	0.00		2.40	11

Note: Radiological waste transport and volcano hazards were not initially ranked by the MPT. In subsequent meetings, these hazards were identified as low probability but potentially high magnitude hazards. Risk assessments for both hazards are included in Section 4.5 of the basic plan. Avalanche and Landslide (Avalanche) and Transportation Incident (Aircraft Crash) were not identified as hazards for the Tribe.

3.3.1 Wildland Fire

Wildland Fire

Probability	Magnitude	Frequency	Onset	Duration	Average	Rank
5.00	3.00	5.00	5.00	4.00	4.40	1

Location

The Tribe’s three communities, Sutcliffe, Nixon, and Wadsworth, are in or near areas of moderate to very high wildland fire potential. The fire risk for Sutcliffe, in particular, is a concern for the Tribe because Sutcliffe is within the Wildland-Urban Interface (WUI). Growth of cheatgrass in burn scars on the ridges west of Sutcliffe also increases the fire risk for this community. Cheatgrass is highly flammable, and “densely growing populations [of cheatgrass] provide ample, fine-textured fuels that increase fire intensity and often decrease the intervals between fires” (Colorado State University Extension 2019). The topography of the ridges west of Sutcliffe also increases the fire risk to the community; a wildland fire that starts west of Sutcliffe is likely to run down the ridge into the community. The PLPT pre-stages fire trucks at Sutcliffe during fire season in response to this risk.

Wildland fire potential ranges from moderate to very high along the ridges east and west of Pyramid Lake, and wildland fires can impact recreation at the lake, an important source of revenue for the Tribe, if closures are necessary to protect public safety or if visitors choose not to come to the lake due to smoke or other conditions.

Past Occurrences/History

Recent wildland fires between 2015 and 2018 that have affected the Pyramid Lake Reservation are listed below. In 2016, the Tule fire, part of the Virginia Complex fire, destroyed two travel trailers and two vehicles, all unoccupied at the time.

Wildland Fires in or near the Pyramid Lake Reservation between 2015 and 2018			
Year	Fire Name	Total Acres Burned	Cause
2016	Tule, part of the Virginia Mountains Complex Fire	36,142	Natural
2017	Hollywood	5,298	Undetermined
2017	Black Mountain	961	Natural
2017	Truckee	98,960	Human
2018	Perry	51,386	Human

Source: <https://gis.washoecounty.us/wrms>

Extent and Probability

The Pyramid Lake Reservation is primarily rural with small population centers, ranchlands, and farm fields in close proximity to the WUI. Wildland fires have the potential to directly affect Tribal communities, destroying structures and resulting in injuries or deaths. Wildland fires on or near the reservation also can result in economic impacts if the response to incidents requires the Tribe to close the lake to fishing and recreation or if visitation decreases.

Wildland fires are frequent and inevitable. Within the region, the vast majority of wildland fires burn from May to October. The PLPT representative to the MPT rated wildland fires as the highest

Wildland Fire

probability fire likely to affect the Tribe, and the Tribe generally experiences the effects of wildland fire everyone to three years.

Future Probability Trend – Based on projected changes in the timing and quantity of snowmelt and increases in the frequency and magnitude of drought and extreme heat, the Tribe may be impacted by an **increase** in the probability of future wildland fires.

Vulnerability

Both Tribal members and their assets are generally located in or near the WUI. The challenges the Tribe faces mitigating for wildland fire includes residential and commercial properties in close proximity to vegetation that provides fuel for wildland fires and large burns scars on and near the reservation that have been taken over by highly flammable invasive species like cheatgrass.

Existing Mitigation Case Study

In burn scars in the Virginia mountain range, the Tribe is installing landslide detection and warning devices to address the potential cascading effects of recent fires. The Tribe also educates residents about how to maintain defensible space on their properties.

Property

- Six identified critical facilities on the Pyramid Lake Reservation are in areas with very low wildland fire hazard potential.

Recent Development Trends

- **Economic:** The Tribe has not developed any additional economic holdings in areas prone to fire events. (Unchanged Vulnerability)
- **Land Use:** Ridge areas south and east of Pyramid Lake, which are part of the 6,357 acres of land transferred to be held in trust for the Tribe under the Nevada Native Nations Land Act of 2016, have a moderate to very high potential for wildland fire. (Increased Vulnerability)

Future Land Use

No new development is planned within moderate to high fire risk areas.

See Appendix F1 of the Basic Plan for a full Risk Exposure Table and Appendix F2 of the Basic Plan for maps.

3.3.2 Flooding

Flooding

Probability	Magnitude	Frequency	Onset	Duration	Average	Rank
4.00	3.00	3.00	3.00	5.00	3.60	2

Location

The final segment of the lower Truckee River Basin lies below Wadsworth and includes a 25-mile-long broad, alluvial valley stretching to Pyramid Lake. Floodplains within the Pyramid Lake Reservation have not been mapped; however, the PLPT is at risk from riverine flooding in low-lying areas along the Truckee River and along the immediate shoreline of the lake. The Tribe also experiences the effects of

Flooding

localized flooding caused by heavy rains that flood irrigation canals and creeks or cause sheet flows across burn scars from recent wildland fires or other areas with little vegetation. Creeks in areas impacted by recent wildland fires, including Rodero Creek, Hardscrabble Creek, Anderson Creek, and Mullens Creek, are particularly at risk for flash flooding. An alluvial fan south of Sutcliffe is also prone to flooding, and flooding in this area can cut off access to Sutcliffe from the south due to debris or damage to Highway 446.

In 2019, the water level in Pyramid Lake rose by about 3 feet. While there is room for water levels to increase further before the Tribe experiences any impacts, higher water levels are eroding a section of the shoreline near Sutcliffe RV Park and a fish hatchery—two of the Tribe’s economic enterprises. Continued erosion near Sutcliffe is a concern for the Tribe. Flooding in Pyramid Lake also can destroy docks and other infrastructure on the water that supports recreational use of the lake, resulting in economic impacts for the Tribe.

Past Occurrences/History

The PLPT planning team contributed the following information on recent floods affecting the reservation. This serves as additional information to the past flooding occurrences that may have affected the Pyramid Lake Reservation, listed in Section 4.5.2 of the Basic Plan.

In 2017, the Truckee River and streams flowing into Pyramid Lake flooded. Flows in the Truckee River reached several feet above flood stage, affecting areas of Wadsworth and Nixon south of Pyramid Lake. The Tribe was able to avoid some impacts by sandbagging around areas expected to flood; however, several residential areas needed to be evacuated and ranchlands and farm fields were inundated. The affected agricultural areas were out of use for a long time, which resulted in an extended economic impact on Tribal farmers and ranchers.

Creeks on the western side of the lake “turned into rivers” during the flooding. Homes in Sutcliffe that sit on Hardscrabble Creek had to be evacuated, and the alluvial fan south of Sutcliffe flooded, which caused power and water service outages and washed out Highway 446 from its junction with Highway 445 south to Popcorn Rock, cutting off access to Sutcliffe from reservation communities to the south at times. For a week, Tribal staff transported water from nearby water systems to Sutcliffe for residents’ use while temporary repairs were being completed. The Tribe’s Emergency Services/Fire Department also pre-positioned a mobile clinic to help homebound patients in Sutcliffe while roads were impassible.

The 2017 flooding significantly affected roads through the reservation. As noted above, a portion of Highway 446 was washed out, and the community of Sutcliffe could only be accessed from Wadsworth and Nixon by detouring south on Highway 447, then taking Interstate 80 to Reno and Highway 445 north to Sutcliffe. The highway was shut down for about a year, isolating this part of the reservation and affecting truck traffic through Washoe County. Two families on County land (Big Canyon and Raven Ranch) north of Sutcliffe were also cut off when Highway 446 was washed out and had to be evacuated by helicopter.

The 2017 flooding resulted in economic impacts to the Tribe that are still being felt two years later. As a result of the flooding, the Tribe had to shut down recreational use of the lake during prime fishing season, which affected revenues from fishing permits. Flooding washed out roads, beaches, and

Flooding

docks along the lake, affecting recreational access, and areas of the shoreline are still closed where access has been blocked by boulders. The Tribe does not have funding to restore access to these areas. Two docks in Sutcliffe and on the southern end of the lake also have not been replaced. In 2018, flash floods occurred along the western shoreline of the lake and temporarily covered Highway 445 with mud and debris. Surface flow flooding coming off the burn scar from the Perry fire, which burned 51,386 acres in the Pah Rah range, also affected Tribal lands in 2018.

Extent and Probability

Severe floods may result in serious injuries and deaths, as well as damage to public facilities and private property. The extent of flooding can be determined by the height of river flows in comparison to flood stages determined by U.S. Geological Survey stream gauges located throughout the area. It can also be measured by past damages of flooding.

The PLPT may experience limited, localized flooding on an annual basis. Major riverine floods have occurred approximately once a decade, and major alluvial fan floods have occurred approximately once every 20 years.

Future Probability Trend – Based on a potential increase in high-intensity precipitation events and increased probability of wildland fires, the Tribe may be impacted by an **increase** in the probability of future floods and flash flooding.

Vulnerability

The majority of flooding in the vicinity of Tribal properties results in the washout or flooding of roadways and infrastructure within the floodway, such as culverts or docks. Following a flood, damage to infrastructure can severely disrupt the Tribe by cutting communities off from one another, for example, the way Sutcliffe was isolated from Nixon and Wadsworth following the 2017 floods; damaging utilities; or by impacting recreational use of Pyramid Lake. Vulnerable members of the Tribe, such as the elderly and those with medical conditions, are at an increased risk if roadways are closed following a flood and access is restricted for emergency medical services. In addition, homes and businesses on the reservation, particularly those in Sutcliffe, are at risk of damage from floods.

- None of the identified critical facilities on the Pyramid Lake Reservation are within the 100-year or 500-year flood zones.

Recent Development Trends

- **Economic:** No new economic enterprises are planned or proposed that would increase the Tribe's vulnerability to flooding. (Unchanged Vulnerability)
- **Land Use:** Lands transferred to be held in trust for the Pyramid Lake Paiute Tribe under the Nevada Native Nations Land Act are not at a significant risk for riverine flooding. However, these parcels may be at risk of sheet flow or flash flooding, especially following wildland fires. (Increased Vulnerability)

Future Land Use

The Tribe's planned community center would not be located within any known floodplains.

See Appendix F1 of the Basic Plan for a full Risk Exposure Table and Appendix F2 of the Basic Plan for maps.

3.3.3 Earthquake

Earthquake						
Probability	Magnitude	Frequency	Onset	Duration	Average	Rank
4.00	3.00	1.00	5.00	5.00	3.60	2

Location

The Pyramid Lake Reservation overlies a major fault, the Pyramid Lake Fault Zone, and multiple smaller faults, one of which runs beneath the lake. Another fault lies below the community of Nixon. During an earthquake, the developed areas of the reservation may experience severe seismic ground motion hazards. These hazards are summarized below for different areas of the reservation:

- Areas of the reservation north and east of Pyramid Lake – May experience peak ground acceleration with a 2% probability of exceedance in 50 years of between 32 and 48% gravity, which would be experienced as very strong to severe shaking capable of causing moderate to heavy damage.
- Areas of the reservation west of Pyramid Lake between Sutcliffe and Wizard Cove, the western half of Sutcliffe, Nixon, and Wadsworth – May experience peak ground acceleration with a 2% probability of exceedance in 50 years of between 48 and 64% gravity, which would be experienced as severe shaking capable of causing moderate to heavy damage.
- Eastern half of Sutcliffe and most of the lake’s eastern shoreline south of Sutcliffe – May experience peak ground acceleration with a 2% probability of exceedance in 50 years of over 64% gravity, which would be experienced as violent shaking with the potential to cause heavy damage.

Seismic ground motion hazards on the reservation are shown on Figures F-3 and F-4 in Appendix F of the Basic Plan.

Past Occurrences/History

Information on previous major earthquakes with magnitudes greater than 5 on the Modified Mercalli Intensity Scale in Washoe County is included in Section 4.5.4 of the Basic Plan. Shaking from these earthquakes would have been felt on the Pyramid Lake Reservation and may have caused structural damage.

Members of the PLPT planning team reported that multiple small earthquakes magnitude 2 or less have occurred on the fault running below Pyramid Lake within the past year.

Extent and Probability

A major earthquake has the potential to cause widespread and significant damage to structures on the Pyramid Lake Reservation, injuries, and deaths. Because of their potential to cause damage to structures, roads, and utilities, earthquakes may disrupt government operations and the local economy for a period of days to weeks and may require evacuations or create increased demand for emergency medical services. Response to and recovery from an earthquake may require federal support.

Future Probability Trend – A total of 17 earthquakes with a magnitude greater than 5 on the Modified Mercalli Intensity Scale have occurred in Washoe County in the last 150 years. The probability of future occurrence can be estimated at 10%; this means that there is roughly a 10% chance of an

Earthquake

earthquake with magnitude >5 to occur every year. Climate, economic, and land use trends do not affect the probability of an earthquake; however, economic trends and land use patterns can affect the amount of damage caused by an earthquake. While the Tribe is not planning significant areas of new development, the increasing age of Tribal buildings **increases** the probability that future earthquakes will result in damage to structures, roads, and utilities.

Vulnerability

None of the Tribal buildings or residences on the reservation have been retrofitted to meet seismic standards. Because of the age of the buildings, it would be more cost effective for the Tribe to demolish the buildings and construct new facilities to seismic standards.

There is a potential for a large earthquake centered below Pyramid Lake to cause a seiche. No studies have been completed to determine which areas of the reservation may be impacted by a seiche, so the Tribe's level of vulnerability to this hazard is not known.

The Paiute Pipeline, which carries gasoline, diesel fuel, and jet fuel, runs through Dodge Flats and crosses the southern part of the reservation to meet Interstate 80. An earthquake centered on or near the reservation could damage this pipeline and cause additional impacts to the reservation.

Property

- Four critical facilities on the reservation, including the Pyramid Health Center, two schools, and one dam, are located in areas vulnerable to seismic ground motion hazards with a 2% probability of being exceeded in 50 years of between 48 and 64% gravity. This level of ground shaking would be experienced as severe shaking with the potential to cause moderate to heavy damage.
- Two schools on the reservation are in areas vulnerable to seismic ground motion hazards with a 2% probability of being exceeded in 50 years of greater than 64% gravity. This level of shaking would be experienced as violent shaking with the potential to cause heavy damage.
- All of the identified critical facilities on the reservation are in areas vulnerable to seismic ground motion hazards with a 10% probability of being exceeded in 50 years of 32 to 48% gravity. This level of shaking would be experienced as very strong to severe shaking capable of producing moderate to heavy damage.

Recent Development Trends

- **Economic:** Limited economic development has occurred in the past five years. (Unchanged vulnerability)
- **Land Use:** Construction of the proposed community center outside of Wadsworth may increase the Tribe's vulnerability to earthquakes if this facility is not constructed to current seismic standards. (Increased Vulnerability)

Future Land Use

Future development on the reservation would be vulnerable to damage from earthquakes and secondary hazards like seiches.

See Appendix F1 of the Basic Plan for a full Risk Exposure Table and Appendix F2 of the Basic Plan for maps.

3.3.4 Energy Emergency

Energy Emergency						
Probability	Magnitude	Frequency	Onset	Duration	Average	Rank
2.00	1.00	5.00	5.00	3.00	3.20	4
Location						
<p>The Pyramid Lake Reservation is in a fringe area of the regional electrical grid. All Tribal properties that rely on the electrical grid for power are vulnerable to power outages. Electrical power from the grid is supplied to the Tribe via one transmission line between the community of Tracy Clark and Sutcliffe.</p>						
Past Occurrences/History						
<p>Historically, power outages have been caused by natural events and human-caused accidents, but have not been recorded in a way that is publicly accessible. Numerous power outages occur every year and may last as short as hours or as long as weeks. In 2015, the single transmission line running over the mountains from the community of Clark to supply power to Sutcliffe and the rest of the reservation (the Tribe’s “extension cord”) went down during a winter storm. The power outage caused by the storm lasted for about four days and affected the entire reservation. The outage occurred at an isolated and difficult to access point along the transmission line route in the mountains. To access this point, the power provider had to use snow cats, which had difficulty passing muddy parts of the access road. These access issues delayed repair of the line and contributed to the length of the power outage.</p> <p>Interruptions in energy services may also be planned—for example, to allow for system repairs or maintenance. In 2019, NV Energy began implementing extensive public safety outage management programs in areas with extreme fire risks. To prevent downed power lines and damaged equipment from causing fires, NV Energy may de-energize parts of the electrical grid during weather conditions conducive to wildland fires (e.g., high temperatures, low humidity, high winds, lightning storms) or based on field observations or information from first responders (NV Energy 2019). Planned outages by NV Energy or Pacific Gas and Electric Company (PG&E) in California have the potential to affect fuel availability for the Tribe. Outages affecting PG&E’s system would cut power to the equipment that controls operation of the fuel pipeline serving the region.</p>						
Extent and Probability						
<p>It is difficult to predict the impacts of future energy emergencies, but they have the potential to impact all Tribal government and business operations, cause extensive economic losses, and increase needs for emergency medical care among other impacts. Due to the sporadic nature of power outages and other energy emergencies, it is also difficult to estimate how frequently these emergencies will occur or their duration. The Tribe generally deals with power outages multiple times per year with many of them only lasting a matter of hours. Every several years, a large power outage is experienced, primarily due to winter storms.</p>						

Energy Emergency

Future Probability Trend – The Tribe is not planning significant areas of new development and has been working to install solar arrays on the reservation to reduce its vulnerability to power outages. A transfer switch will need to be installed to ensure that the Tribe’s solar arrays can continue to provide power if the transmission line to the reservation goes down. Based on these factors, the probability of longer power outages on the reservation **may decrease** if a transfer switch is installed.

Vulnerability

A lack of redundancy in the power system presents a clear risk to Tribal members, businesses, and government operations, due to the Tribe’s reliance on a single transmission line that traverses remote, difficult terrain. An outage along this line affects the entire reservation, including the Tribal office, clinic, and emergency services, which have to fully or partially shut down during outages. There are few backup power generators on the installation, so Tribal elders and those who are dependent on medical equipment are especially vulnerable to power outages. The Tribe is taking measures to address this vulnerability through the mitigation actions outlined in Chapter 5.

Recent Development Trends

- **Economic:** The Tribe has outlined mitigation actions to address electricity redundancy and decrease reliance on surrounding utilities. (Decreased Vulnerability)
- **Land Use:** Construction of the planned community center will increase the overall demand for electric power. (Increased Vulnerability)

Future Land Use

The Tribe will continue to invest in renewable energy projects as resources become available to reduce its vulnerability to power outages.

3.3.5 Drought

Drought

Probability	Magnitude	Frequency	Onset	Duration		Average	Rank
4.00	1.00	4.00	1.00	5.00		3.00	4

Location

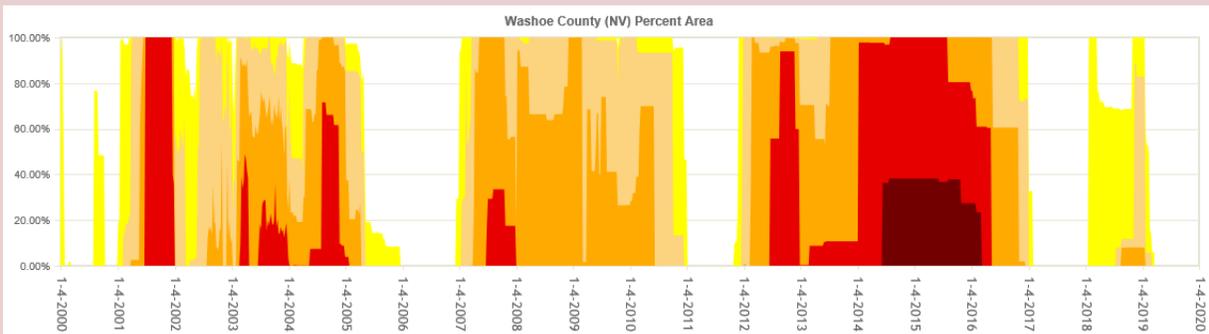
Drought affects broad regions and can affect the entire Pyramid Lake Reservation. Historically, the central and northern parts of Washoe County have experienced more frequent droughts than the southern part of the county, due to extensive stored water in reservoirs in the Truckee River basin in southern Washoe County. Low snowpack in the Truckee River basin can result in droughts of greater magnitude in the southern part of the county, as was experienced during drought conditions between 2012 and 2017.

Drought

Past Occurrences/History

Drought conditions are frequently recorded in Washoe County. According to information from the U.S. Drought Monitor, Washoe County and the PLPT have experienced several periods of drought since 2000 (Figure 3-1). Since 2000, more often than not, the county has been subject to drought and often severe or worse drought. Three pronounced but relatively brief wet periods are noted, from 2005-2006, 2011-2012, and in 2017, during which the region saw particularly wet/snowy winters, including major floods in December 2005 and February and March 2017. This is a clear example of the variable climate in Washoe County.

Figure 3-1 United States Drought Monitor Time Series for Washoe County



See Section 4.5.9 of the Basic Plan for more details.

Extent and Probability

The overall magnitude and potential severity of drought is considered **Moderate** for the PLPT. Drought impacts are wide-reaching and may be economic, environmental, and/or societal. Droughts lasting for a period of several years or more may affect the Tribe’s economic enterprises, including ranching and recreation at Pyramid Lake.

Typical drought events are handled at the regional level by all jurisdictions and by both public (e.g., Truckee Meadows Water Authority) and private water suppliers, and can have economic impacts on the Tribe and county as well as the state. Disruption of services is highly variable: in urban areas with municipal water systems and reservoir storage, disruption may be quite minimal during a typical few-year drought. In that same drought, however, disruption of water supplies to rural and agricultural communities in Washoe County may be considerable as those areas depend more on ground water, which can be depleted quickly in drought conditions.

Considering a worst-case scenario, a decade-long drought can require federal support, impact critical facilities, disrupt water services to both urban and rural populations, and have national economic impacts. The length or nature of disruption is variable ranging from the cessation of all agricultural production to severe water restrictions in urban communities.

Future Probability Trend – Drought is one of the least predictable hazards. The current state of seasonal weather prediction science is such that it is nearly impossible to predict well in advance the beginning or the ending of droughts with meaningful confidence levels. With that said, periods of drought have regularly occurred in the recent history of Washoe County and Nevada; therefore, drought can be expected to occur with some regularity in the future. Based on the assessments in

Drought

the previous sections, the probability of a future severe drought event is considered **High**, with an approximately 50% chance of occurrence in any given year.

Vulnerability

The economic impacts of drought for the Tribe can range from crop losses and increased costs incurred by farmers and ranchers who need to buy additional water or feed for livestock to economic losses resulting from decreased recreational use of Pyramid Lake or the need to close access to the lake to protect natural values. The effects of drought can last from one to multiple years, and the economic and social effects of drought are likely to be compounded the longer drought conditions last.

Recent Development Trends

- **Economic:** The relationship between the Tribe's economic enterprises and drought has not changed in recent years. (Unchanged vulnerability)
- **Land Use:** The Tribe relies on Pyramid Lake for a large portion of its revenues. The lake's vulnerability to drought has not changed in recent years. (Unchanged vulnerability)

Future Land Use

The Pyramid Lake Economic Development Plan sets goals for new agricultural and ranching enterprises on the reservation. These enterprises would be more vulnerable to the effects of drought and may increase the vulnerability of the Tribe to economic losses caused by drought.

3.4 Vulnerability Assessment

3.4.1 Asset Inventory

Local assets that may be affected by hazards include members of the Tribe, properties, and utilities and infrastructure. Geographic information system (GIS) data from federal, state, and local databases was used to inform the vulnerability assessment and identify critical infrastructure. Section 4.4.2 and Appendix F1, both in the Basic Plan, discuss the sources and types of data used in the HMP. Data collection for the vulnerability assessment was complicated by the fact that the region has never comprehensively identified critical infrastructure; therefore, the list of critical infrastructure on the Pyramid Lake Reservation may be incomplete. Similarly, valuation information has not been compiled by the region, so valuation data was not available to be included in the vulnerability assessment. Washoe County and its partners are committed to continuing to refine and build on the list of critical infrastructure over the next five years to improve the data provided in the next plan update.

3.4.2 Repetitive Loss Properties

The Tribe does not participate in the National Flood Insurance Program (NFIP). Due to the fact that the Tribe does not participate in NFIP, the Tribe does not maintain a repetitive loss property inventory that meets the Repetitive Loss or Severe Repetitive Loss criteria.

3.4.3 Exposure Assessment

Table 3-4 shows exposure of the Tribe’s identified critical facilities to natural hazards that are able to be mapped.

Table 3-4 Exposure Assessment

Type	Name	Address	Jurisdiction	Flood Zone ¹	Seismic Ground Motion Hazards with 2% Probability	Seismic Ground Motion Hazards with 10% Probability	Landslide Susceptibility	Wildland Fire Hazard Potential (scale 1-6)
Hospital	Pyramid Health Center	N/A	Pyramid Lake Paiute Tribe	--	48-64	32-48	low	1
School	Trinity Valley Elementary School	N/A	Pyramid Lake Paiute Tribe	--	64+	32-48	mod	1
School	Natchez Elementary School	1 NV-447, Wadsworth, NV 89442	Pyramid Lake Paiute Tribe	--	48-64	32-48	low	1
School	Sutcliffe School (historical)	N/A	Pyramid Lake Paiute Tribe	--	64+	32-48	mod	3
School	Pyramid Lake High School	711 State St., Nixon, NV 89424	Pyramid Lake Paiute Tribe	--	48-64	32-48	low	1

Notes:
¹ None of the identified critical facilities on the Pyramid Lake Reservation are located within mapped flood zones.

Key:
 N/A = Information not available

3.5 Land Use and Development Trends

 FEMA	D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))
---	---

The Tribe has no formal zoning or other land use regulations. New development is reviewed to determine potential hazard risks and sited outside of hazard areas when possible. Since 2017, the Tribe has been investing resources in the recovery from major flooding in the Truckee River basin. The Tribe has also continued to look for opportunities to invest in renewable energy projects and economic development and other community projects that will benefit all members of the Tribe, including the proposed community center.

The vulnerability sub-section of each hazard profile in Section 3.3 outlines recent development trends to illustrate ways in which vulnerability may have changed over the past five years. Vulnerability changes have been measured for economic interests and land use trends. Each measure has been identified as having an increased, decreased, or unchanged vulnerability. Table 3-5 provides a snapshot of how vulnerability has changed since development of the 2015 HMP.

Table 3-5 Recent Development Trends

Hazard	Economic	Land Use
Wildland Fire	=	+
Flooding	=	+
Earthquake	=	+
Energy Emergency	-	+
Drought	=	=
+ Increased vulnerability - Decreased vulnerability = Unchanged vulnerability		

4. CAPABILITY ASSESSMENT

 FEMA	<p>C1. Does the plan include a discussion of the tribal government’s pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including an evaluation of tribal laws and regulations related to hazard mitigation as well as to development in hazard-prone areas? (Requirement §201.6(c)(3) and (3)(iv))</p>
---	--

4.1 Human and Technical Resources

Table 4-1 describes the PLPT’s human and technical capabilities to engage in and improve mitigation planning and program implementation.

Table 4-1 Human and Technical Resources Integrated with Hazard Mitigation

Resource	Department	Tasks and Activities Integrated into Mitigation Planning
Tribal Chairman	Administration	Ensure mitigation program is incorporated into the Tribe’s daily business
Emergency Manager	Emergency Services/ Fire Department	Oversee mitigation program and encourage integration of mitigation planning into all Tribal activities
Housing Executive Director	Housing Authority	Manage construction and repair of Tribal homes and properties
Natural Resources Director	Natural Resources Department	Manage natural resources within the Tribe’s properties and integrate risk reduction into Tribal efforts toward conservation, restoration, and utilization of water, fisheries, and environmental resources
Public Utilities Director	Public Utilities District	Repair and maintain Tribal infrastructure
Tribal Business Officer	Economic Development Department	Integrate risk reduction into Tribal economic development corporations
Grants Management Team	Contracts and Grants Department	Manage grant applications and project budgets for Tribal programs
GIS Specialist	Water Resources Department	Integrate hazard data into mapping capabilities of the Tribe
Tribal Historic Preservation Officer	-	Integrate risk reduction into protection of Tribal cultural resources
Other		
Transportation Planners	Transportation Planning Department	Integrate risk assessments and mitigation tactics into ongoing Tribal transportation projects
Construction Professionals	Public Utilities District; Maintenance Department	Manage structural mitigation activities for utility services and Tribal facilities
Hazardous Materials Planning	Washoe County Local Emergency Planning Committee	Develop capacity for local jurisdictions to prepare for and respond to hazardous materials incidents

4.2 Financial Resources

 FEMA	<p>C2. Does the plan include a discussion of tribal funding sources for hazard mitigation projects and identify current and potential sources of Federal, tribal, or private funding to implement mitigation activities? (Requirement §201.6(c)(3)(iv and v))</p>
---	--

The Tribe maintains many fiscal and financial resources to support its mitigation program. Table 4-2 identifies specific resources accessible for use.

Table 4-2 Accessible Financial Resources

Financial Resource	Accessible?
Community Development Block Grants	Yes
Capital Improvement Project Funding	Yes
Insurance	Yes, including general liability
User Fees for Utility Services	Yes, for solid waste, water, and sewer service
Incur debt	Yes
State-sponsored Grant Programs	Yes

Table 4-3 identifies current and potential sources of funding to implement identified mitigation actions contained within the HMP. As a federally recognized Tribe, the PLPT can access funding directly through the federal government. In addition, funding is also available from the State of Nevada and potentially through Washoe County.

In cases where funding is obtained through federal grants, the Tribe will comply with all applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR Parts 200 and 3002. The Tribe will amend this annex when needed to reflect changes in Tribal or federal laws and statutes.

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Local		
General Fund	Tribal Council	Funding available for mitigation efforts that will substantially benefit the entire Tribe and community.
Tax Revenue	Tribal Council/Tax Commission	Funding allocations determined by the Tribal Council.
Docket Funds	Tribal Council	Funding available for mitigation efforts associated with community facilities, land and agricultural development, or other economic development initiatives.
License Plate Revenue	Tribal Council	Funding for projects that support preservation or enhance the economic development of the lower Truckee River and Pyramid Lake.
Department Funding and Capital Projects Funds	Specific Departments	Funding available for the mitigation efforts of a specific department.

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Federal		
Pre-Disaster Mitigation Program	Nevada Division of Emergency Management	Provides funding to develop hazard mitigation plans and implement mitigation actions contained within.
Hazard Mitigation Grant Program	Nevada Division of Emergency Management	Post-disaster funds for hazard reduction projects in jurisdictions impacted by recent disasters.
Flood Mitigation Assistance Program	Nevada Division of Emergency Management	Provides funds for flood mitigation on buildings that carry flood insurance and have been damaged by flooding.
Community Development Block Grant Program	U.S. Department of Housing and Urban Development/Governor's Office of Economic Development	Funds projects that benefit low- and moderate-income communities, prevent or eliminate slums or blight, or meet urgent community development needs posing a serious and immediate threat to community health or welfare.
Emergency Management Performance Grants Program	FEMA/Nevada Division of Emergency Management	Provides funding to states for local or Tribal planning, operations, acquisition of equipment, training, exercises, and construction and renovation projects.
Flood Mitigation Assistance	Nevada Division of Emergency Management	Provides funding to support development of the flooding hazard portion of state and local mitigation plans and up to 100% of the cost of eligible mitigation activities. This funding is only available to communities participating in the NFIP.
Earthquake State Assistance Program	National Earthquake Hazards Reduction Program/ Nevada Resiliency Advisory Committee/ Nevada Division of Emergency Management	Funds activities including seismic mitigation plans; seismic safety inspections of critical structures and lifelines; updates of building codes, zoning codes, and ordinances; and earthquake awareness and education.
State Fire Assistance Program	U.S. Forest Service/ Nevada Division of Forestry	Provides funding opportunities for local wildland-urban interface planning, prevention, and mitigation projects, including fuels reduction work, education and prevention projects, community planning, and alternative uses of fuels.
Risk Mapping, Assessing, and Planning	FEMA	Provides funding and technical support for hazard studies, flood mapping products, risk assessment tools, mitigation and planning, and outreach and support.
State		
Emergency Assistance Account	Nevada Division of Emergency Management	Provides support to state agencies and local jurisdictions during declared emergencies at the state or local level.
Disaster Relief Account	Interim Finance Committee	Special account intended to stabilize the operation of the state government following a disaster. Used to match federal funding for declared disasters.
Wildfire Emergency and Mitigation Funds	Nevada Division of Forestry/ Nevada Division of Emergency Management	Administers funding from FEMA, Bureau of Land Management, and U.S. Forest Service for certain types of wildland fire emergency and mitigation funding.

Table 4-3 Financial Resources Integrated with Hazard Mitigation

Funding Source	Fund Administrator	Description
Earthquake Mitigation Funds	Nevada Resiliency Advisory Committee/ Nevada Division of Emergency Management	Allocates FEMA money for earthquake mitigation efforts.
Conservation Reserve Program	U.S. Department of Agriculture Farm Service Agency and Natural Resource Conservation Service	Retires eligible cropland from agricultural production and plans the land with permanent grass cover to reduce wind erosion and dust hazards.
University of Nevada, Reno Partnership with the U.S. Geological Survey (USGS) National Landslide Hazards Program	USGS/University of Nevada, Reno	Conducts studies of landslide hazards
Western States Fire Managers Grants	U.S. Forest Service/ Nevada Division of Forestry	Provides funding for fuel reduction, restoration of fire adapted ecosystems, prevention education, and community wildland fire protection planning.
Landscape Scale Restoration Grants	U.S. Forest Service/ Nevada Division of Forestry	Provides funding for projects that cross property ownership, management and/or jurisdictional boundaries and involve collaborative efforts among multiple stakeholders to address issues identified in Nevada's Forest Action Plan.
Hazardous Fuels-Community Protection Grants	U.S. Forest Service/ Nevada Division of Forestry	Provides funding for priority fuels management projects identified in a Community Wildfire Protection Plan that are adjacent to a recent, current, or planned project on U.S. Forest Service lands.
Regional Conservation Partnership Program	U.S. Forest Service/ Nevada Division of Forestry	Provides grant funds for wildland fire restoration and other sagebrush ecosystem improvements, including weed and pre-emergent treatments; riparian improvements; prescribed, targeted, or deferred grazing; and brush management.
Nevada State General Fund	Nevada State Legislature	Nevada State General Fund money is used to pay the labor costs of state employees working to support statewide and local hazard mitigation activities and as non-federal cost share for federally funded projects.
Other		
Community Planning Assistance Teams	American Planners Association Foundation	Provides pro bono technical assistance for planning frameworks or community vision plans for communities needing extra assistance. Local governments are responsible for travel costs.

4.3 Legal and Regulatory Resources

Table 5-4 describes the legal and regulatory capabilities, including plans, policies, and programs that have integrated hazard mitigation principles into their operations.

Table 4-4 Legal and Regulatory Resources Integrated with Hazard Mitigation

Capability Type	Capability	Description	Key Accomplishments (2015–2019)	Hazard Mitigated
Plans	General Plan	Establishes goals and strategies for development and use of Tribal land	<ul style="list-style-type: none"> Continued plan implementation 	All
	Regional Emergency Operations Plan	Outlines roles and responsibilities of Tribal government in mitigating potential hazards.	<ul style="list-style-type: none"> Remained an active participant in the regional Emergency Operations Plan Established a Tribal Continuity of Operations Plan Opted into the Nevada State Mutual Aid Compact 	All
	Capital Improvements Plan	Identifies capital improvement projects for the Tribe	<ul style="list-style-type: none"> Continued plan implementation 	All
	Long Range Transportation Plan for the Pyramid Lake Paiute Reservation	Determines priorities for transportation improvements on Tribal lands.	<ul style="list-style-type: none"> Pyramid Tribal Transit began operating in 2015, offering bus service to reservation communities, Fernley, and Sparks. 	All
	Pyramid Lake Economic Development Plan	Sets strategic priorities for economic development, including recreational facilities, Tribal enterprises, energy projects, agriculture and ranching, and entrepreneurship.	<ul style="list-style-type: none"> Installation of 274 kilowatts of solar facilities on the reservation The PLPT is working with the University of Nevada, Reno and Desert Research Institute to develop a utility-scale geothermal project. Tribe awarded a \$9.5 million ARRA stimulus grant to build a fiber optic cable line to bring broadband to the reservation. Tribe has established Numu, Inc., to implement economic development strategies. 	All, Energy Emergency

Table 4-4 Legal and Regulatory Resources Integrated with Hazard Mitigation

Capability Type	Capability	Description	Key Accomplishments (2015–2019)	Hazard Mitigated
	Wetland Program Plan for the Pyramid Lake Paiute Tribe	Directed activities intended to protect and restore wetlands on the reservation between 2015 and 2018.	<ul style="list-style-type: none"> Worked with project applicants to mitigate potential impacts to wetlands Educated Tribal members on the importance of wetlands Completed Numana Wetland Restoration Design plan (2017) 	Flooding
	Northern Nevada Water Planning Commission Comprehensive Regional Water Management Plan (2017 – 2035)	Provides policy-level guidance targeted toward issues affecting municipal and industrial water supply, water quality, sanitary sewerage, sewage treatment, storm water drainage, and flood control.	<ul style="list-style-type: none"> Plan adopted in 2017 	Flooding
	State of Nevada Enhanced Hazard Mitigation Plan	Profiles hazards throughout the State, assesses risks, and outlines potential mitigation actions.	<ul style="list-style-type: none"> Collaboration between State and local communities 	All
Policies	Open Burning Permits	Regulate open burns on the reservation	<ul style="list-style-type: none"> Tribe established time period for open burning between October 1 and May 30 and a free permit process 	Wildland Fire
	Housing Code	Directs housing development on Tribal lands	<ul style="list-style-type: none"> Continued policy implementation 	Flooding Wildland Fire Earthquake
Programs	Mutual Aid Agreements	Standing agreements to provide support to partners in times of need.	<ul style="list-style-type: none"> Increased capacity and capability through partnership 	All
	Stormwater Management Program	Program to construct and maintain stormwater infrastructure	<ul style="list-style-type: none"> Continued program implementation 	Flooding
	Northwest Tribal Emergency Coordinating Council	Support Tribal participation on homeland security and emergency management preparedness efforts.	<ul style="list-style-type: none"> Continued program implementation 	All

4.4 National Flood Insurance Program Participation



C2. Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3))

The PLPT does not participate in the NFIP.

4.5 Integration of Mitigation into Existing Planning Mechanisms

Integration of the principles of mitigation into the Tribe’s daily operations and ongoing planning activities is a priority of the Tribe’s mitigation program. These activities will support:

- Raising awareness of the importance of hazard mitigation for the whole community;
- Facilitating an understanding that hazard mitigation is not just an ‘emergency services’ function and building ownership of mitigation activities across the organization;
- Reduction in duplication or contradiction between Tribal plans; and
- Maximization of planning resources through linked or integrated planning efforts.

The Tribe is encouraged to consider integration actions into planning mechanisms including:

- Budget decision-making;
- Building and zoning ordinances and decision-making;
- Emergency planning mechanisms; and
- Economic developing planning and decision-making.

4.5.1 Existing Plans



C6. Does the Plan describe a process by which the tribal government will incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate? (Requirement §201.6(c)(4)(iii))

The following existing plans provide ongoing opportunity for integration of hazard mitigation, and the Tribe will work with plan owners and stakeholders when these plans are updated to consider hazard mitigation data and principles and ensure plans align with the HMP.

The **Long Range Transportation Plan** determines priorities for transportation improvements on Tribal lands. The 2013 plan evaluates hazards on roadways. Updates of the plan could include additional mitigation strategies, such as:

- Evaluation of mitigation strategies for existing roadways within hazard areas, such as floodplains and alluvial fans;
- Evaluation of hazards that may impact proposed transportation projects and mitigation measures; and
- Cost-benefit analyses of proposed mitigation strategies.

The **Pyramid Lake Economic Development Plan** sets strategic priorities for economic development, including recreational facilities, Tribal enterprises, energy projects, agriculture and ranching, and entrepreneurship. Updates of the plan could include:

- Evaluation of hazard risks that may impact proposed economic development projects, and
- Identification and cost-benefit analysis of mitigation actions that may reduce the vulnerability of the Tribal enterprises and businesses.

The **Wetland Program Plan** directed activities intended to protect and restore wetlands on the reservation during the planning period (2015–2018). Future iterations of this plan could discuss the role wetlands play in mitigating flood risks and consider flood storage capacity as a factor when prioritizing and funding projects.

The **Indian Housing Plan** details the activities of the Housing Program for the maintenance and improvement of the Tribe’s low-income housing. The plan includes activities to weatherize housing and could be updated to include additional mitigation strategies, such as:

- Rehabilitation of housing to meet seismic codes;
- Installation of emergency power sources, such as solar arrays; and
- Review of proposed new residential development sites for hazard risks and mitigation of these risks.

5. MITIGATION STRATEGY

 <p>FEMA</p>	<p>C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))</p>
--	--

5.1 Review of 2015 Hazard Mitigation Actions

As part of the mitigation strategy update, all mitigation actions identified in the 2015 plan were evaluated to determine what the status of the action was and whether any ongoing or incomplete actions should be included as actions in the 2020 plan update. The MPT worked through each previous action during MPT Meeting #4 to document steps taken to fulfill the action.

See Appendix A of the Basic Plan for an overview of the status of all actions from the 2015 plan update.

5.2 2020-2025 Mitigation Implementation Plan

 <p>FEMA</p>	<p>C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by [the Pyramid Lake Paiute Tribe]? (Requirement §201.6(c)(3)(iii))</p>
--	---

The mitigation implementation plan lays the groundwork for how the mitigation plan will be incorporated into existing planning mechanisms and how the mitigation actions will be prioritized, implemented, and administered by the Tribe. The implementation plan includes both short-term strategies that focus on planning and assessment activities, and long-term strategies that will result in ongoing capability or structural projects to reduce vulnerability to hazards.

See Appendix A of the Basic Plan for Mitigation Action Worksheet instructions and completed Mitigation Action Worksheets for each action listed in Table 5-1.

Table 5-1 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action	Action Status	Type of Action	Goals Supported (Objectives)	Lead Department	Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	STAPLEE Score	Mitigation Effectiveness Score	TOTAL SCORE
WF-13	Adopt 2018 wildland fire code County-wide. (All Partners)	New	Plans and Regulations	5 (5.2), 6 (6.2)	Regional Fire Protection Districts	-	Immediate	Wildland Fire	No/minimal cost	Yes	Existing Budget	20	2	22
WF-16	Review and update (as needed) evacuation plans for communities in wildland fire-prone areas and hold evacuation drills at least once every two years. (All Partners)	Existing (2015 action)	<ul style="list-style-type: none"> Plans and Regulations Preparedness and Response 	5 (5.3), 6 (6.3)	Regional Fire Protection Districts	Washoe County Emergency Management and Homeland Security	Immediate	Wildland Fire	\$10,000/plan. \$50,000/year	Yes	Existing Budget	19	6	25
FL-6	Replace and upgrade culverts and natural run-offs to reduce flood losses. (Pyramid Lake Paiute Tribe [PLPT])	Existing	Infrastructure/ Capital Project Natural Systems Protection	5 (5.5)	<ul style="list-style-type: none"> PLPT Environmental Tribal Public Utilities Tribal Roads Department 	Tribal Council	3 – 5 years	Flooding Landslide	\$200,000/culvert	No	Other – Emergency Funds	19	10	29
FL-9	Complete drainage ditch improvements. (Washoe County, City of Reno, City of Sparks, RSIC, PLPT)	Existing (2015 action)	Infrastructure/Capital Project	5 (5.5)	All Jurisdictions – Public Works	-	1 – 3 years	Flooding	Unknown	No	Grant Existing Budget	19	8	27
FL-14	Complete improvements to address under-sized drainage ditches and systems County-wide. (Washoe County, City of Reno, City of Sparks, RSIC, PLPT)	Existing (2015 action)	Infrastructure/Capital Improvement	5 (5.5)	All Jurisdictions – <ul style="list-style-type: none"> Public Works Engineering 	-	3 – 5 years	Flooding	\$20/linear foot of drainage ditch	No	Grant Existing Budget	17	8	25
EQ-9	Complete seismic strength evaluations of critical facilities in all jurisdictions, including schools, community colleges,	Existing (2015 action)	Infrastructure/ Capital Project Preparedness and Response	5 (5.9)	All Jurisdictions – Public Works Engineering School Districts	-	1 – 3 years	Earthquake	Unknown	Anticipated	Grant Existing Budget	15	10	25

Table 5-1 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action	Action Status	Type of Action	Goals Supported (Objectives)	Lead Department	Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	STAPLEE Score	Mitigation Effectiveness Score	TOTAL SCORE
	public infrastructure, and other critical facilities, to identify vulnerabilities for mitigation to meet current seismic standards. Mothball or demolish life-threatening buildings, particularly unreinforced masonry buildings. (Washoe County, City of Reno, City of Sparks, RSIC, PLPT)													
EQ-10	Assess, repair, and/or replace infrastructure that may fail during earthquakes (e.g., Keystone Ave. Bridge). (Washoe County, City of Reno, City of Sparks, RSIC, PLPT)	Existing (2015 action)	Infrastructure/ Capital Project	1 (1.2), 5 (5.9)	All Jurisdictions – Public Works Engineering	-	1 – 3 years	Earthquake	Unknown	No	Grant Existing Budget	16	10	26
EE-5	Install back-up generators for critical infrastructure and facilities along with other measures to improve reliability (e.g., alarms, meters, remote controls, and switchgear upgrades). (All Partners)	Existing (2015 action)	Preparedness and Response	3 (3.3), 4 (4.1)	All Jurisdictions – Emergency Management	Public Works	3 – 5 years	Energy Emergency	\$100,000 per design and installation	No	Grant	18	8	26

Table 5-1 2020-2025 Mitigation Implementation Plan

Action No.	Mitigation Action	Action Status	Type of Action	Goals Supported (Objectives)	Lead Department	Supporting Departments	Timeline	Hazards Addressed	Anticipated Cost	Funding Available?	Funding Source	STAPLEE Score	Mitigation Effectiveness Score	TOTAL SCORE
CA-1	Implement measures to prepare for a potential active shooter incident, including new security measures, training and exercises, improved partnerships with law enforcement agencies, and policy changes (ex. prohibiting open carry). (All Partners)	New	<ul style="list-style-type: none"> Infrastructure/Capital Project Education and Awareness Preparedness and Response 	5 (5.10)	<ul style="list-style-type: none"> Law Enforcement Agencies Facility Managers 	<ul style="list-style-type: none"> Local Elected Officials Federal Agencies 	1 – 3 years	Criminal Acts and Terrorism	\$50,000/year. \$120,000/officer	Anticipated	Existing Budget Grant	16	6	22
DT-2	Implement current TMWA Conservation Plan including encouraging transition to less water-intensive landscaping on both public and private properties. (All Partners)	Existing (2015 action)	Education and Awareness	6 (6.3)	All Jurisdictions – <ul style="list-style-type: none"> Water Utilities Planning Departments 	All Jurisdictions – Emergency Management	< 1 year	Drought	\$50,000/year	No	Grant Existing Budget	17	4	21

6. REFERENCES

- Colorado State University Extension. 2019. Cheatgrass and Wildfire – 6.310. Available online: <https://extension.colostate.edu/topic-areas/natural-resources/cheatgrass-and-wildfire-6-310/>. Accessed August 15, 2019.
- NV Energy. 2019. Public Safety Outage Management. <https://www.nvenergy.com/safety/psom>. Accessed September 23, 2019.
- Pyramid Lake Paiute Tribe. 1996-2004. "About Us." <http://plpt.nsn.us/plpt.html>. Accessed September 17, 2019.
- U.S. Census Bureau. 2017. American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Pyramid Lake CCD, Washoe County, NV: <https://censusreporter.org/profiles/06000US3203194686-pyramid-lake-ccd-washoe-county-nv/>.
- U.S. Census Bureau. No date(a). 2013-2017 American Community Survey 5-Year Estimates for Pyramid Lake CCD, Washoe County, Nevada: S2301 Employment Status. Available online: <https://factfinder.census.gov/>. Accessed June 4, 2019.
- WRCC (Western Regional Climate Center). No date. Sutcliffe, Nevada (267953), Period of Record Monthly Climate Summary, Period of Record : 06/01/1967 to 06/10/2016 <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nv7953>. Accessed August 12, 2019.

LIST OF TABLES AND FIGURES

Tables

Table 3-1	Major Disaster Declarations in Washoe County since 2015	3-1
Table 3-2	Hazards Addressed in the Plan	3-2
Table 3-3	Pyramid Lake Paiute Tribe Hazard Rankings	3-3
Table 3-4	Exposure Assessment	3-15
Table 3-5	Recent Development Trends	3-16
Table 4-1	Human and Technical Resources Integrated with Hazard Mitigation.....	4-1
Table 4-2	Accessible Financial Resources.....	4-2
Table 4-3	Financial Resources Integrated with Hazard Mitigation	4-2
Table 4-4	Legal and Regulatory Resources Integrated with Hazard Mitigation.....	4-5
Table 5-1	2020-2025 Mitigation Implementation Plan	5-3

Figures

Figure 3-1	United States Drought Monitor Time Series for Washoe County.....	3-12
------------	--	------

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
CCD	County Subdivision
County	Washoe County
GIS	Geographic Information System
HMP	Hazard Mitigation Plan
MPT	Mitigation Planning Team
NFIP	National Flood Insurance Program
PG&E	Pacific Gas and Electric Company
PLPT	Pyramid Lake Paiute Tribe
WUI	Wildland-Urban Interface