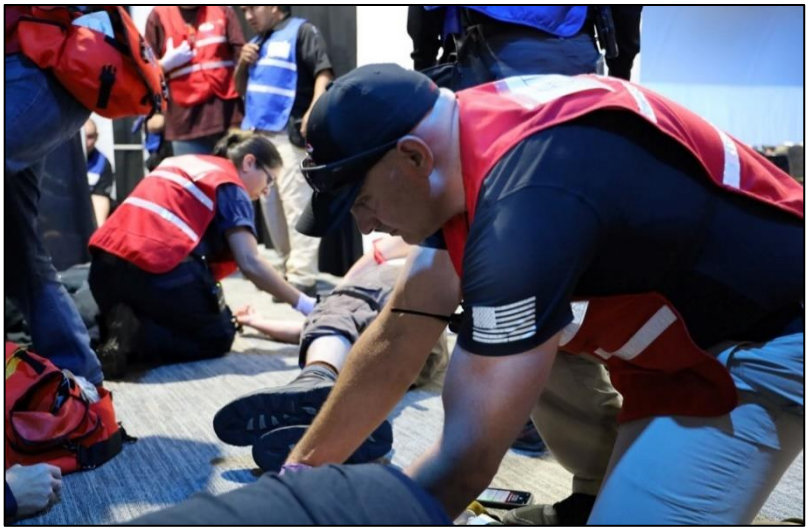

Tribal Multi-Hazard Mitigation Plan

Blue Lake Rancheria, California
April 2021

"We judge our success by the number of children that graduate from high school and pursue higher education and careers. Not by how much money we have in the bank."

-Arla Ramsey, Vice Chairperson, Blue Lake Rancheria Tribe

Mission Statement

The Blue Lake Rancheria Tribe strives each day to secure a better future for its people; to protect its sovereignty and cultural heritage; to respect, learn from, and correct injustices of the past; and to define an economic and diplomatic framework with its neighbors for mutually beneficial relationships.

Cover photos:

- The Blue Lake Rancheria's energy facilities proved critical to many neighbors and essential services during regional power outages in 2019 and 2020
- The Tribe prepared more than 24,000 meals to serve neighboring communities during the COVID-19 pandemic of 2020
- Blue Lake Rancheria has emerged as a preeminent center for emergency response training in the Western US. During a course hosted by the Tribe in 2019, students practice mass casualty care and extrication.

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1.0 – INTRODUCTION

1.1 Executive Summary

Hazard mitigation is described in FEMA's 2017 Tribal Mitigation Plan Review Guide as the process used by tribal, state, and local government leaders to understand risks from natural hazards and to develop long-term strategies to reduce the impacts of future events on people, property, and the environment.

The effects of natural and human-caused hazards impact the safety and well-being of Blue Lake Rancheria residents and patrons, both directly and indirectly. While most hazards cannot be eliminated, their effects can often be mitigated. The Tribe, working in conjunction with the planning group updated this Tribal Multi-Hazard Mitigation Plan (TMHMP) to guide and focus hazard mitigation activities. This plan profiles significant hazards to the community and identifies mitigation goals and actions.

The purpose of this plan is to promote understanding of hazards and develop sound public policy to protect Tribal members, guests, critical facilities, infrastructure, private property, and the environment from natural, technological, and human-caused hazards. The plan includes resources and information to assist tribal residents, patrons, organizations, local government, and others interested in participating in hazard mitigation planning.
For this plan update, the Blue Lake Rancheria opted to include human-caused incidents, including technological factors.

Since 2003 the Blue Lake Rancheria has been impacted or threatened by more than 40 natural disasters, human-caused or technological emergencies, and combinations of both. The Rancheria occupies both Tribal trust and nontrust lands at risk of riverine flooding, upstream dam failure and inundation, seismic events, extreme weather, and other hazards.

The purpose of hazard mitigation is to protect our people and help them avoid damage to their homes, possessions, property, culture, and environment by providing a strategy to reduce or eliminate long-term risk from known and likely hazards. A multi-hazard strategy addresses the relationships among various types of hazards, leverages resources to address multiple hazards, and allocates limited resources to areas susceptible to the most severe or frequent hazards.

This Tribal Multi-Hazard Mitigation Plan (TMHMP) was prepared on behalf of the Blue Lake Rancheria (BLR or Rancheria) by BLR staff and shared responsibility stakeholders such as government agencies and community members. The Tribe followed a planning process prescribed by FEMA, which began with the re-formation of the Community Planning Committee (planning group) comprised of key tribal representatives and other stakeholders. The planning group conducted a Hazard Vulnerability Analysis identifying and assessing the Rancheria's vulnerability to hazards and examined the capabilities in place to mitigate them.

Hazard, Risk and Vulnerability Assessment

A Hazard Vulnerability Assessment was conducted in detail and the results are contained in Section 4. A brief summary of the TMHMP sections is included in the following pages. Possible hazard events are first identified based on most likely to occur, and secondly those with the most damaging impacts. Profiles of prioritized hazard events are described in detail later in Section 4. These hazard profiles answer the basic question: "How bad can it get?" Assets vulnerable to the most probable hazards are inventoried and mapped in the plan and estimates of potential structural and economic losses are summarized.

Hazard Analysis.

The planning group considered the hazards with historical occurrences and those deemed reasonably likely in the future. All hazards that presented practical levels of risk to the BLR were considered and analyzed. Based on discussions and analysis, hazards were then prioritized and described in Section 4, Hazard Identification and Risk Assessment.

Considering probability, past history, and likely effects on the categories of fatalities, injuries, economy, mental health, critical facilities, infrastructure, and environment, these 16 hazards were included in this plan. They are ranked from highest to lowest assessed risk (severity + probability).

High Risk	1. Earthquake
	2. Wildfire
	3. Public health/infectious disease
Moderate Risk	4. Severe storm
	5. Flood, including dam failure
	6. Influx of evacuees
	7. Drought
	8. Sustained power outage
	9. Criminal or terrorist act
Low Risk	10. Hazardous materials release
	11. Air or water quality event
	12. Aircraft crash
	13. Cyber incident
	14. Transportation or supply chain disruption
	15. Civil disturbance
	16. Land movement other than earthquake

Table 1.1 Hazard rankings

Hazard Summaries

1. Earthquake. BLR is less than 1,000 feet away from the Blue Lake Thrust Fault, and subject to the influences of the regional Mendocino Triple Junction, the Coast Range Thrust Fault, and the Cascadia Subduction Zone. Earthquakes with a Richter magnitude of 6.0 or higher have occurred three times in the last 20 years and larger earthquakes between 6.9 and up to 9.1 Richter magnitude are possible.

2. Wildfire. The Rancheria is surrounded on all but one side by wildlands or former agricultural lands consisting of infrequently maintained grasslands and heavily wooded riparian corridors, beyond which are heavily forested slopes. To the north and east the Rancheria is bounded by roads, common ignition locations due to mechanical or other human factors.

3. Public health/infectious disease. Early in the project this was acknowledged as a threat to the Rancheria. The 2020-21 COVID-19 pandemic provided a vivid example of the hazard and opportunities to plan and learn from response and mitigation actions.

4. Severe Storm. Severe Storm refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of life. It includes thunderstorms, downbursts, freezing rain, snowstorms, ice storms, windstorms, and dust storms. The most damaging local components of severe storms are high winds and heavy rain.

5. Flood, including dam failure. Parts of BLR are situated within an area with a 1 percent annual likelihood of flooding from the Mad River, Dave Powers Creek, and/or the FEMA Regulatory Floodway on Powers Creek. It is also vulnerable to failure of the R.W. Matthews Dam. This plan update foregoes a separate dam failure section as redundant.

6. Influx of evacuees (new). This hazard was added as a result of experience during 2019 power outages, when an estimated 10,000 people arrived to obtain fuel, essential supplies, and services.

7. Drought. Drought has become a common condition throughout California. Although direct risks are low, secondary effects include increased frequency, intensity, and duration of wildfires, with associated air quality impacts, loss of wildlife habitat, degraded water quality, weakened food security, and loss of visitor revenues.

8. Sustained power outage (new). Although the Rancheria has developed a model electric micro grid, it may remain vulnerable to sustained outages, especially when accompanied by transportation system disruptions. The emerging role of the Rancheria as an island of services during widespread outages poses its own challenges.

9. Criminal or terrorist act. BLR has experienced crime and occasional threats and attempts that could be construed as terrorist in nature. Because mitigation measures for both are similar, they are consolidated in this document. The prior plan's category of workplace violence is also considered here.
10. Hazardous materials release. The BLR maintains and provides materials and conditions that could lead to a hazardous materials release, however the greatest risk is considered commercial traffic on SR 299.

11. Air or water quality event. The prevalent air contaminant in recent years has been smoke from nearby and distant wildfires. Historical air quality violations from a nearby industrial park remain a concern to the Tribe. Water quality threats include the industrial park, nearby wastewater treatment plant, an upstream blacktop plant, and a failed soil contamination cap at an abandoned lumber mill approximately a mile away with a dioxin plume contaminating groundwater.

12. Aircraft crash (new). Because of the Rancheria's proximity to the approach path to an airport serving military, commercial, and general aviation, this event is considered in the plan.

13. Cyber incident. Tribal government and enterprises have become targets for attempted intrusions and other cybercrimes. In this update, it is treated separately from other crimes.

14. Transportation emergency or supply chain disruption (new)**.** BLR's reliance on vulnerable California Route 299 and U.S. 101 for goods, services, and guests prompted this addition. Even a few days of closure of SR 299 could have a variety of serious impacts on the people and operations of the Tribe.

15. Civil disturbance (new). Any level of civil disturbance could impact the people, operations, and peace of the Rancheria, without rising to the level of a crime. These may include small, orderly protests or large, threatening events.

16. Land movement other than earthquake**.** While the majority of the BLR does not lie in an area susceptible to landslides, they are a hazard along key access routes. Closures or significant delays along SR 299 could isolate BLR and the City of Blue Lake from outside emergency services, healthcare facilities, and other essential services, while disrupting essential supply chains.

Risk Assessment is prescribed by FEMA and is the process followed by the BLR. Potential hazard events are identified and prioritized. Then, profiles of the most imminent hazard events that can occur on the Rancheria, including weather related hazards, seismic hazards, and technological hazards are described in further detail in the Plan. These hazard profiles answer the basic question: "How bad can it get?" Assets vulnerable to the most imminent hazards are inventoried and mapped in the plan and estimates of potential structural and economic losses are summarized.

A study of Tribal special infrastructure, lifelines and populations was conducted in the initial version of this plan and updated based on changing conditions and practical experience, particularly with power outages, wildfire smoke, and infectious disease.

Critical facilities and capabilities - Those facilities and resources that must operate in an emergency to meet Tribal needs and operate to provide the economic capability of the Tribe, and without which hardship would fall on the Tribal Members.

Special infrastructure and lifelines refer to those transportation resources, utility infrastructure that supply electricity, water and fuel, and supply lines necessary to support our special infrastructure and Tribal Members.

Special Populations refers to Tribal Elders, persons with access and functional needs, and other members that may require additional access, support, resources, or accommodation to withstand a disaster, emergency, or other event. This includes guests unaware of local hazards, vulnerabilities, risks, resources, and capabilities.

Critical and Special categories include:

- Blue Lake Casino
- Blue Lake Hotel
- BLR Tribal Government and Justice Center
- BLR fire station
- BLR Gaming Commission offices
- BLR gas station and convenience store
- Solar power collection, battery storage and distribution facilities (microgrid)
- RV Park
- Tribal member homes
- Highways and roadways
- Water distribution system
- Wastewater collection and treatment systems
- Elders, children, and persons with access and functional needs

BLR has developed and acquired Geographic Information Systems (GIS) layers to superimpose on Tribal lands, special infrastructure, lifelines and populations to identify those areas in hazard zones. Because of its small footprint, in many cases the hazard zone lies over the entire Tribal area. This tool will help focus effort on what areas need to be improved, hardened or where future development should be carefully considered or avoided.

Vulnerabilities at BLR are generally considered highest among the residential structures and inhabitants of the Rancheria. The greatest economic losses to residents result from the sum of structural replacement costs and displacement costs during reconstruction. Loss of contents in the residential structures is less substantial.

Conversely, gaming enterprises, hotel, convenience store/gas station, solar microgrid and Tribal government buildings, while the least structurally vulnerable, would suffer the most economic damage due to repair and replacement costs, losses to high value contents, and short- or long-term loss of function. The gaming enterprise is the largest economic asset of the Tribe, and functional downtime equates to substantial economic losses. Downtime is particularly problematic for the gaming business because it cannot be temporarily relocated elsewhere due to permitting restrictions.

The greatest vulnerability for non-residents and patrons of the gaming enterprise are their automobiles during a large flood or earthquake. With an average of 750 patrons with 500 vehicles on site at any given time, potential economic losses could be as high as $10 million in vehicle damage alone.

Mitigation Strategy and Goals

The TMHMP explores measures that can be taken to reduce the probability of an emergency or event by each hazard, and to reduce the impacts on the people and resources when such an event occurs.

Mitigation activities described in this TMHMP will continue to be implemented in four inclusive settings: personal, home, community, and inter-community.

- A variety of cost-effective personal activities are contemplated to be promulgated in the community through existing and new community outreach programs.
- The second level is focused on structural improvements to residential structures to increase their resistance to flood, earthquake, wind, and fire.
- Activities recommended for implementation at the community scale are focused on improving resilience and in some cases building for redundancy. Both actions will help effective post-emergency recovery.
- Inter-community activities include procedures, policies, relationships and joint training and exercising with neighboring jurisdictions, agencies, and organizations to improve the effectiveness and efficiency of activities in all phases of the emergency management cycle: prevention, preparedness, response, recovery, and mitigation.

Generally speaking, the cost-effectiveness of structural mitigations decreases proportionally with the value of the residential structures, but this may be offset to some extent by reduced displacement costs associated with temporarily housing residents while replacing heavily damaged manufactured homes. Since the gaming enterprise generates substantial income and cannot, by law, be displaced off of sovereign lands, virtually all mitigation measures that reduce damages and functional downtime for the gaming facilities are considered cost effective by the Tribe.

After discussions of risks and goals, the plan lists mitigation actions developed collaboratively by the planning group with the intent to meet the identified goals. These projects are planned for implementation over time. The plan also lists plan update and maintenance procedures, including a five year update schedule.

1.2 Plan Adoption and Assurances

Requirement §201.7(c)(5)*: [The tribal hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the tribal jurisdiction requesting approval of the plan (e.g., Tribal Council).*

Adoption

This plan was approved for submission by Tribal Council Resolution 21-14. Upon receipt of FEMA's Approval Pending Adoption of the plan, the Tribal Council will make a final resolution adopting the BLR TMHMP. A copy of that document immediately follows this section.

Assurances

Blue Lake Rancheria (BLR) Recognizes and commits that that the tribal government 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, and will amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes. [44 CFR § 201.7(c)(6)]

1.2.1 Tribal Resolution

RESOLUTION
OF THE
BLUE LAKE RANCHERIA, CALIFORNIA
21-20

SUBJECT: **RESOLUTION ADOPTING THE TRIBAL MULTI-HAZARD MITIGATION PLAN (TMHMP) AS THE HAZARD MITIGATION PLAN OF THE BLUE LAKE RANCHERIA.**

WHEREAS: The Blue Lake Rancheria, California is a federally recognized Indian Tribe as listed in the Federal Register, Vol. 86, No. 18, p. 7555 (Friday, January 29, 2021), as "Blue Lake Rancheria, California."

WHEREAS: The Blue Lake Rancheria Constitution has been approved by the Assistant Secretary of the Indian Affairs on March 22, 1989, and revised and approved by the Assistant Secretary of Indian Affairs on February 11, 1994, establishing the duly elected Business Council as the governing body of the Tribe; and

WHEREAS: The governing body of the Blue Lake Rancheria, California (Tribe) is the Business Council; and

WHEREAS: The Blue Lake Rancheria Tribal Business Council in proper exercise of its authority and in accordance with the Constitution has the authority to administer programs designed to meet the needs of the Blue Lake Rancheria; and

WHEREAS: The Blue Lake Rancheria has experienced minor damage in the last century and expects to experience potentially major damage in the future from disasters and incidents – including, but not limited to: earthquakes, flooding, severe storms, fire, power outages, transportation corridor closures, hazardous spills, dam break, cyber attack, terrorism, pandemic, disease outbreak and threats to public health and safety, resulting in property loss, and economic hardship; and

WHEREAS: An approved Tribal Multi Hazard Mitigation Plan (TMHMP) Update for the Federal Emergency Management Agency (FEMA) has been developed after months of research and work by the Community Planning Committee, Tribal Staff, interested stakeholders, and the Blue Lake Rancheria Community; and

WHEREAS: A public meeting was held to review the approved the updated TMHMP as required by law; and

WHEREAS: FEMA has reviewed and approved the TMHMP Update on June 14, 2021; and

WHEREAS: The formally adopted interim draft TMHMP by Tribal Resolution 21-14 is now rescinded; and

NOW, THEREFORE, BE IT RESOLVED, that the Blue Lake Rancheria appoints Anita Huff, Transportation Coordinator as the primary representative to NCTTC; and

BE IT FURTHER RESOLVED, by the Blue Lake Rancheria Tribal Business Council that:

1) The approved TMHMP is hereby adopted as the hazard mitigation plan of the Blue Lake Rancheria,
2) The Blue Lake Rancheria departments and staff identified in the approved TMHMP are hereby directed to review the recommended actions assigned to them,
3) The Tribe will amend the approved TMHMP as needed to reflect changes in Tribal or Federal laws and statutes as required by 44CFR § 201.7, and/or required to secure FEMA approval,
4) The Tribe hereby rescinds Tribal Resolution 21-14, formally adopting the interim draft TMHMP.

Resolution 21-20

CERTIFICATION

As the Chairperson of the Blue Lake Rancheria Tribal Business Council for the Blue Lake Rancheria, California, I hereby certify that the Blue Lake Rancheria Tribal Business Council adopted this resolution at a specially called meeting with a quorum present by a vote of 4 for, ~~0~~ against, ~~0~~ Abstaining, and 1 absent on this 7 day, of July 2021.

Claudia Brundin
Claudia Brundin, Chairperson

7-7-2021
Date of Approval

ATTEST:

Leslie Albright
Leslie Albright, Tribal Executive Secretary

7-7-2021
Date of Approval

Resolution 21-20

1.2.2 FEMA Approval Letter

U.S. Department of Homeland Security
FEMA Region 9
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

July 28, 2021

Anita Huff
Director
Blue Lake Rancheria Office of Emergency Services
P.O. Box 428
Blue Lake, CA 95525

Dear Ms. Huff:

The *Blue Lake Rancheria's Tribal Multi-Hazard Mitigation Plan* was officially adopted by the Blue Lake Rancheria on July 7, 2021 and submitted for review and approval to the Federal Emergency Management Agency (FEMA). The review is complete, and FEMA finds the plan to be in conformance with the Code of Federal Regulations, Title 44, Part 201, Section 7 (44 CFR 201.7) for a standard tribal hazard mitigation plan.

This plan approval ensures the Blue Lake Rancheria's eligibility for project grants under FEMA's Hazard Mitigation Assistance programs, including the Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC) program. This plan also ensures eligibility for post-disaster assistance including Public Assistance (Categories C-G) and Fire Management Assistance Grants (FMAG). All requests for funding are evaluated individually according to eligibility and other program requirements.

FEMA's approval is for a period of five years, effective starting the date of this letter. Prior to July 28, 2026, the Blue Lake Rancheria must review, revise, and submit their plan to FEMA for approval to maintain eligibility for grant funding. The enclosed plan review tool provides additional recommendations to incorporate into future plan updates.

If you have any questions regarding the planning or review processes, please contact the FEMA Region IX Hazard Mitigation Planning Team at fema-r9-mitigation-planning@fema.dhs.gov.

Sincerely,

Digitally signed by ALISON KEARNS
Date: 2021.07.28 17:08:29 -07'00'

for Kathryn Lipiecki
Director, Mitigation Division
FEMA Region 9

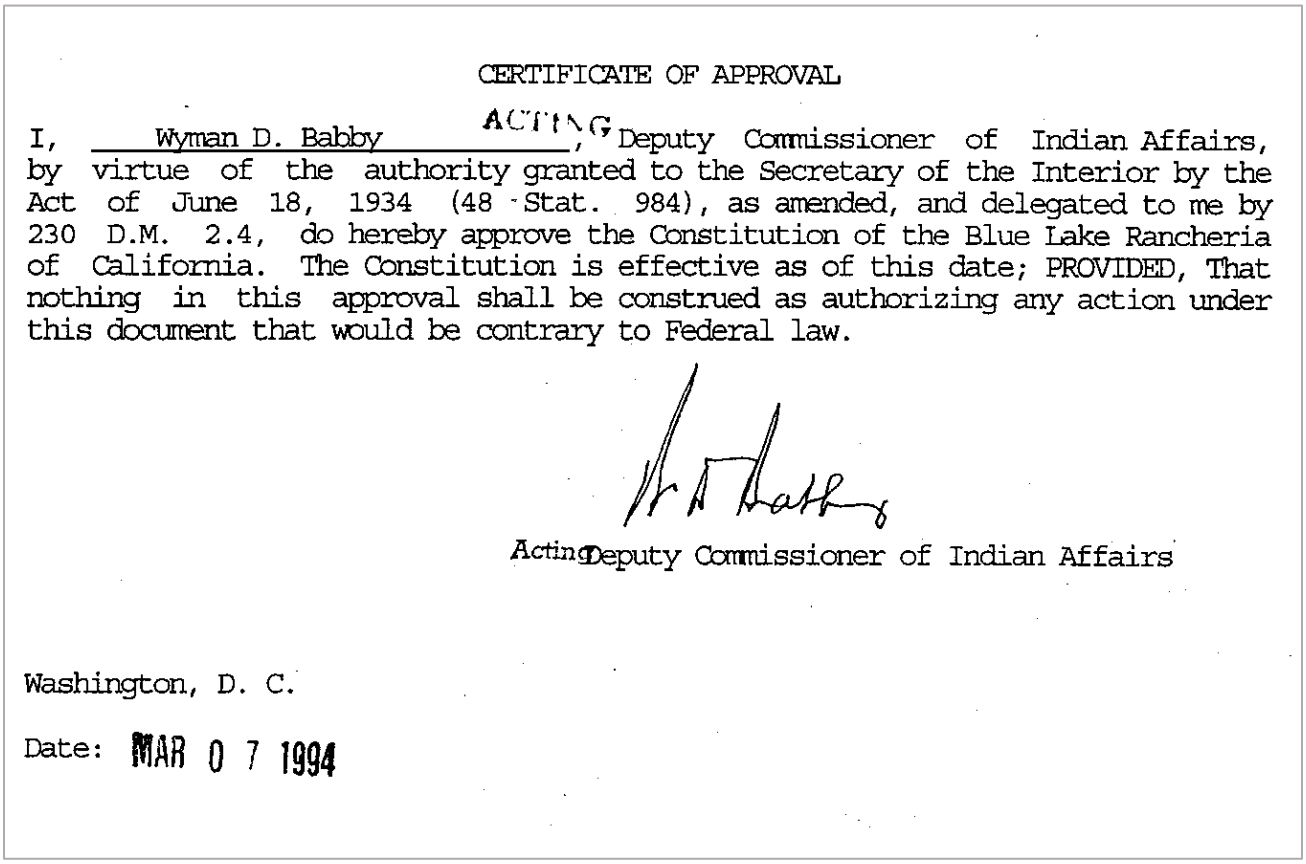
Enclosure (1)
Blue Lake Rancheria Plan Review Tool, dated July 28, 2021

cc: Alison Kearns, Risk Analysis Branch Chief, FEMA Region 9

www.fema.gov

1.3 Authorities

The Blue Lake Rancheria Constitution was approved by the Assistant Secretary of Indian Affairs on March 22, 1989, revised and approved by the Assistant Secretary of Indian Affairs on February 11, 1994, and ratified by the Bureau of Indian Affairs on March 7, 1994.



CERTIFICATE OF APPROVAL

I, Wyman D. Babby, ACTING Deputy Commissioner of Indian Affairs, by virtue of the authority granted to the Secretary of the Interior by the Act of June 18, 1934 (48 Stat. 984), as amended, and delegated to me by 230 D.M. 2.4, do hereby approve the Constitution of the Blue Lake Rancheria of California. The Constitution is effective as of this date; PROVIDED, That nothing in this approval shall be construed as authorizing any action under this document that would be contrary to Federal law.

Acting Deputy Commissioner of Indian Affairs

Washington, D. C.

Date: MAR 0 7 1994

Figure 1.1 Certificate of Approval of the Constitution of the Blue Lake Rancheria by the Acting Deputy Commissioner of Indian Affairs, March 7, 1994

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) 42 U.S.C. 5165, as amended by the Disaster Mitigation Act of 2000 (DMA) (P.L. 106-390), provides for States, Indian Tribal governments, and local governments to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning. The National Flood Insurance Act of 1968, 42 U.S.C. 4001 et seq., as amended, further reinforces the need and requirement for mitigation plans, linking flood mitigation assistance programs to State, Tribal, and Local Mitigation Plans.

The Blue Lake Rancheria adopted this update to the TMHMP at a regularly scheduled meeting of the Tribal Business Council on March 3, 2021. Through the Blue Lake Rancheria Constitution, the Tribal Business Council has the authority to promote sound public policy regarding natural and human-caused hazards. A copy of the signed Resolution from this jurisdiction is located on Page 1-8. The Tribal Business Council posts all agendas seven days prior to the meeting to allow for public participation.

The Blue Lake Rancheria Office of Emergency Services (OES) Director is responsible for submitting the adopted TMHMP to FEMA Region 9 for review. The review will address the federal criteria outlined in the FEMA Interim Final rule 44 CFR Part 201.7. Upon approval by FEMA, BLR will gain eligibility for local mitigation project grants and post-disaster hazard mitigation grant projects.

1.4 Plan Organization

Prior versions of this plan included considerable amounts of information repeated in multiple sections. In an effort to make the document more concise and user friendly, this version is restructured.

1. Section 1's introduction is focused on the document's authorities and organization. It no longer includes community and hazard details contained elsewhere in the document.
2. Section 2 describes the planning process.
3. Section 3 describes the planning area description, moved from the prior plan's introduction. It includes descriptions of the geographic area, demographics, Tribal assets, government structure, and unique characteristics.
4. Section 4 provides hazard identification and risk assessment, now including both natural and human caused hazards. Human caused hazards are not required for multi hazard mitigation plans, however Tribal leadership opted to include them. The temporary population of the Rancheria can exceed the resident population by thousands during a major planned event or, as demonstrated during regional power outages in 2019, emergencies.

   The people, resources and environment of the Rancheria may be more vulnerable to human caused events than those of natural origins, and human interactions may complicate many natural occurrences. Examples include power outages and wastewater discharges during severe storms, and wildfires primed by natural conditions, and ignited by human or technological presence.
5. Section 5 provides the mitigation strategy, specific actions, and an assessment of prior mitigation actions.
6. Section 6 provides a maintenance process for the five-year life of this plan.

Appendices

A. Describes the Blue Lake Rancheria Family of Plans
B. Provides a completed FEMA Region IX Tribal Hazard Mitigation Plan Review Tool

2.0 – PLANNING PROCESS

An effective planning process is essential in developing and maintaining a good plan.
44 CFR §201.7(b):

Federal mitigation planning regulation includes the following paragraph at 44 CFR 201.7(d)(3) that directs the update of Tribal Mitigation Plans:
Indian Tribal governments must review and revise their plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities and resubmit it for approval within 5 years in order to continue to be eligible for non-emergency Stafford Act assistance and FEMA mitigation grant funding, with the exception of the Repetitive Flood Claims program.

This document represents the third iteration of the Blue Lake Rancheria (BLR) Tribal Multi-Hazard Mitigation Plan (TMHMP), and upon final approval supersedes the 2015 plan.

This plan was updated using these FEMA guidance documents:

- Tribal Mitigation Planning Handbook May 2019
- Tribal Mitigation Plan Review Guide effective December 5, 2018
- Region IX Tribal Hazard Mitigation Plan Review Tool

The BLR TMHMP has been substantially reorganized from the 2015 format to reduce redundancy and provide a better understanding of local hazards and their effects.

2.1 Documentation of the Planning Process

Requirement 201.7(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 defined and involved. This shall include:*

(i) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval, including a description of how the Indian Tribal government defined "public", and;
(ii) As appropriate, an opportunity for neighboring communities, tribal 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.

2.1.1 Planning Process Description

After a competitive bid process, in February of 2019 the Tribe entered into an agreement to provide support to development of an update to the 2015 THMP. The agreement was awarded to Preparedness Consulting & Training, a firm in an adjacent county with extensive emergency preparedness and planning experience for rural and remote jurisdictions and prior emergency management contract work for the Tribe.

A BLR planning group was established, with invitees shown in Table 2.2.

That group reviewed the prior plan and conducted new analysis in order to update and expand on it. A decision was made early on to include human caused hazards in this update.

A Hazard Vulnerability Assessment (HVA) tool was used to identify and quantify the effects of area hazards and rank them according to predicted severity.

Name: Blue Lake Rancheria
Hazard Vulnerability Assessment Matrix

Event	Effects							Sum	X	Probability	Total	Rank
	Fatalities 0-10	Injured 0-10	Economic 0-10	Mental Health 0-10	Critical Facilities 0-10	Infra-structure 0-10	Environ-mental 0-10			2= Unlikely 4= Slight 6= Probable 8= High 10=Very high		
Air Quality								0	X		0	
Animal Health								0	X		0	
Civil disturbance								0	X		0	
Cyber incident								0	X		0	
Dam Failure								0	X		0	
Drought								0	X		0	
Earthquake								0	X		0	
Flooding								0	X		0	
Hazmat								0	X		0	
Landslide*								0	X		0	
Plane crash								0	X		0	
Public health								0	X		0	
Seiche**								0	X		0	
Serious Storm								0	X		0	
Terrorism/Criminal Act								0	X		0	
Transportation								0	X		0	
Volcanic activity								0	X		0	
Wildfire								0	X		0	
Other:								0	X		0	
Other:								0	X		0	

* "Landslide" as used here includes subsidence, upheaval and other earth movement except earthquake, which is listed separately.
** "Seiche" is an oscillation or "standing wave" of the water in a lake or other inland body, usually caused by seismic activity.

Instructions: For each type of hazard listed in the EVENT column, assign a numerical value of 0 (no likely effects) to 10 (severe likely effects). You may add your most likely hazards at the bottom of the list if they are not shown. The purpose is to establish each event's relative effects. Assuming a "worst case scenario" for each event will not help put it in perspective to others. The values entered into each cell in a row should be totaled in the SUM column. The PROBABILITY factor is then entered in that column, and the total value for each hazard multiplied by that number. The hazard's RANK may be entered in the last column.

Figure 2.1 Hazard Vulnerability Assessment survey tool

During subsequent review, some events were consolidated into others for clarity and brevity, and others deleted outright. Four hazards were added: Aircraft Crash, Influx of Evacuees, Supply Chain Disruption, and Sustained Power outage. The climate crisis has been added as a contributing factor to numerous hazards, and its effects considered in their assessments.

This analysis was originally conducted early in the planning period during 2019 and repeated in 2020 to reflect local experience with two new hazards: prolonged Public Safety Power Shutoffs and the COVID-19 pandemic.

Each type of hazard event has unique characteristics in the nature, duration, severity of its impacts on a community, and propensity to cause cascading events. Therefore, after identifying potential hazards, a second step in risk assessment is to analyze the nature of potential hazard events and where the events can occur. This analysis is known as hazard profiling. In profiling hazards, the frequency of events and severity of their potential damages are considered. An event's frequency measures how often such an event of any magnitude has occurred in a set number of years, and it is

often considered to be a useful parameter in estimating an event's future occurrence. Severity answers the question, "*How bad can these events get?"* Once hazards are profiled, they can be compared on a consistent basis and ranked in terms of frequency and severity.

After organizing resources to plan the mitigations, communities need to identify the characteristics and potential consequences of hazards to quantify the risks of each hazard's occurrence. It is important to understand how much of the community can be affected by specific hazards and what the impacts would be on important community assets. Risk assessment is essential to determine and prioritize mitigation actions.

The BLR's approach in developing the TMHMP was the identification of risks, vulnerabilities, and potential damages that the Rancheria faces from both those hazard events predicted to occur more often and have the greatest impacts on human life safety, environment, and property. Although not required, the planning group and tribal leadership opted to include human-caused and technological hazards in the plan.

In addition to identifying the hazards, the planning group sought to gather local perspectives on potential hazards, historical occurrences, and mitigation measures. Only the results of the second survey were used in preparing this plan, as the earlier results were deemed to have been rendered irretrievably out of date by the events of 2019 and 2020, a testament to the dynamic nature of mitigation planning.

2.1.2 TMHMP Planning Group Description

This plan was developed with input from the primary stakeholders listed below. Early planning included identification of candidates for the planning group and setting a kickoff meeting date of June 20, 2019.

Planning group invitees included 20 BLR Tribal staff, of which 4 are Tribal members; 4 emergency managers from neighboring tribes, 1 city manager from the adjacent City of Blue Lake, 5 knowledgeable managers from county and regional agencies, 11 from California state agencies, 4 from federal agencies, and two project staff, including an earth sciences professor. During the course of the project, some members naturally departed, others joined, and still others changed agencies or roles.
Overall, 36% of the planning group were affiliated with regional native tribes.

Tribal members and staff

Baldosser, Jace	Blue Lake Rancheria	Tribal Member/Casino Manager
Cox, Randy	Blue Lake Rancheria	Electric System Director
Eidsness, Janet	Blue Lake Rancheria	Tribal Historic Preservation Officer
Fuller, Michelle	Blue Lake Rancheria	Environmental Director
Ganion, Jana	Blue Lake Rancheria	Sustainability & Gov't Affairs
Gill, Justin	Blue Lake Rancheria	Police Chief
Graham Hill	Blue Lake Rancheria	Security Manager/Police Chief
Huff, Anita	Blue Lake Rancheria	Director, Emergency Services
Kindred, Mandi	Blue Lake Rancheria	Tribal Member
Kullmann, Stephen	Blue Lake Rancheria	Community Development
Norton, Kim	Blue Lake Rancheria	Fiscal Controller
Mayr, Kyle	Blue Lake Rancheria	Resident, BLR Fire Department EMT
Norton, Kira	Blue Lake Rancheria	Benefits Coordinator
Oliveira, Julie	Blue Lake Rancheria	Police Sergeant
Pollard, Robert	Blue Lake Rancheria	Information & Technology Director
Ramos, Jason	Blue Lake Rancheria	Tribal Council/ Tribal Administrator/ Business Enterprises CEO
Ramsey, Arla	Blue Lake Rancheria	Tribal Vice Chairperson
Ramsey, Lynette	Blue Lake Rancheria	Resident
Reed, Josh	Blue Lake Rancheria	Gaming Commission Director
Sanderson, Tim	Blue Lake Rancheria	Fire Chief
Smith, Mike	Blue Lake Rancheria	Facilities Director
Stokes, Emily	Blue Lake Rancheria	OES Coordinator
Winkle, Deb	Blue Lake Rancheria	Elder Programs Director

Neighboring tribal and local jurisdictions

Baker, Dean	Yurok Tribe	Public Works
Hayden, Serene	Yurok Tribe	Emergency Mgt. Specialist
LaFazio, Tessa	Tolowa Dee Ni' Nation	Emergency Mgr. pro tem
Mager, Amanda	City of Blue Lake	City Manager
White, Randy	Karuk Tribe	Emergency Manager

County and regional agencies

Derby, Ryan	Humboldt Co. Office of Emergency Services	Emergency Manager
Lanni, Dorie	Humboldt Co. Office of Emergency Services.	Emergency Services Mgr.
Muller, Heather	Humboldt Co. Dept. of Health & Human Services (DHHS)	Public Information Officer/ Emergency Manager
Reed, Valerie	United Indian Health Services	Community Health Services
Scott, Kymmie	Redwood Coast Tsunami Work Group and Del Norte Co. Office of Emergency Services	Co-chair and Emergency Manager
Swoveland, Matt	Humboldt Co. Environmental Health	Senior Hazmat Specialist

Table 2.2: TMHMP Planning Group

State agencies

Atchley-Thomas, Sara	California Department of Transportation	Tribal Liaison
Barr, Stacy	California Highway Patrol	Captain
Bennett, Josh	California Dept. of Forestry/Fire Protection	Battalion Chief
Campbell, Mike	California Highway Patrol	Sergeant
Dengler, Lori	Humboldt State University	Earth Sciences Professor
Hogan, Jennifer	California Governor's Office of Emergency Services	Hazard Mitigation Officer
Jones-Koczera, Cris	Humboldt State University OES	Emergency Manager
Morris, Shawn	California Highway Patrol	Captain
Ramey, Chris	California Dept. of Forestry & Fire Protection	Battalion Chief
Robertson, Jesse	California Department of Transportation	Transportation Planning
Shemenski, Denise	California Governor's Office of Emergency Services	Tribal Advisor
Villano, Shawn	California Highway Patrol	Sergeant

Federal agencies

Aylward, Ryan	National Weather Svc. Eureka	Meteorologist
Rodriguez, Jayson	U.S. Coast Guard	
Scordino, JoAnn	FEMA	Mitigation Community Planner
Tripp, Sandi	FEMA (ex officio planning support)	Reg IX Tribal Liaison

Project consultants and staff

Dittmer, Eric	Southern Oregon University	Consultant
Masterman, Larry	Preparedness Consulting & Training	Consultant/Team Lead

Table 2.2: TMHMP Planning Group (Continued)

This group was selected to achieve this mix of perspectives, subject matter expertise, and experience with local hazards:

- Historical events, local impacts, and lessons learned
- Cultural and historical perspectives
- Public insights into past, current, and future hazards and mitigation measures
- Subject matter expertise in predictably high threats and hazards, specifically those related to weather, wildfire, seismic activity, transportation system disruption, hazardous materials release, and economic issues
- Thorough understanding of the Rancheria's population, culture, facilities, and operations
- Familiarity with public safety and emergency management concepts and local capabilities

Planning group meetings were set for every other month, with the option to add meetings as needed. Meetings occurred as follows:

2019	2020
June 20	January 22
July 17	August 20
September 26	
November 20	

Regular meetings were suspended in early 2020 due to the outbreak of the COVID-19 pandemic with cases confirmed in Humboldt and surrounding counties. When the pandemic and its local impacts lingered longer than expected, virtual meetings were reconvened in August.

To inform the larger group, meetings often included presentations on specific hazards. These included:

- Local and regional climate and weather considerations
- Sustained power outages, including Public Safety Power Shutoffs
- Local and regional seismicity
- Wildfire
- Criminal or terrorist activities

To compliment and support the planning effort, the Rancheria hosted a FEMA course on Mitigation Planning for Tribes October 1 through 4, 2019. A number of planning team members completed the course.

All meetings were open to the public. For the purposes of this planning project, public is defined as all BLR Tribal Members and residents. Participation was also open to those in neighboring jurisdictions with an interest in the Tribe's emergency preparedness and hazard mitigation planning.

Early on in the process, planning team members were invited to select subjects of specialized knowledge or interest.

Subject	Planning team members
Air quality or water quality	Michelle Fuller, BLR Jana Ganion, BLR Cris Koczera, Humboldt State University
Climate change	Ryan Aylward, National Weather Service Jana Ganion, BLR Cris Koczera, Humboldt State University Stephen Kullman, BLR
Dam failure	Ryan Aylward, National Weather Service Ryan Derby, Humboldt Co. DHHS, later OES Michelle Fuller, BLR
Earthquake	Ryan Aylward, National Weather Service Randy Cox, BLR Cris Koczera, Humboldt State University Stephen Kullman, BLR Emily Stokes, BLR
Extreme weather (severe storm, heat wave, drought, etc.)	Ryan Aylward, National Weather Service Ryan Derby, Humboldt Co. DHHS, later OES Stephen Kullman, BLR Emily Stokes, BLR
Flood (separated from dam failure)	Ryan Aylward, National Weather Service Ryan Derby, Humboldt County DHHS, later OES Michelle Fuller, BLR
Infectious disease	Ryan Derby, Humboldt Co. DHHS, later OES Cris Koczera, Humboldt State University
Land movement other than earthquake	Deb Winkle, BLR
Tsunami	Ryan Aylward, National Weather Service
Volcanic activity	Eric Dittmer, Southern Oregon University/PCTI
Wildfire	Stacy Barr, CHP Heather Muller, Humboldt Co. DHHS Chris Ramey, CalFire Tim Sanderson, BLR Heather Muller, Humboldt Co. DHHS
Economic issues	Jace Baldosser, BLR Jana Ganion, BLR Mandi Kindred, BLR
Hazardous materials release	Stacy Barr, CHP Cris Koczera, Humboldt State University Stephen Kullman, BLR Tim Sanderson, BLR
Sustained power outage	Randy Cox, BLR Electrical Jana Ganion, BLR Energy Mandy Kindred, BLR GM

Table 2.3 - TMHMP Planning Subject Selections (continued)

Subject	Planning team members
Terrorism, criminal act, including cyber, civil disturbance	Stacy Barr, CHP Julie Oliveira, BLR Police Robert Pollard, BLR IT Emily Stokes, BLR OES
Transportation disruption	Stacy Barr, CHP Julie Oliveira, BLR Police Jesse Robertson, Caltrans
Violence, including workplace violence and active assailant	Cris Koczera, Humboldt State University Julie Oliveira, BLR Police Josh Reed, BLR Gaming Commission
Cultural and historical considerations	Mandi Kindred, Blue Lake Casino GM Janet Eidsness, BLR Tribal Historic Preservation Officer
Emergency public notifications	Ryan Aylward, National Weather Service Ryan Derby, Humboldt Co. DHHS, later OES Jana Ganion, BLR Energy Mandi Kindred, Blue Lake Casino GM Stephen Kullman, BLR Community Development Heather Muller, Humboldt Co. DHHS Julie Oliveira, BLR Police Jesse Robertson, Caltrans Tim Sanderson, BLR Fire
Pre-emergency public outreach	Ryan Derby, Humboldt Co. DHHS, later OES Jana Ganion, BLR Energy Stephen Kullman, BLR Community Development Heather Muller, Humboldt Co. DHHS
Public protective actions, e.g. evacuation or in-place sheltering	Mandi Kindred, BLR GM Jesse Robertson, Caltrans
Radiological incident	Steven Kullman, BLR Community Development Cris Koczera, Humboldt State University

Table 2.3 - TMHMP Planning Subject Selections (continued)

2.1.3 Public Involvement

BLR's citizens, residents, and members of the tribe are considered "public", as well as being stakeholders in the governance and operation of tribal government and enterprises. Because the nature of casino, event center, and hotel operations invite large numbers of guests, the plan includes consideration for that element of the public, however general public participation in the planning process was limited to residents and employees within the Tribal jurisdiction.

In addition to the 20 tribal staff members included in the planning group, additional measures to obtain public participation included individual interviews with tribal elders with many years living and working on the Rancheria and immediate surroundings. Elders were asked about changes in local conditions, emerging hazards, past events, including those that may not be in written records, past and present mitigation activities, and personal preparedness and mitigation priorities.

Each interview was held at the Rancheria. These included:

- September 26, 2019 Arla Ramsey, Tribal Vice Chair
- September 26, 2019 Mike Brundin
- September 26, 2019 Nikki Brundin
- October 2, 2019 Anita Huff
- October 2, 2019 Merel Babcock
- January 21, 2020 Jana Ganion

Vice Chair Arla Ramsey

Each December, Blue Lake Rancheria hosts an Elders Luncheon, typically with more than 100 tribal elders in attendance. For several years, the event has included information and gifts to encourage personal and community emergency preparedness. The December 4, 2019 luncheon included an invitation for any of those in attendance to participate in the planning meetings or be interviewed. The 2020 luncheon was cancelled due to COVID-19 precautions and use of the venue as a large COVID testing facility.

2.1.4 Additional Stakeholder Involvement

Geography, the nature of hazards, and other conditions make it likely that Humboldt and Del Norte Counties will be isolated from larger, more populous, and resource-rich jurisdictions and planned logistic staging areas during and after a major disaster. A high level of local and regional self-sufficiency is considered essential to effective disaster mitigation in the area.

For several years BLR has embraced collaboration with neighboring tribal entities, nearby units of local, regional, state, and federal government, and other organizations. This commitment acknowledges that the Rancheria, though sovereign, is also part of a larger community. Its people and other resources can benefit its neighbors, and when an emergency impacts its own people, lands, and resources, the most immediate, effective, and appropriate response may include those same neighbors.

This was made abundantly clear in 2019, when planned Public Safety Power Shutoffs were executed by Pacific Gas and Electric Company to mitigate dangers from high winds during critical wildfire hazard periods. Many communities in Humboldt County were left without commercial power for as long as six days. The Rancheria's ability to generate and store its own electrical power meant its convenience store could remain open for ice and other essentials, its gas station could provide fuel to emergency services and others in urgent need, and its casino and hotel facilities could provide essential and comfort services to the public, including rest, meals, incident information, and device charging stations. BLR supported emergency operations to county and local governments throughout the events.

Additional stakeholders sought out for subject matter expertise and local insight included:

- California Department of Forestry and Fire Protection
- California Department of Transportation (Caltrans)
- California Highway Patrol

- California Governor's Office of Emergency Services Region II and Tribal Advisor
- City of Blue Lake
- Federal Emergency Management Agency Region 9 and Tribal Liaison
- Humboldt State University
- Humboldt County Sheriff Office of Emergency Services
- Humboldt County Health and Human Services/Public Health
- Humboldt County Environmental Health, Hazardous Materials Unit
- Humboldt County Airports
- Humboldt Bay Fire Hazardous Materials Unit
- Pacific Gas and Electric Company
- Redwood Coast Tsunami Work Group
- U.S. Coast Guard
- U.S. Forest Service
- U.S. Weather Service

This constituted a change from the 2015 plan, which adopted a planning approach that sought to limit "over-reliance" on outside agencies. Although BLR has expanded its self-sufficiency since then, leadership also recognizes the value of collaborating with neighboring agencies for effective planning, response, recovery and mitigation.

Other tribes were invited to participate in the hope that all could benefit from each other's history, expertise, collaboration, and experience in the mitigation planning process.

Humboldt County and its Sheriff's Office of Emergency Services (OES) coordinate all phases of emergency management activities and resources for the Humboldt Operational Area (OA), consistent with the National Incident Management System (NIMS). This system is designed and maintained to facilitate coordinated response to complex emergencies, disasters and major events.

The Tribe adopted NIMS by Tribal Resolution 11-09 on June 9, 2011.

Although sovereign tribal entities are not required to participate as part of the OA, the Blue Lake Rancheria has committed to working cooperatively within that framework to improve planning, training and coordination with neighboring jurisdictions, and has been an OA participant since 2015.

The Tribe is integrated with State and Federal hazard mitigation programs and funding both indirectly and directly. Examples of indirect integration with State and Federal programs include:

- The California Department of Forestry and Fire Protection (CalFire) responds to fires at the Rancheria through mutual aid agreements with the City of Blue Lake and the Bureau of Indian Affairs;
- U.S. Marshals and California Highway Patrol support to the Rancheria in certain situations per agreements with County OES;
- The U.S. Coast Guard provides emergency air transportation to the Rancheria through agreements with local emergency medical services, such as Mad River Hospital and Arcata Mad River Ambulance, among others;

- The U.S. Coast Guard recently entered into a memorandum of understanding for Blue Lake Rancheria to serve as a Continuity of Operations and backup location for its Humboldt Bay operations;
- Blue Lake Rancheria police officers are cross-deputized with the Humboldt County Sheriff's Office.

The Tribe is a planning partner in the R.W. Matthews Dam Emergency Action Plan with the operator, Humboldt Bay Municipal Water District (HBMWD). This plan was completed in cooperation with agencies from Ruth Lake to Humboldt Bay. The plan is exercised annually, and BLR's Environmental Director sits on the Board of Directors for HBMWD.

The separate Mad River Valley Matthews Dam Response Plan was completed in August of 2015 by agencies including Blue Lake Fire and city manager, Fieldbrook Fire, Humboldt County Sheriff's Office and Office of Emergency Services, California Highway Patrol and the US Bureau of Land Management. The plan was adopted by the tribe on Sept 1, 2015. The tribe took the lead on the planning of this document. BLR is the only tribe involved.

Since November of 2014 BLR has had an agreement with the American Red Cross to serve as a shelter site available to evacuees and others in times of disaster. Due to this agreement the Rancheria is listed in the National Shelter Survey System.

The Tribe maintains facilities and services useful in emergencies and disasters, routinely made available to other jurisdictions, functions, and the public at large. These include:

- An emergency operations center
- Fire department
- Police department
- Shelter facilities with a capacity of approximately 400 people
- Fueling stations with as much as 30,000 gallons of gasoline, diesel, and LPG fuels
- A retail convenience store
- Tribal Court
- Five onsite diesel generators (80 kw – 1,000 kw)
- An indefinite supply of water.
- An independent electric microgrid based on solar power and battery capacity to provide reliable, long-endurance electrical power to these and other BLR facilities even when commercial power is interrupted. This proved to be an essential service during Public Safety Power Shutoffs in 2019, when facilities provided vehicle fuels, charging stations for personal communications devices, and climate-controlled respite centers. The Tribe has been credited with saving four lives of people dependent on powered medical devices who were housed in the hotel for the duration of the outage.

BLR has been active with Humboldt County Community Organizations Active in Disaster (COAD) to offer shelter and meals in times of disaster for several years. In early 2021 the Tribe agreed to serve as liaison between a reorganized COAD and the nine tribal entities in Humboldt County.

Specific consultation and coordination were conducted with other agencies with specific expertise or interest. To describe a few of those, Pacific Gas and Electric Company owns a decommissioned nuclear powerplant nearby and is responsible for Public Safety Power Shutoffs which cut power to large areas

when wildfire or weather conditions threaten the integrity and operation of transmission systems. Humboldt State University provided information on local seismic hazards. The Humboldt County Airports Department provided information on the airport in McKinleyville and its approaches.

Coordination with other agencies included meetings, telephone interviews, access to Web resources, correspondence related to identifying hazards, and involvement in drafting plan content. The maps of the Rancheria were created using the Humboldt County GIS and information taken from the following federal agency websites:

- Humboldt County GIS, Hazard Mitigation
  http://gis.co.humboldt.ca.us/Freeance/Client/PublicAccess1/index.html?appconfig=hazards
- FEMA Flood Map Service Center
  https://msc.fema.gov/portal/search?AddressQuery=428%20Chartin%20Road%2C%20Blue%20Lake%2C%20CA%2095525
- USGS Earthquakes Hazards Program
  http://earthquake.usgs.gov/hazards/products/conterminous/
- California State Department of Conservation, Landslides information
  http://www.quake.ca.gov/gmaps/WH/landslidemaps.htm

2.2 Program Integration

Requirement 201.7(c)(1)(iii) and (iv)*: [The plan shall:] [include] (iii) Review and incorporation, if appropriate, of existing plans, studies, and reports; and (iv) Be integrated to the extent possible with other ongoing tribal planning efforts as well as other FEMA programs and initiatives.*

2.2.1 Review and Integration of Existing Plans

The planning group conducted a content analysis of the BLR Tribal Multi-Hazard Mitigation Plan of 2015, focusing on content relevance, currency, and accuracy, new or possibly updated conditions or information, and lessons learned over the course of the plan lifecycle. A majority of the content warranted revision, both due to growth in tribal services and enterprises, and to significant changes in local hazards and risks. For example, planned power outages as a wildfire mitigation measure and the 2020 COVID-19 pandemic were unanticipated in 2015.

The 2014 Humboldt County Operational Area Hazard Mitigation Plan was consulted in development of this document, although that plan expired during the project. A 2019 update was submitted in January 2020, and the status is Final Pending Adoption.

The BLR 2015 Tribal Multi-Hazard Mitigation Plan (TMHMP) does live on within this update as a living document. Relevant content was brought forward ‘as is’, and where needed, updated as the jurisdiction, its hazards, threats, and planning concepts have evolved. This TMHMP was organized to reflect the most current mitigation planning guidance from federal and state agencies and to facilitate review and approval by FEMA.

At the community level, the TMHMP includes the entire BLR community. Threats and hazards include those that may occur outside of tribal lands, but impact its people, facilities, culture, and environment. Mitigation planning includes reduction of losses of infrastructure, functional and economic losses, as well as threats to human health and safety. The TMHMP was developed with consideration of current and long-range business and land use plans.

Mitigation planning also integrated with existing Tribal land use, building, and zoning ordinances and regulations in a manner that supports compliance and improves implementation of the ordinances. (BLR Ordinance 89-02: Rules to Govern the Use of Land within the Exterior Boundaries of the Blue Lake Rancheria, BLR Ordinance 95-08: Amendment of Ord 88-02 Building/Zoning for the Lands within the Exterior Boundaries of the Blue Lake Rancheria, BLR Ordinance 88-02: Adoption of Building/Zoning Ordinance for Lands within the Exterior Boundaries of the Blue Lake Rancheria). For example, BLR already requires that the first floor elevation of any new structures be a minimum of one-foot above the 1-percent flood like event water surface elevation (based on the BLR Casino Environmental Assessment, EAS June 2001), and BLR secured a Civil Engineer to established elevations and provided signature for Flood Elevation Certificates.

2.2.2 BLR TMHMP and Integration with the BLR Family of Plans

The TMHMP took into consideration the various existing plans pertaining to other components of the BLR. In that process, it was determined that a number of these plans should be identified as requiring updates, modifications and in a couple instances, the creation of plans not already on hand. The following is a current list of plans the BLR and its components require to best protect its people, resources, and the environment.

- Emergency Operations Plan (EOP) including the Blue Lake Casino emergency annex
- BLR Shelter Operations Plan
- BLR Multi Year Training and Exercise Plan
- R.S. Matthews Dam Failure Mad River Valley Response Plan
- Draft BLR Communications Plan (with FEMA's Office of Emergency Communications)
- BLR Fire Management Plan and Hazardous Fuels and Safety Zone Plan
- BLR Tribal Police Emergency Response Plans and Procedures
- BLR Spill Response Procedure
- Emergency Action Plans for the Blue Lake Hotel, Blue Lake Casino, and Rancheria lands

These plans are under development and scheduled for completion in 2021:
- BLR Cyber Security Plan
- BLR Hazardous Materials Plan
- BLR Evacuation Plan

The Tribal Emergency Operations Plan (TEOP) was used to include pre-disaster preparedness, disaster response, and post-disaster recovery for the update of the TMHMP for the Rancheria. Mitigation Planning included: 1) reduction of losses of infrastructure; 2) reduction of functional and economic losses; and 3) threats to human health and safety. The TMHMP update includes consideration of both current and long-range business and land use plans, existing land uses, including building, zoning and regulations/ordinances.

2.2.3 BLR TMHMP and FEMA Program Integration

As FEMA is the lead federal agency responsible for providing technical and financial assistance to Tribal governments for disaster planning and implementation, BLR coordination with that agency came in various forms. BLR coordinated most closely with FEMA Region 9 in the following ways:

- The BLR utilized FEMA HAZUS data to assist in profiling hazard events and developing loss estimates.
- The Rancheria coordinated with a number of FEMA mitigation staff, including Region 9 Tribal Liaison for questions, guidance and early plan review. This was essential for the plan's compliance with mitigation standards for Tribal plans, and to support approval.
- Recent FEMA integration included comprehensive on-site delivery of FEMA and consortium courses, hosted in-house by the Tribe, including:
    - The first ever tribal and rural offering of the Emergency Management Institute's four week Emergency Management Advanced Academy, concluding June 2019
    - PER 340 Active Threat Integrated Response Course, September 2019
    - Mitigation Planning for Tribes, October 2019
    - MGT 317 Disaster Management for Public Services, November 2019
    - MGT 341 Disaster Preparedness for Hospitals and Healthcare, November 2019
    - PER 375 Surviving an Active Shooter for all BLR staff, February 2020

Additional integration is planned with the U.S. Army Corps of Engineers for watershed development and resources.

Figure 2.2 students practice casualty care skills in PER 340 Active Threat Integrated Response Course conducted at the Sapphire Palace event center in September 2019.

- Deliveries of FEMA's ICS 300 Intermediate ICS for Expanding Incidents and ICS 400 Advanced ICS for General Staff and Complex Incidents were planned for in-house delivery for neighboring tribes and jurisdictions in March and April 2020, however were put on hold in response to COVID-19 precautions. One goal of those courses was to develop local

instructor availability. Both courses will be rescheduled when conditions allow, potentially summer of 2021.

The Tribe is integrated with three FEMA and two Department of Homeland Security mitigation programs, initiatives, and revenue sources as follows:

- Directly with the Tribal Homeland Security Grant Program through grant acquisition to create the Tribal Emergency Operations Plan (TEOP)
- Directly via hosting FEMA disaster mitigation training at the Rancheria
- Directly through FEMA's Hazard Mitigation Grant Program for development of this TMHMP update
- Directly with the National Incident Management System (NIMS) through ongoing compliance with County emergency management protocols and utilization of the Capability Assessment Support Tool (NIMCAST) in the development of this TMHMP.
- Indirectly with the Hazard Mitigation Grant Program (HMGP) that is funding the development of a Multi-Agency MHMP through County OES

As shown above, in most cases the Tribe's integration with State and Federal programs occurs indirectly through collaborative relationships between external entities whose disaster response service area includes the Rancheria. The level of direct integration between the Tribe and the programs above has increased through the development of this and other plans, compliance with NIMSCAST, and the Tribe's participation in the development of the County's Multi-Agency MHMP.

2.2.4 BLR TMHMP and Inter-Tribal Integration

Since 1983 BLR has reached out to neighboring tribal entities for joint training, planning, exercises, and other mitigation activities. The Tribe actively participates in these entities:

- The National Tribal Emergency Management Council (NTEMC)
- The Tribal Emergency Management Association (iTEMA)
- The California Governor's Office of Emergency Services Tribal Affairs program
- The Northern California Tribal Emergency Management Council (NC-TEMC), in which BLR has been integral to formation.

In 2019 BLR hosted the four-day FEMA course Mitigation for Tribal Governments. During the same year, the Tribe hosted the first tribal and rural iteration of FEMA's four-week National Emergency Management Advanced Academy.

Figure 2.3 FEMA Advanced Emergency Management Academy students at work during one of many small group activities

For BLR's TMHMP planning process, BLR invited these neighboring tribes:

Bear River Band	Elk Valley Rancheria	Hoopa Tribe
Karuk Tribe	Resighini Rancheria	Tolowa Dee Ni' Nation
Trinidad Rancheria	Wiyot Tribe	Yurok Tribe

Other integration includes regular invitations to neighboring tribes to participate in emergency management and mitigation training hosted at BLR and after-action reviews of local events and incidents.

3.0 PLANNING AREA DESCRIPTION

3.1 Project Location

The Blue Lake Rancheria is a Sovereign Indian Nation situated in the Mad River Valley on California's north coast. The Rancheria is bordered by unincorporated Humboldt County and the City of Blue Lake (2018 population 1,262). To the west are the city of Arcata at 6 miles and unincorporated McKinleyville at 10. To the southwest lies Eureka, both Humboldt County's seat and its largest city, at 16 miles. To the east are Trinity and Siskiyou Counties. The Rancheria lies 5 miles from the Pacific Ocean at an elevation of 68 to 75 feet above mean sea level.

3.1.1 Tribal Planning Area

Blue Lake Rancheria was established as a 32-acre reservation as "a refuge for homeless Indians" through a Presidential Executive Order on December 24, 1908. The Executive Order was designed to aid Native Americans displaced by the immigration of Europeans. On August 18, 1958, the U.S. Congress terminated the Blue Lake Rancheria pursuant to Public Law 85-671. As a result of Tillie Hardwick v. United States of America, the Blue Lake Rancheria was reinstated as a federally recognized tribe on December 15, 1983.

The planning area covered under this hazard mitigation plan consists of all parcels within the jurisdiction of the Tribe. Figure 3.6 shows the Tribal Lands and boundaries for the Rancheria, including both trust and fee lands. Hazards and threats were assessed based on their potential impacts on the Rancheria's area, resources and people, even when they are located outside of the jurisdiction.

The BLR is adjacent to the Mad River, which flows generally from east-northeast to northwest toward the Pacific Ocean.

For emergency management purposes, the Rancheria is located in California's Humboldt Operational Area, California Mutual Aid Region II, California OES Coastal Administrative Region and FEMA Region 9.

A site of cultural importance to the Tribe is located in a neighboring community. The Tribe has obtained the property and monitors it to preserve its condition and cultural value. Its location and other details are sensitive, and not provided in this document.

Nine other Tribal Nations are located within a few hours' drive, including Hoopa, Karuk, Tolowa Dee Ni' Nation, Wiyot, Yurok, Trinidad, Elk Valley, Resighini and Bear River tribes.

There are 19 tribes in the Northern California Region. BLR is centrally located among the other local tribes, and has established itself as a regional leader for inter-jurisdictional training and cooperation including those tribal entities and neighboring jurisdictions at local, state, and federal levels.

Blue Lake Tribal lands comprise 98.5 acres on the Rancheria proper, and the small parcel in a neighboring community obtained and maintained to protect its cultural significance.

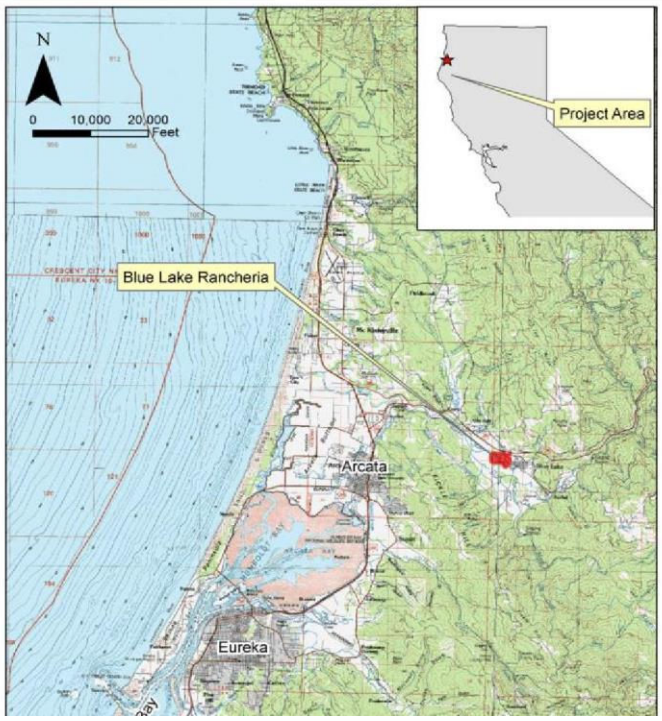


Figure 3.1 Blue Lake and vicinity

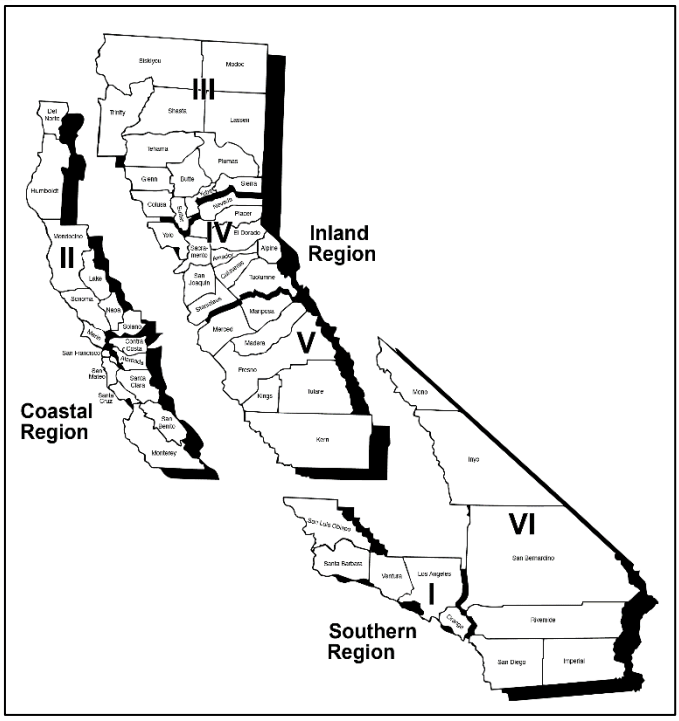


Figure 3.2 California Mutual Aid and Administrative Regions

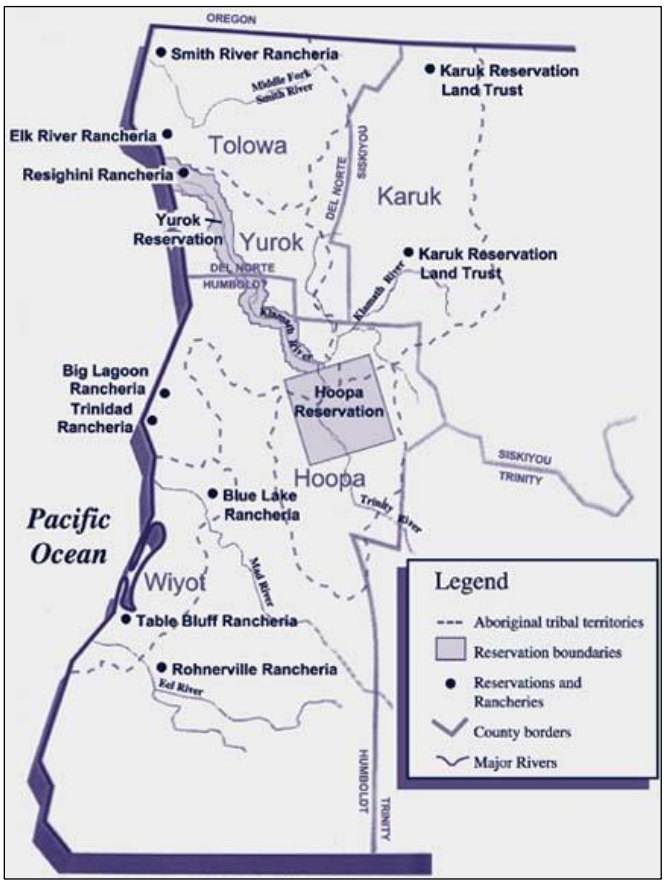


Figure 3.3 Northwest California Tribal Lands Northern California Indian Development Council

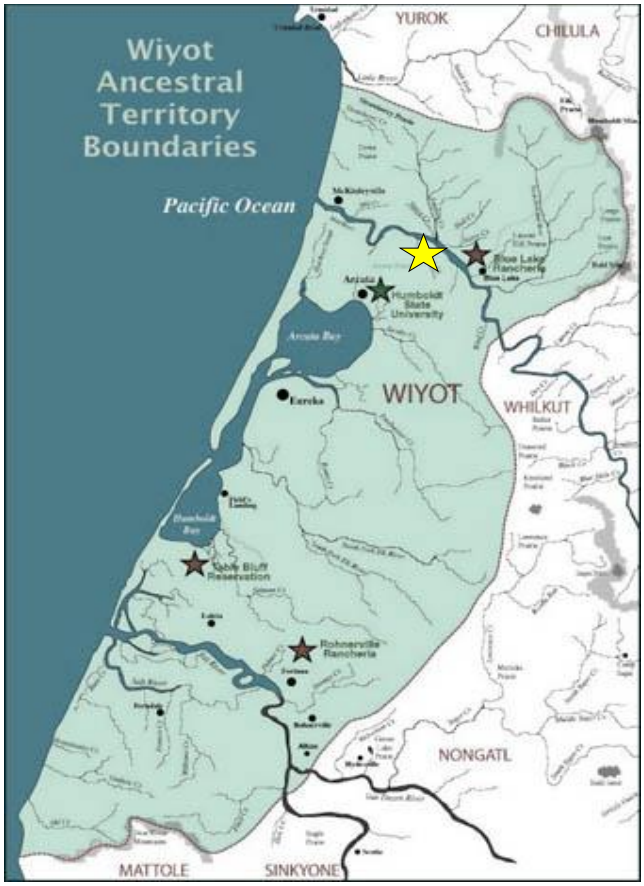


Figure 3.4 Wiyot ancestral territory

3. 2 Community Profile

The Rancheria is dedicated to the education, self-confidence, and upward mobility of its Tribal Members. Blue Lake Rancheria serves Wiyot area tribes including Blue Lake Rancheria, Bear River Band and the Wiyot Tribe, located in ancestral Wiyot territory. The tribe also includes members who are Tolowa, Hupa, Karuk, Yurok, Redwood Creek, and Cherokee Indians.

3.2.1 Tribal Goals

The first performance measures that BLR staff takes with regard to any program or facilities initiative here is the extent to which the program helps achieve goals defined by the BLR Tribal Council. The ten key goals established include:

Social

- Survival, safety, and health of tribal members, staff, and the public.
- Social justice for tribal members and all native peoples.
- Meaningful opportunities to participate in community life.

Economic

- Continuity of economic enterprise operations and reputations.
- Sustained economic prosperity, productivity and diversification.
- Development of meaningful employment opportunities.

Environmental

- Environmental justice for Indigenous people as co-managers of natural resources.
- Protection of air & water quality, and the health of the environment.
- 100 percent renewable power (zero GHG emissions).
- Sustainable resource use (water, materials, etc.)

The Tribal Business Council and the General Council have set as a priority the provision of education, social services, and community safety for tribal members and the Blue Lake Community as a whole. Decades of commitment to education, entrepreneurship, and philanthropy have brought a reputation as one of the most respected and prosperous tribes in Northern California.

Although this plan's focus is on the jurisdiction, people, resources and mitigation efforts of Blue Lake Rancheria, the Tribe is committed to continuing its efforts to work collaboratively with neighboring tribal entities, the City of Blue Lake, County of Humboldt, State of California, the U.S. Government, and other jurisdictions on matters of mutual interest and in particular emergency preparedness.

Currently comprising 94.58 acres of trust lands, and 3.95 acres of fee land, the Rancheria's land is used for residential, governmental, commercial, and open space purposes. A brief description of each type of land use is provided below.

3.2.2 Our People

To aid Natives displaced by the settlement of Euroamericans beginning in 1850, Blue Lake Rancheria was established as a 32-acre reservation for homeless Indians through an Executive Order on December 24, 1908, and then was unlawfully terminated on August 18, 1958.

Figure 3.5 Traditional Wiyot cap

The termination was determined an unjust act by the Congress of the United States. After a lawsuit that spanned decades, *Tillie Hardwick v. United States of America*, the Blue Lake Rancheria was reinstated as a federally recognized tribe on December 15, 1983.

Blue Lake Rancheria's lands lie within the aboriginal territory of the Wiyot people. Wiyot territory historically extended from Little River, north of McKinleyville along the north coast south to Bear River Ridge and inland 25 miles (Figure 3.4).

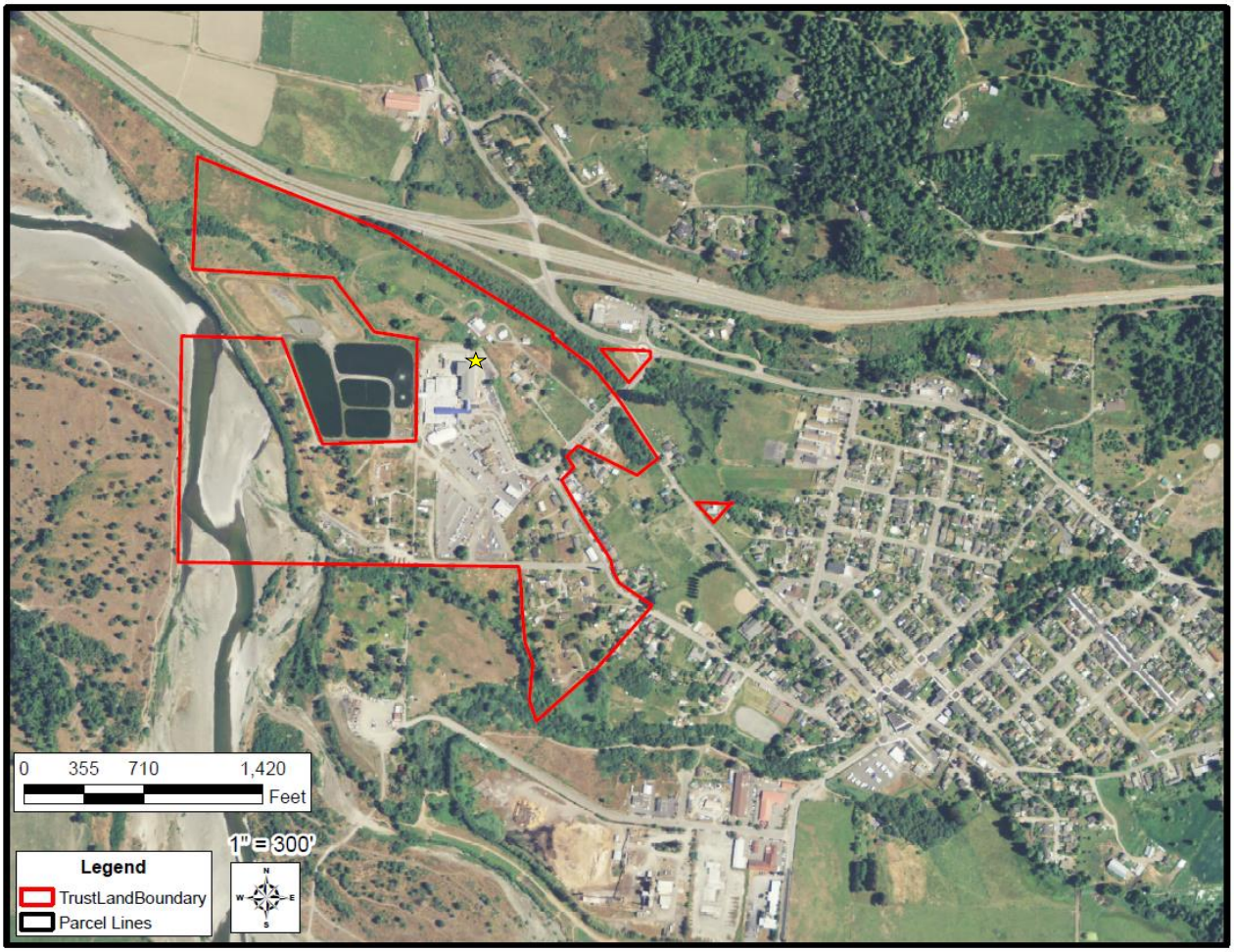


Figure 3.6 - BLR boundaries

Within this territory, there existed many hundreds of historic and prehistoric villages, ceremonial, burial and summer sites of the Wiyot Tribe. Of the three principal groups of Wiyot, the Mad River Wiyot were known as the Baduwa't, the Wiki on the Humboldt Bay and the Wiyat from the Eel River Delta. Wiyot is used in preference to the old name of "Whishosk".

Cultural heritage of the current members of the Blue Lake Rancheria includes Wiyot, Tolowa, Hupa, Karuk, Yurok, Redwood Creek and Cherokee Indians.

Demographic Data

The following figures are derived from U.S. Census Bureau estimates for 2014-2018.

Resident population: 97 as of March 2021

The 2016 tribal census reported the number of residents as 203, including tribal members, members of other tribes, and nontribal people. The number of tribal members living on the Rancheria has decreased over time but has seen a recent surge in members returning. 48% of Tribal Members are elders and children living on the Rancheria.

No significant seasonal fluctuations in Tribal or resident population have occurred.

Age:	N	%
Under 5	8	11.1%
5-9	2	2.8%
10-14	4	5.6%
15-19	2	2.8%
20-24	0	0.0%
25-34	11	15.3%
35-44	9	12.5%
45-54	14	19.4%
55-64	3	4.2%
65-74	12	16.7%
75-84	1	1.4%

Age Group:	N	%
18 & over	56	77.8%
65 & over	14	19.4%
85 & over	1	1.4%

Median Age	45.0

Sex:	Male 56.9	Female 43.1%

Disabled	N	% of Population	% of Disabled Population
Total	15	20.8%	
Under age18	2	2.8%	0.2%
18-64	6	8.3%	0.6%
Over 64	7	9.7%	0.6%

Mitigation planning significance: Factors such as population size, demographics, and access and functional needs must be reflected in preparedness strategies such as age- and culturally-appropriate

preparedness outreach and crisis communications. In response and recovery, these are factors in resource and action planning for evacuation, sheltering, mass care and feeding, and other essential actions.

Residence 1 Year Prior	N	% of Population
Same House	67	93.1%
Same County	2	2.8%
Residence Total	69	95.8%

Mitigation planning significance: Long-term residency suggests familiarity with local hazards, plans, resources, and a sense of community useful in pre-disaster preparedness programs.

Educational Attainment	%
High school graduate or higher	100.0%
Bachelor's degree or higher	24.5%

Mitigation planning significance: Understanding education levels guides development and delivery of preparedness strategies, materials, and methods.

Occupation	N	% of Employed
Employed 16 & over	47	
Management, business, science, & arts	13	27.7%
Service	14	29.8%
Sales & office	10	21.3%
Natural resources, construction, maintenance	2	4.3%
Production, transportation, material moving	8	17.0%

Industry	N	% of Employed
Arts, entertainment, recreation, accommodation & food services	17	36.2%
Public Administration	11	23.4%
Education, health care & social assistance	9	19.1%
Professional, scientific, management/ administration & waste management	3	6.4%
Transportation, warehousing & utilities	3	6.4%
Manufacturing	2	4.3%
Other, Except Public Administration	1	2.1%
Retail trade	1	2.1%

Class of Worker	N	% of Employed
Private	23	48.9%
Government	23	48.9%
Self Employed	1	2.1%

Mitigation planning significance: The extent and nature of employment in a community can help focus preparedness efforts, identify audiences for community readiness initiatives, and potential roles for community volunteers.

General Health and Social Factors for Native American Populations in Humboldt and Neighboring Counties:

United Indian Health Services (UIHS) reported these findings on the general health of the population. Note: these statistics are regional; BLR-specific data are unavailable.

- For 2020 county health rankings for the 58 counties in California, Humboldt County was ranked as 47.
- The 2018 Humboldt County Community Health Assessment stated the "most pronounced disparities are experienced by Native Americans. Native Americans in Humboldt County *will die an average of 12 years sooner than Caucasians*." AI mortality rates for cardiovascular disease and liver disease deaths for the 45-64 age range were approximately two times that of the total for Humboldt County rates. Diabetes-related deaths represented the third-highest rate in the AIs 65+ age group.
- Data specific to current United Indian Health Services (UIHS) active clients show these health issues deemed to put clients at a higher risk of developing other serious health problems:
    - 34% are considered obese, having BMI of 30 or higher.
    - 5% have pre-diabetes; 9% have Type 2 diabetes.
    - 44% have high blood pressure.
    - 10% have high cholesterol.
    - 13% have been identified as using tobacco products.
- Humboldt County has one of the state's highest rates of Adverse Childhood Experiences (ACEs), with 31% having scores of 4 or more on a scale of 0 to 10. An ACE score of 4 or more is considered high risk.
- Of UIHS clients 25 years and older in 2017-2018:
    - 14% had a diagnosis of generalized anxiety disorder.
    - 14% had a diagnosis of post-traumatic stress disorder.
    - 21% had a diagnosis of depression.
    - 37% had a diagnosis of substance abuse (alcohol, cannabis, opiates, amphetamines, tobacco, cocaine, and inhalants).
- According to the 2018 Humboldt County Community Health Assessment:
    - Humboldt County's diabetes-related deaths are more than 2 times higher for Native Americans than for the population as a whole.
    - The rate of unintentional injury and death from all causes in Humboldt is approximately twice that of California as a whole. The rate of unintentional injury and death in Humboldt's Native American population is substantially higher than both the county and state overall rates, which may be a contributing factor to a lower average age at death within the county's Native American communities.

    - The years of potential life lost is 3 1/2 times higher for Native Americans than for Caucasians, and more than twice that of the state overall for cirrhosis/ chronic liver disease.

- The Humboldt County Department of Health and Human Services reports that from 2012-2016, the highest rate of suicide was on both the neighboring Hupa and Yurok Indian Reservations with a rate of over 40 per 100,000 people. Historically, the Humboldt/Del Norte region has had higher rates of suicide at 24.8 per 100,000 people, compared to California's rate of 10.4 per 100,000 people in 2016.
- In Humboldt County children are placed into foster care at a rate over 2 times that of the state. Of those children, 35.7 percent were Native American, even though Native Americans make up only 7 percent of the population. Native American children also represent 30.9 percent of substantiated child abuse or neglect cases (California Child Welfare Indicators Project, 2015; National Indian Child Welfare Association, 2016; average 2013-2015).

3.2.3 Our Lands, Environment and Use

Climate

Located slightly inland along the Mad River, the characteristic heavy coastal fog is tempered so that the Tribe enjoys more hours of sunshine and warmer temperatures during summer than many neighboring communities.

The average temperature at the Tribe's weather station, 76 feet above sea level, is 59.5 °F. Winter temperatures vary between 41°F and 58°F. Summer temperatures on average vary between 48°F and 64°F. Temperatures are influenced by cold air masses that flow inland from the Pacific Ocean located 10 miles away.

The average rainfall on the Rancheria has historically been 3.37 inches per month, except for the last few years where drought has affected precipitation amounts. Precipitation traditionally occurs from December to April, with most of the precipitation associated with coastal storms of several days' duration and usually moderate intensity. The average annual winter precipitation on the Rancheria is 6.27 inches per month. Average monthly summer precipitation is 1.31 inches.

Topography, Geology and Soils

The entire Rancheria is located on a low floodplain terrace near a meandering bend of the Mad River. A detailed study of the area (Oscar Larson & Associates, 2000) found elevations in the Rancheria range from 68 to 75 feet above mean sea level (AMSL). The area is located in the Northern California Coastal Ranges and underlain by Jurassic and Cretaceous age marine sediments of the Franciscan Assemblage.

The Rancheria is located in a complex local tectonic environment with multiple seismic sources capable of producing strong ground motion. Any of four significant sources of earthquake generation could affect the Rancheria – the Cascadia Subduction Zone (CSZ), the San Andreas Fault system, interactions between the two known as the Mendocino Triple Junction, and the system of many

crustal faults inland close enough to cause casualties and damage to the Rancheria's infrastructure, enterprises, and residences.

The area's soils were classified predominantly as Ferndale silt loam, as well as areas of mixed fine and coarse materials, and are generally well drained to excessively well drained. The erosion hazard rating for these soils on gentle slopes is considered low. Due to high ground water, the potential for liquefaction effects in these soils during an earthquake is high.

Water Resources

The primary surface water feature on the Rancheria is the Mad River, which bisects the Rancheria holdings along the western edge. A review of 50 years of aerial photography indicates a general eastward lateral migration of the channel; however, since the construction of a levee upstream and installation of rock rip rap bank stabilization along the river's east bank, channel migration in the Rancheria reach now favors the west bank of the Mad River.

The Mad River Flood Protection Project is located near the confluence of the Mad River and the Mad River North Fork, along the right bank of each waterway for a total length of 1.6 miles, near the Hatchery Road bridge at the southern end of the city of Blue Lake. The levee was constructed in phases by the Army Corps of Engineers starting in 1954 and reaching completion in 1963. The levee is composed of an earthen embankment with rock-slope protection on the river side. Humboldt County and the City of Blue Lake share responsibility for levee operation and maintenance.

Another section of the levee near Tribal land was constructed in 1984.

The Rancheria is bordered by Dave Powers Creek to the south and an unnamed drainage channel to the north and east. The drainage channel may be a historic tributary of the Mad River.

Potable water is supplied by the Humboldt Bay Municipal Water District, entering the Rancheria via a pump station owned and operated by the City of Blue Lake. Potable water is used for residential and commercial purposes, with 200+ connections. The system includes approximately 2,000 feet of main lines; distribution line length has not been estimated. Plans for a SmartWater Grid include a smart-controlled, high efficiency water grid with 240,000 gallons of on-site storage.

Non-potable water is supplied by at least five production groundwater wells and one monitoring well on the Rancheria. Two of the wells are in use for individual residences. Non-potable water is used for small-scale sustainable agriculture and landscaping, with eight irrigation turnouts

Users are approximately 2,000 residents and visitors per day under normal conditions, with a potential to exceed 3,000 per day during emergencies and large scale events.

Current demand is 15,000 gallons per day, with slight growth over time. A 2017 document reports demand at half of the supply. Drought conditions or other emergencies may create shortfalls requiring use restrictions.

Biological Resources

The Rancheria sits on the floodplain of the Mad River. The dominant plant communities found in the surrounding region include the redwood, Douglas fir/tan oak, Sitka spruce, red alder, and black cottonwood series. Habitat types in the Rancheria include non-native annual grassland, riparian, and riverine aquatic. A 2020 review of Special Status species and regulated habitats was performed specifically for the Blue Lake Rancheria Tribal Justice Center project but is valid for the entire property due to its small size. The U.S. Fish and Wildlife Service (USFWS) noted that these protected species are present on the adjacent Mad River:

- Northern California Coastal Coho *(Oncorhychus kisutch)*
- California Coastal Chinook *(Oncorhynchus tshawytscha)*
- Northern California Coast Steelhead *(Oncorhynchus mykiss)*
- Bald Eagle *(Haliaeetus leucocephalus)*
- Willow Flycatcher *(Empidonax traillii)*

Both perennial and seasonal wetlands occur within the Rancheria holdings.

Waste Management and Hazardous Materials

Solid waste
Blue Lake Garbage collects and transports the Rancheria's solid waste to a Humboldt Waste Management Authority transfer station in Eureka, where it is ultimately transported to an out-of-county landfill.

Wastewater
The Rancheria uses a mixture of individual septic systems and city sewer hookups to manage wastewater.

Hazardous Materials
Blue Lake Rancheria has two fixed facilities with storage of hazardous materials in quantities that would be reportable under California Business Plan regulations. Although those requirements do not apply to sovereign tribal entities, those quantities are used here as a guideline.

A 2020 review of business plan data from the California Environmental Reporting System showed eleven locations with addresses in the adjacent city of Blue Lake and five in Korbel, two miles to the east, listed as having hazardous materials in reportable quantities. The Rancheria operates a gas station with storage for gasoline, diesel fuel and liquified petroleum gas.

For products in transportation, a 2020 hazardous materials commodity flow study assessed hazardous materials transportation on SR 299 and surface streets adjacent to the Rancheria. It revealed an average of nine placarded cargoes daily during peak hours of 7 AM to 7 PM weekdays, with 69.4% of those motor fuels, specifically gasoline, diesel fuel, and liquified petroleum gas in quantities large enough to require placarding, typically more than 1,001 pounds.

Another threat is illicit cannabis cultivation and production of Butane Honey Oil (BHO). Although the illegal nature of these enterprises makes detailed measurement difficult, it is known that large clandestine grows throughout California almost always use pesticides banned in the US, and disregard groundwater protection and responsible disposal of wastes. BHO extraction uses flammable gasses as a solvent, often resulting in explosion and fire.

Traffic and Transportation

The ground transportation network serving the Rancheria consists of several public streets on the Rancheria and several adjacent to the Rancheria within the jurisdictions of the County of Humboldt and the City of Blue Lake. In addition, the largest commercial parcel on the Rancheria, the Blue Lake Casino and Hotel, includes a 715-space parking lot, in which the drive aisles form an important transportation component.

One peak hour turning movement count was taken during the a.m. and one p.m. peak hours in February 2011; these volumes were estimated to represent 15% of the total daily traffic volumes for the respective roadways. It was found that 3,020 vehicles access the enterprises on the Rancheria daily.

Most members on the Rancheria have their own vehicles, while others access the daily public transportation of the Blue Lake Rancheria Transit System (BLRTS). BLRTS provides public transit to the communities of BLR, the City of Blue Lake, community of Glendale and City of Arcata. In 2019 BLRTS logged 11,049 riders.

Much higher traffic volumes and concentrations can occur surrounding a major event at the casino or event center, or as a result of an incident or event in neighboring areas that brings an influx of people seeking goods and services inaccessible elsewhere.

During the Public Safety Power Shutoff (PSPS) October 9, 2019 an estimated 10,000 people from affected communities converged on BLR for fuel, groceries, ice, hot meals, device charging, and other goods and services. This kind of influx is anticipated to be repeated whenever essential services are disrupted around Humboldt County and the region.

Utilities

Available utilities include electricity, natural gas, propane, and voice and data communications.

Commercial electric service and natural gas distribution are provided by Pacific Gas and Electric Company (PG&E). BLR operates a community-scale, low carbon solar-powered micro grid with battery storage and legacy diesel backup, as well as a facility-scale microgrid. Both are island-able from the regional grid and demonstrate energy resilience. The micro grids proved effective in maintaining service during PG&E's Public Safety Power Shutoffs in 2019 and 2020.

Propane is publicly available from one above ground tank; two additional tanks are used commercially by the mini-mart/gas station. Propane is generally delivered by Sequoia Gas or Blue Star Gas, both based in Arcata.

Landline telephone service is provided by AT&T. Voice over IP (VOIP) services are provided by AT&T and Suddenlink, however only AT&T is utilized by the Tribe.

Cellular service is accessible from AT&T Wireless, Verizon, US Cellular, and other providers, however the quality of service at the Rancheria is inconsistent.

Internet access is provided by Suddenlink (Altice) via both fiber and coaxial deliveries, and by AT&T. Satellite-based up-and down-links are available from several providers.

Television access is provided via cable by Suddenlink (Altice) and via satellite by several providers. Using an over-the-air antenna is estimated to receive two to five local stations, including affiliates of ABC, CBS, NBC, Fox, and PBS. Reception will depend on antenna type and location.

All services provided by AT&T are vulnerable to a single point of failure on the interconnection from the region. The single interconnection over the past 10 years has suffered multiple failures caused by fire, earthquake and other events along the US 101 corridor. During 2017 the fiber line fell onto the highway and was almost cut by road workers to allow traffic to pass, as AT&T was slow to respond. This was prevented by some urgent messaging between AT&T and the highway patrol.

Land Use

Housing	#	%		
Total housing units	33			
Occupied housing units	32	97.0%		
Homeowner vacancy rate	0	0.0%		
Rental vacancy rate	0	0.0%		
Owner-occupied	14	42.4%	Average household size	2.4
Renter-occupied	18	54.5%	Average household size	2.2
Overall	32	97.9%	Average household size	2.3

Median value of owner-occupied units	$187,500

The south and southwest portions of the Rancheria contain most of the population residing in wood-framed homes, seconded by more housing on the east side of the Rancheria residing in manufactured and older wooden homes.

Land use descriptions here have been updated for this iteration of the TMHMP in 2021. The Rancheria's residential area comprises roughly 25% of the total land, comprising:

Residence Type	2021	2015	2009
Wood-framed homes	7	11	16
Triple-wide manufactured homes	2	0	0
Double-wide manufactured homes	11	7	22
Single-wide manufactured homes	4	3	6
Recreational vehicles	5	3	--
Yurt	1	1	--

As of early 2021, six Tribal government buildings exist:

- Tribal Government and Justice Center including a community center, Tribal Court, police station, and emergency operations center, with occupancy planned for spring of 2021.
- Fire station (under construction as of April 2021)
- Gaming Commission Offices
- 2 Tribal warehouses
- Utilities barn

Structure Function	Count
Tribal Government building	6
Convenience store/gas station	1
Casino and event center	1
Hotel	1
Rental: mobile home	11
Rental: house	6
Rental: yurt	1
Carport/garage	2
Barn	2
Warehouse-distillery	1
Maintenance building	1
Microgrid project	1
Total	**36**

Also in 2021, construction is scheduled to begin on the Toma Resilience Campus, planned as a state-of-the-art 20,000 square foot venue to support regional resilience strategies including disaster preparedness.

The governmental and commercial buildings are generally located in the same area occupying roughly 20% of Rancheria lands. Upon completion of current construction that area will be an estimated 25%

The main commercial buildings on the Rancheria are part of the Blue Lake Casino complex. Adjacent to the casino are the 102-room Blue Lake Hotel and the Sapphire Palace Event Center. The casino houses three (3) restaurants in addition to its gaming areas.

A separate convenience store and gas station are located just south of the casino complex.

To the northwest from the casino complex lies the electric microgrid project.

48% of the Rancheria's land area is undeveloped open space, including the wide bed and banks of the Mad River and its riparian corridor, as well as relic agricultural fields and pastures in the interior of the Rancheria.

#	Description								
1	Microgrid Solar Array	6	Hotel	11	Food Sovereignty Program	16	Tribal Cemetery	21	Tribal Gov't Office & Tribal Justice Center
2	Toma Education Facility	7	Casino	12	Planned Apartment Building	17	Planned RV Park	22	Biodiesel Production Barn
3	Storage Barn	8	Storage Barn	13	Gaming Commission Office	18	Planned Hula Pavilion and Park	23	Utilities Barn
4	Business Offices	9	Events Center	14	Gas Station &	19	Landing Pad - USCG		
5	Maintenance Shop	10	Planned Elder Care Facility	15	Convenience Store	20	Fire Department		

Figure 3.5 Blue Lake Rancheria Tribal Lands and amenities Source: BLR OES

3.3 Future Development

The ultimate goal of planning at the Rancheria is the education and upward mobility of its Tribal Members. The successful operation of the gaming complex has increased the Tribe's capability to address this goal. However, there are still many unmet needs in the community, including upgrading aging infrastructure, expanding facilities for community health, welfare, and education, and the creation of a ceremonial and cultural area. Given the amount of undeveloped land on the Rancheria and presence of a somewhat stable hospitality industry, there are multiple opportunities for additional developments that will further meet these goals.

Some projects on the planning horizon are listed below and shown in Figure 3.5 above:

- SmartWater Grid
- Toma Resilience Campus
- Hula sports facility
- RV Park
- Elder Care Facility
- Further generation projects for utility power
- Agricultural projects
- Helipad

These projects will likely be impacted by the same hazards zones as existing development. Most significantly, wildfire and flooding hazards will need to be addressed in the planning, design and construction processes. The elder care facility and micro grid project lie in areas that have fuels and border possible ignition sources. The RV park is closer to the Mad River channel and its corresponding flood threat.

3.4 Economy

According to the Humboldt Economic Index produced by Humboldt State University, the county's future is less clear than U.S. estimates. The 2018 Humboldt County Comprehensive Economic Development Strategy (CEDS) reports that over the last 40 years, Humboldt County has experienced a dramatic restructuring of its economy. Historically, the local economy was built primarily on natural resource extraction, such as timber and fishing. These served as the county's export base, bringing in dollars that helped grow the rest of the economy. Environmental regulations, resource depletion and market changes, however, have prompted dramatic diversification.

These target industries were deemed to offer the greatest opportunity for the region's residents:

- Diversified health care
- Specialty food, flowers and beverages
- Building and systems construction
- Investment support services
- Management and innovation services
- Niche manufacturing
- Forest products
- Tourism

Alternative agriculture, including cannabis cultivation and processing, is described in the HCCDS as a major aspect of the Humboldt County economy for more than 50 years, with economic contributions estimated in the hundreds of millions of dollars. Recent changes in pertinent California law, tax structure and regulations have had mixed impacts on the county's economy, and the future effects are difficult to predict.

Effects on the Rancheria's enterprises and economy could be affected by the prosperity of the county and region, related tourism, and casual through traffic. One of the county's strategies for developing opportunity in alternative agriculture includes creating trade shows and other events which could focus on research and education, a function the Rancheria is already well positioned to fulfill.

13% of the Tribal Members and 100% of non-members residing on the Blue Lake Rancheria are employed by the Tribe. The last decades have seen a transformation of the regional economy and an exodus of tribal members and local residents as lumber and fishing jobs diminished. The Tribe's economic development has provided a much-needed source for sustainable jobs at many income levels.

BLR has developed a very strong local economy through hospitality and tourism, sustaining the construction industry in expanding related facilities, expanded scientific and regulatory positions within the tribal government, and expanded into both natural resource extraction and manufacturing industries to diversify the economy. The tribe has received national attention for these efforts, particularly with regard to energy initiatives.

3.5 Tribal Government

3.5.1 Tribal Government Overview

The Tribal Government is dedicated to the education, self-confidence, and upward mobility of Tribal Members. The Business and General Council have placed education and social services as a priority for Tribal Members and Blue Lake Community as a whole. Since the end of 1983, the Tribe have worked hard and achieved remarkable success in education, entrepreneurship, and philanthropy.

The Blue Lake Rancheria Tribe is a sovereign nation that exercises jurisdiction over its Tribal lands and Tribal members. The Tribe is organized under an IRA constitution and has the authority to administer programs designed to meet the needs of residents on the Blue Lake Rancheria, largely through a PL 93-638 Self Determination Contract, and the operation of its economic development corporation. Departments of the Blue Lake Rancheria include:

- Communications
- Cultural Affairs
- Economic Development
- Education
- Emergency Services
- Energy
- Environmental Programs
- Finance
- Fire
- Gaming Commission
- Grants & Contracts
- Information Technology
- Nutrition
- Police
- Public Works
- Transportation

Revenue is generated by the Tribe's Blue Lake Casino, Blue Lake Hotel, and Play Station 777 convenience store and gas station, as well as other smaller economic enterprises.

The Tribe's economic enterprises support hundreds of local jobs, government operations and programs, economic diversification, resilience and sustainability efforts, environmental protection, and a wide array of social services.

The Blue Lake Rancheria Education Foundation, founded in 2002, seeks to channel the success of the Blue Lake Rancheria's business operations into widespread community involvement and investment. The Foundation seeks partnerships with other tribes across California as well as non-Indian local, national, and international organizations, in order to ensure that advances in Indian Country and for other under-privileged and under-represented groups continue to grow.

The Tribe maintains a network of federal, state, local and tribal agencies to stay on the leading edge regarding environmental issues. The Tribe manages a U.S. Environmental Protection Agency GAP Grant stipulated for environmental infrastructure development.

Since 2013 the Tribe has accelerated transition to a zero carbon community. The Rancheria took a step towards energy independence when its low carbon electric micro-grid became operational. The microgrid includes the largest solar array in Humboldt County, providing power to the entire reservation and allowing the tribe to provide essential goods and services to its members, residents, and thousands of others during recent California outages.

Figure 3.6 Blue Lake Rancheria Organizational Structure

3.5.2 Emergency Services

In 2010 Tribal Council Resolution 10-20 authorized establishment of the Blue Lake Rancheria Office of Emergency Services, including wildland fire and law enforcement. Emergency management is planned and coordinated by the Blue Lake Rancheria Office of Emergency Services, staffed by a paid director and an emergency management coordinator.

BLR OES has emerged as a regional leader in tribal emergency planning, hosting training from subject matter experts across the U.S., and including neighboring tribes and other jurisdictions in training, planning, and other preparedness efforts.

3.5.3 Law Enforcement

The Blue Lake Rancheria Tribal Police Department provides primary law enforcement services. Established in 2015 and federally commissioned in 2019, as of September 2020 the department is authorized four sworn positions, including a chief and a sergeant. At that time, one of its sworn officers was cross-deputized as a Humboldt County Sheriff's deputy.

An additional nine Tribal employees are trained and authorized as tribal police reserve officers. Their status is approximately equivalent to California Peace Officer Standards and Training (POST) Level 3 reserve officers.

Equipment includes two patrol vehicles, including an off-road utility vehicle providing access to areas of the property otherwise accessible only on foot. Other equipment obtained in the past five years includes ballistic vests and helmets, other safety gear, and training aids.

A purpose-built police station is included in the new Tribal Justice Center. It includes office spaces, interview/holding room, records room, secure evidence storage, processing/reports, and an armory.

BLR enjoys a cooperative working relationship with the Humboldt County Sheriff's Office, California Highway Patrol, and other law enforcement agencies. These are authorized to operate on Tribal lands under Public Law 280. Specific cooperation includes the cross-deputization of Tribal police officers with the Sheriff's Office and a 2021 memorandum of understanding with the California Highway Patrol for documentation of collision reports on Tribal lands.

Prior to 2002 the City of Blue Lake had its own police department. Since its dissolution, the City and surrounding unincorporated areas have been served by the Humboldt County Sheriff's Office; no deputies are routinely stationed there, and response times suffered accordingly.

In the past five years the Blue Lake Tribal Police Department has responded to a wide variety of calls, including crimes more commonly expected in much larger jurisdictions:

- Bomb threats and suspected destructive devices
- Threats against tribal members, employees, and guests
- Domestic violence and workplace violence
- Drug trafficking and possession
- Robbery
- Property crimes
- Non-criminal responses including support for major events on the jurisdiction, and the major influx of evacuees seeking goods and services during the 2019 Public Safety Power Shutoffs.

Significant achievements since 2015 include becoming commissioned by the Federal Special Law Enforcement Commission in 2019, the cross deputization program in 2018, and becoming the first tribal law enforcement agency in California to meet the requirements for direct access to the California Law Enforcement Telecommunications System (CLETS) in 2018. This system allows the tribe to access state and national databases for criminal histories, driver records and other information.

In 2020 the Tribe trained virtually 100% of its workforce in active threat response.

Tribal Police goals and plans for 2021 through 2026 include:

- Fill vacant sworn positions and cross-deputize all
- Continue to develop and enhance the officer training program
- Continue to expand outreach training efforts for law enforcement, other tribal entities, other emergency services, tribal members, and the public at large.

3.5.4 Fire and Rescue Services

The Blue Lake Rancheria Fire Department (BLRFD) provides primary services, with informal automatic/mutual aid from the California Department of Forestry and Fire Protection (CalFire), the City of Blue Lake Volunteer Fire Department (BLVFD), and other neighboring agencies. BLRFD is a member of the joint Humboldt/Del Norte Hazardous Materials Response Authority.

A new BLR fire station is planned for completion in 2021, adjacent to the new Tribal office building.

Figure 3.6 BLR fire station shown under construction in April 2021.

Current staffing comprises a full time paid fire chief, who is also a California hazardous materials specialist, and a recently vacated paid battalion chief position. Discussion is under way to determine whether to fill the vacancy with another battalion chief or three shift captains. Volunteers number 18, including 2 captains and 2 Emergency Medical Technicians.

Equipment is a Type 1 structure engine, a Type 3 wildland engine, and a quint ladder truck with a 100-foot platform. Near-future plans include a utility vehicle and hazardous materials training trailer.

Fire Department goals and plans include:

- Occupy the new station and consolidate equipment and supplies there
- Establish a public safety dispatch center or agreement with an existing center
- Establish 3 paid captain positions to provide 24/7 coverage
- Establish a continuous National Fire Protection Association (NFPA) training program, ultimately with in-house instructors
- Replace the older Type 1 engine
- Establish a cache of equipment and supplies for multi casualty incidents

3.5.5 Emergency Medical Services

Emergency Medical Services include non-transport first response from BLR Fire, with 2 Emergency Medical Technicians. Ambulance service is provided by Arcata-Mad River Ambulance, operating 24-hour paramedic service with a typical response time to the Rancheria of 10 minutes. Mad River Community Hospital in Arcata (6.2 miles from BLR) provides 24-hour emergency service with a physician on site. It is credentialed as a Level IV trauma center and Emergency Department Approved for Pediatrics. St. Joseph's Hospital in Eureka (17 miles from BLR) provides 24-hour emergency service and is designated as a Level III trauma center. Emergency helicopter transportation is available from by the US Coast Guard stationed in McKinleyville, CA. An agreement is being developed with the Coast Guard to add a helicopter pad on the BLR campus.

3.5.6 Volunteer Emergency Resources

In addition to a cadre of volunteer firefighters and EMTs, volunteer emergency response resources include a 2016 program established by BLR OES to train and supply Tribal Emergency Response Team (TERT) volunteers in a variety of immediate emergency response skills such as casualty care, light rescue, small firefighting, and disaster mental health. All TERT volunteers must also be trained through FEMA's ICS 400 Advanced level.

In 2021 BLR accepted responsibility to host and maintain an equipment and incident support trailer for training regional tribal volunteers using Community Emergency Response Team (CERT) curriculum throughout Northern California in partnership with iTEMA and LISTOS California.

Figure 3.7 iTEMA CERT equipment and training trailer housed and maintained by BLR for responses throughout Northern California

The Rancheria has become a regional center for public safety and emergency preparedness training, drawing attendees from all over the Western U.S. In 2019 alone, the Tribe hosted 28 courses, including 14 relevant to law enforcement and three restricted to law enforcement agencies.

Law enforcement-specific subjects included:

- Combatting human trafficking
- Criminal investigation
- Asset forfeiture/money laundering

For calendar year 2019 BLR's Resiliency Training and Innovation Center hosted 28 distinct emergency preparedness and public safety courses totaling 595 presentation hours, 710 students, and 15,594 student hours.

- The Emergency Management Institute's four week Emergency Management Advanced Academy
- Active Threat Integrated Response Course
- Mitigation Planning for Tribes
- Disaster Management for Public Services
- Disaster Preparedness for Hospitals and Healthcare

Before the COVID-19 pandemic forced curtailment of live training, the center hosted the Department of Homeland Security course Surviving an Active Shooter for all 331 BLR staff in February of 2020. Other courses delivered that year included:

- Field Force Operations
- Field Force Extrication Tactics
- Homicide Investigation

3.5.7 Mitigation Benefits of Tribal Ordinances, Policies, Programs and Resources

The Blue Lake Rancheria Tribe has enacted a number of measures that have yielded benefits to emergency preparedness and hazard mitigation efforts.

Over the past decade the Tribe has implemented, maintained, and improved dozens of programs that enhance the whole community's preparedness for all emergencies, Tribal Government's ability to protect the people, resources, and environment of the Tribe, and emergency services' collaboration with neighboring tribal and non-Indian agencies.

Nearly all of these efforts mitigate the hazards in and around the rancheria by emphasizing whole community preparedness, quality emergency services, interoperability among neighboring jurisdictions and agencies, and proactive governance that recognizes the area's hazards and risks.

The score indicates an assessment of each measure's mitigation benefits on a scale from 0 (not at all beneficial) to 5 (extremely beneficial) as determined by BLR OES.

Measure	Mitigation Benefits	Score
Ordinances and Resolutions		
88-01 Use of Guns, Explosives and Fireworks	Allows enforcement of use of dangerous devices	5
88-02 Building and Zoning	Adopted state and federal standards to improve the safety of buildings	5
88-05 Prevention and Control of Fire	Allows enforcement of fire protective measures	4
00-01 Air Quality	Reduces airborne pollutants at the Rancheria	3
00-02 Environmental Policy	Protects Tribal interests in environmental issues	5
00-03 Health and Sanitation	Protects the health of Tribal members, residents and the environment	4
00-05 Pesticide Control	Mitigate the improper use of pesticides, previously a serious threat to Tribal members and visitors	4
00-06 Solid Waste Disposal and Waste Reduction	Protects the Tribal environment from uncontrolled disposal of solid and hazardous wastes	4
00-07 Water Quality	Eliminates discharges of pollutants and protects local wetlands	5
00-11 Americans with Disability Act	Applies ADA standards to Tribal facilities and operations, increasing safety during evacuation	5
10-20 Office of Emergency Services	Authorized establishment of BLR's Office of Emergency Services, Police and Fire departments	5
11-02 Establishment of BLR Police Department	Provides for a full range of police services including crime prevention, enforcement, intervention, and investigation of Tribal, State, and Federal law	4
12-01 Orders restraining domestic violence	Provides for prevention of violence and protection of Indians on the Rancheria, particularly children	3
13-02 Establishment of a Department of Energy and Technologies	Provided for the establishment of the BLR microgrid, reducing reliance on commercial power	5
Policies		
Housing policies	Require annual inspection of all Tribal housing	4
Fire Safety	Requires fire inspections prior to any event	5
Information Technologies	Establish mechanisms to secure data systems and information from malicious intrusions, insider threats and events	4
COVID-19 Response Annex	Reduces the risk of transmission and supports rapid assessment and response to active outbreaks	5

Table 3.1 Mitigation effects of Tribal ordinances, policies, programs and resources

Measure	Mitigation Benefits	Score
Programs		
Community Emergency Preparedness	• Provides outreach and training to BLR members, residents & staff • Provides emergency kits, water filters, and other preparedness items	5
Tribal Emergency Response Team (TERT)	• Provides emergency response training suitable to serve individuals, families, neighborhoods, or the full community • Provides hosting of one of two TERT training trailers in the State of California	5
Resiliency Training & Innovation Center	• Provides a comprehensive range of emergency management training for local members and staff, other tribal entities, and emergency responders	5
Annual Elders Luncheons	• These annual events have included personal and family preparedness presentations since 2018	4
Fire Safety	• Provides annual inspections and refills of fire extinguishers for all residents, employees, and Elder nutrition clients • Train all 8th graders in operation and use of fire extinguishers from local school	4
Resources		
Tribal Emergency Response Team trailer	• Housed and maintained by BLR, this resource provides equipment, supplies, and facilities for training TERT and CERT courses throughout Northern California	5
Sapphire Palace event center	• This large facility is often provided for emergency preparedness, response, and mitigation training and exercises • Annual Elders Luncheon held in the facility provide personal preparedness information to the community	5
Blue Lake Hotel	• Provides emergency shelter, community support center, device charging, and other services to evacuees	4
Social Media	• Provides updates to community of what resources are available at BLR to the community	5

Table 3.1 Mitigation benefits of Tribal ordinances, policies, programs and resources (continued)

3.6 Integration of Mitigation Partners

Hazard mitigation is a responsibility shared throughout the Tribe. All BLR government departments are expected to participate as practical in whole community mitigation activities. Where those activities fall within the duties or expertise of a department, it is expected that they will accept a lead role or offer technical guidance. These Tribal sectors and functions were involved in development of this mitigation plan, and will be partners in its implementation:

- Communications
- Cultural Affairs
- Economic Development
- Education
- Emergency Services
- Energy
- Environmental Programs
- Finance
- Fire
- Gaming Commission
- Grants & Contracts
- Health & Social Services
- Housing
- Information Technology
- Nutrition
- Police
- Public Works
- Transportation

Emergency management is handled by the BLR Office of Emergency Services. Collaboration with the Humboldt County Operational Area, TEMC, iTEMA, and all local tribes supports integrated efforts before, during, and after an emergency or disaster.

Economic development is handled by the Tribe's own department and as a function of the Northern California Tribal Chairperson's Association, currently applying for a Section 17 status for joint economic projects in the future.

Land use development oversight includes the Tribe's environmental programs and participation in a BIA Fee to Trust Consortium to discuss issues and collaborate for success.

Housing is managed within the Tribe for rental housing, home ownership and home loans.

Health and social services are provided in active coordination with United Indian Health Services, a consortium of BLR and other tribes in Humboldt and Del Norte Counties. In 2020 and 2021 COVID-19 testing and vaccination projects highlighted the close and effective working relationship. Social services emphasize youth, education, and elders. Plans are under way for construction of new educational, recreational, and assisted living facilities and a health clinic.

The Tribe's nutrition program prepares and delivers meals to clients on the Rancheria and in neighboring communities. The Tribe prepared more than 24,000 meals for delivery to those with food insecurity during 2020's COVID-19 pandemic.

Infrastructure includes the Rancheria's roads, electric microgrid, water and wastewater systems. The Tribe's transportation group manages the roads. The electric utility is managed by the Tribe's own energy unit, working with the US Department of Energy and California's Energy Commission and Public Utilities Commission. Water and wastewater are managed under an MOU with the City of Blue Lake. A project is under way to increase BLR's potable water independence and resilience.

Natural and cultural resources are managed by the Tribe's own environmental programs and Tribal Historic Preservation Officer, a member of the National Association for THPOs, the Society for California Archaeology, the Institute for Tribal Environmental Professionals and the California Indian Environmental Alliance.

BLR has a longstanding, cordial, and effective emergency management relationship with tribes, jurisdictions, and organizations throughout Northern California and beyond. Tribal resources routinely shared with mitigation partners include the Resilience Training and Innovation Center, training and exercise venues, and staff. In 2019 BLR hosted 28 mitigation and emergency management courses from 14 different federal, state, and academic programs, welcoming 710 students for 15, 594 student hours. Those students came from agencies scattered across the Pacific.

As demonstrated in Table 2.2 on pages 2-4 and 2-5, integration with neighboring tribes, jurisdictions and organizations is embraced by BLR. For mitigation purposes, collaboration will typically include invitations to:

- California Department of Transportation
- California Forestry and Fire Protection
- California Highway Patrol
- California Office of Emergency Services
- FEMA Tribal Liaisons
- Humboldt County Airports
- Humboldt County Environmental Health
- Humboldt County Health & Human Services

- Humboldt County Sheriff and OES
- Humboldt State University
- All nine neighboring tribes
- National Weather Service, Eureka
- Neighboring cities and special districts
- Regional Hazmat Response Team
- U.S. Coast Guard

Other agencies, organizations and individuals have offered their expertise and services in support of BLR's mitigation efforts. These will be called upon when the subject matter, potential hazard impacts or interests are involved.

3.7 Hazards History

The Blue Lake Rancheria is located at the base of California's North Coastal Ranges. This area experiences a high rate of erosion and recurring flood events due to high annual precipitation, ranging between 40 and 80 inches, and frequent heavy rain and snow in the upper portions of the watershed. The Rancheria is located on the low fluvial floodplain terrace approximately 1,000 feet east of a bend of the Mad River. The property is relatively flat with very little sloping and ranges from 68 feet to 75 feet in elevation. Blue Lake Rancheria lies within the hazard area of several major earthquake faults that are active on a weekly basis and capable of producing catastrophic seismic events.

The Mad River Wiyot, also known as the Baduwa't, have lived in active floodplains within one of the State's most seismically active watersheds for many thousands of years and have naturally been engaged in some form of natural hazard mitigation planning. The ancestral Wiyot may simply have thought of risk assessment and hazard planning as exercising "common sense" while modern day Wiyot operate within a much more complex regulatory environment. In either the ancestral or modern case, the primary goal of natural hazard mitigation planning has probably not changed substantially: to reduce or eliminate the loss of life and resource damage resulting from natural disasters.

Due to its geology, geography, topography, climate, and land use, Blue Lake Rancheria is susceptible to multiple natural disasters, such as frequent flooding, earthquakes, severe storms, and, to a lesser extent, wildfire, freezing, and landslides. Human-caused and technological hazards include dam failure with subsequent inundation, sustained utility disruptions, hazardous materials releases, and criminal/terrorist acts.

A detailed assessment of the risks posed by natural, technological, and human-caused disasters is the subject of this Multi-Hazard Mitigation Plan. The Tribal Business Council of the Blue Lake Rancheria has determined that developing a Multi-Hazard Mitigation Plan is an essential undertaking to better safeguard the people, business enterprises, and natural resources of the Blue Lake Rancheria.

4.0 – HAZARD IDENTIFICATION & RISK ASSESSMENT

201.7(c)(2): *[The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Tribal risk assessments must provide sufficient information to enable the Indian Tribal government to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

4.1 Hazard Identification

Requirement 201.7(c)(2)(i): *The risk assessment shall include a description of the type … of all natural hazards that can affect the tribal planning area.*

Because the Rancheria is vulnerable to natural and human-caused hazards, and combined or cascading emergencies involving both, the Tribe opted to include both in this plan. Technological hazards are included within the human-caused category, as the threats, vulnerabilities, impacts, and mitigation measures share much in common. Criminal and terrorism hazards are combined, as the differences are often limited to perpetrators' motivation, with little appreciable difference in vulnerability or mitigation.

Because the climate crisis is increasingly understood to contribute to the nature, magnitude, and effects of many local, regional, national, and global hazards, this section leads off with a discussion of that factor.

Table 4.X lists potential impacts and response complications for the hazards identified by the mitigation planning process, listed in order of their overall scores (severity + probability).

Hazard	Potential Impact on Response and Recovery Operations
1. Earthquake	• High incidence of blunt and penetrating trauma and secondary medical emergencies • Structural and non-structural damage to fixed facilities including government, emergency services, healthcare, schools and residences • May require evacuation of entire facilities • Impaired ground transportation • Disruption of utilities • Risk of fire, landslide, dam failure • Displaced populations may be reluctant to accept shelter indoors
2. Wildfire	• Threatened, damaged, or destroyed fixed facilities including schools, healthcare services and emergency services • May require evacuation of entire communities and/or schools, medical facilities and key public facilities • Impaired land transportation • Air quality can cause health problems for vulnerable populations well outside of the area threatened by the fire itself • Fire suppression needs may limit personnel availability for emergency medical response • Hazardous conditions for field responders • May be sustained for several weeks or until significant rainstorms occur

Table 4.1 Hazards and their impacts on response and recovery operations

Hazard	Potential Impact on Response and Recovery Operations
3. Public health event/infectious disease outbreak (Including bioterrorism)	• Delayed onset of discovery and signs/symptoms • Initial impact on non-emergency services, such as doctors' offices and clinics • May deplete staffing of response entities and ability to receive and manage essential goods and services • Saturation of healthcare facilities may require establishment of ad hoc facilities or many transfers outside of the jurisdiction and region • Positive identification of the infectious agent may be delayed for several days • Impact in large areas outside of the county may result in delays in notification and action
4. Severe storm	• Physical damage or destruction to key facilities including schools, healthcare, communications, and emergency services sites • Disruption of emergency communications • Damage or destruction of numerous homes, business and other structures, with potential for injury and death • Disruption of utilities, potentially lasting several days • Impaired and hazardous land transportation • Grounding of air transportation • Hazardous conditions for field responders • May cause hazardous materials releases and fires • May be sustained for several days
5. Flood including dam failure and seiche	• May be rapid in onset or development • Impaired land transportation • Closure or diminished functionality of some fixed facilities • Disruption of utilities • May require evacuation of medical facilities • Ongoing hazardous conditions for field responders • May interfere with emergency personnel reporting for duty • May cause hazardous materials releases • May be sustained for several days
6. Influx of evacuees	• May occur with little or no notice • Likely to tax limited personnel and other resources • Rationing of goods and services may be necessary and may generate uncooperative response from some evacuees • May create competition for resources intended for the local community
7. Drought	• Increased number, intensity, and lethality of wildfires and their hazards • Possible impacts on drinking water supplies • Gradual onset may make it difficult for leadership to initiate an emergency declaration and response actions • Impacts on agriculture, dependent businesses, and native species of plants, trees, and animals
8. Sustained power outage	• May impact power in essential facilities • May disrupt emergency communications • May disrupt street lighting, creating hazardous traffic and working conditions for responders • May create high demands for service particularly for those with access and functional needs, both in residences and facilities

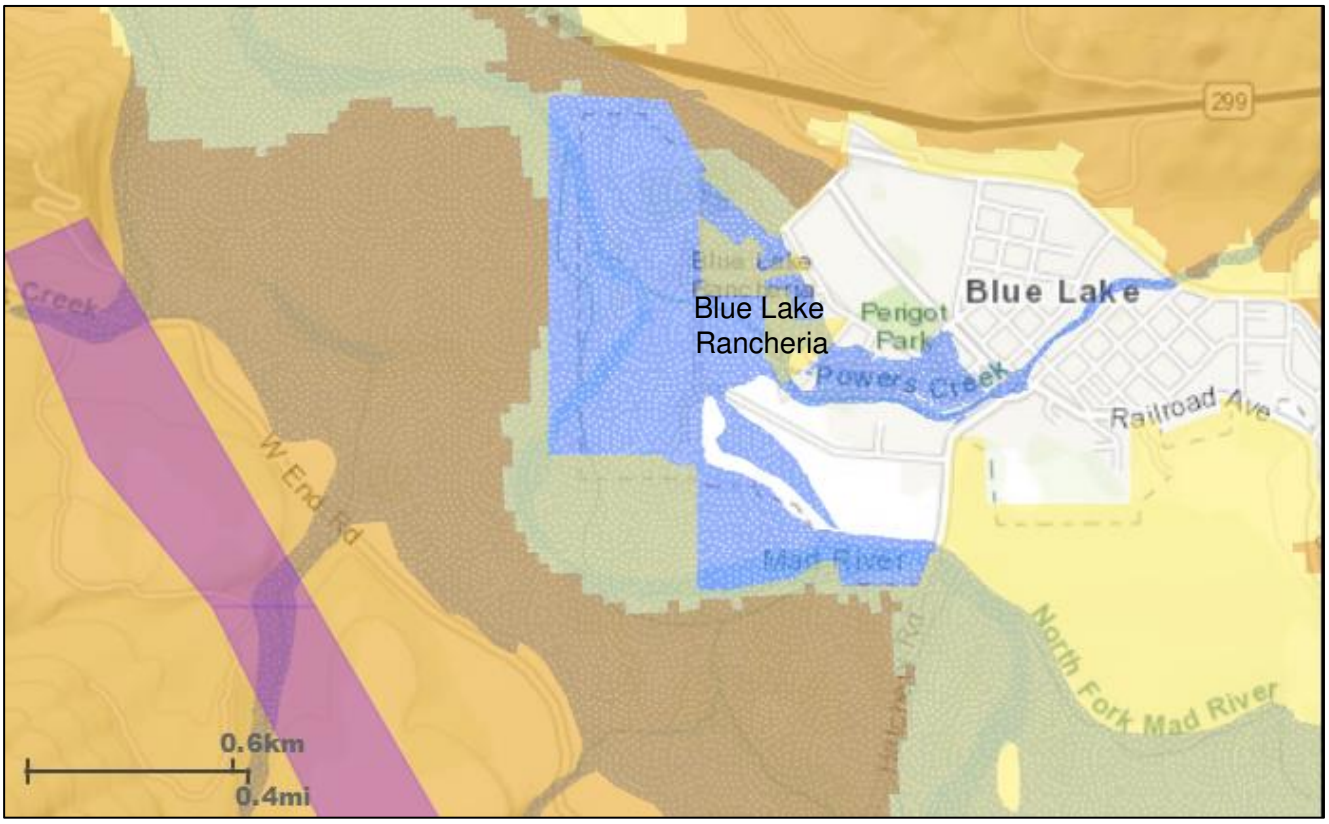
Table 4.1 Hazards and their impacts on response and recovery operations (continued)

Hazard	Potential Impact on Response and Recovery Operations
9. Criminal or terrorist act	• May not be identified as a deliberate act early in the response • Highly complex response involving many agencies and disciplines • May take many forms—arson, explosion, chemical, radiological, biological or a combination • Need for evidence preservation may complicate response • High risk of one or more sequential event targeting responders
10. Hazardous materials release (fixed and in transportation)	• May require evacuation of schools, healthcare facilities and large facilities and open areas • May require closure of major transportation routes • Safe access by responders may be severely limited • Behavior of unknown and mixed commodities may be highly unpredictable • Changes in weather may require major changes in the response tactics • High incidence of "worried well" and psychosomatic presentations for care • May be sustained for a day or more • Criminal/terrorist acts may include sequential devices or booby traps to impact response operations Mass contamination or exposure may add: • May require specialized monitoring and/or mass decontamination • May generate large numbers of casualties, potentially with high acuities and/or delayed onset of signs and symptoms • Will require a high level of public information, possibly including technical information on exposure prevention, decontamination, and lay patient care • May require transportation and shelter for large populations Suspected radiological agent involvement may add: • Likely to cause widespread public fear and very high demand for public information • May require transportation and shelter for large numbers of impacted and concerned people • May require specialized monitoring and assessment of the public, response personnel, equipment, facilities, and other property • Will generate high media interest
11. Air or water quality event	• Potential impacts to drinking water • Hazardous conditions for field responders • May be sustained for days or weeks • May require specialized response resources likely to be in high demand during a large event • Potential to cover a large area • Even a distant volcanic eruption could result in hazardous air quality from gasses and particulate fallout

Table 4.1 Hazards and their impacts on response and recovery operations (continued)

Hazard	Potential Impact on Response and Recovery Operations
12. Aircraft crash (commercial or military)	• Potential for up to a hundred casualties, possibly including both injuries and fatalities • Uncontrolled presence of fuel and other hazardous materials • High potential for fire • High acuity of injured • Potential to cover a large area, including several impact points • Will generate high media interest In the case of military aircraft, all of the above PLUS: • May involve live ordnance, hydrazine and other highly hazardous materials • May include explosive escape devices, e.g., canopies and ejection seats • May involve classified equipment and/or cargo; will require cooperation with military and possible Department of Defense responders
13. Cyber incident	• Interference with legitimate use of data systems by Tribal government and enterprises • Unauthorized access, denial, and alteration of essential records and other data • Unauthorized withdrawal of funds • Disruption of security, communications, and other essential systems • Malicious harm to the integrity and reputation of Tribal interests
14. Transportation emergency or supply chain disruption	• May extend for several miles • Access by emergency responders may be limited or delayed in the core of a large event • May be resource and responder intensive • Presence of many hazardous materials and conditions • May result in high numbers of high acuity trauma patients • Weather conditions may cause or contribute to the emergency, may preclude air transportation and make ground transportation hazardous • May require evacuation and rescue over significant distances to reach transport vehicles
15. Civil disturbance	• Potential for escalation and violence must be continuously assessed • May result in restricted traffic movement • May impair access to and function of public facilities • May result in damage to surrounding property and structures • Response personnel may be targeted for violence, including those disciplines not equipped for such operations
16. Land movement other than earthquake	• Impaired land transportation, impact on fixed facilities • Disruption of utilities • Possibility of subsequent land movement • Potentially undetected undermining of roads and structures • Potential isolation of residences, business or communities for sustained periods

Table 4.1 Hazards and their impacts on response and recovery operations (continued)



Earthquake Fault Zone of Required Investigation

Liquefaction Zone Area

1% Probability Floodplain

High Wildfire Severity (State Responsibility Area)

Moderate Wildfire Severity (State Responsibility Area)

Figure 4.1 - Blue Lake Rancheria Multi Hazard Risk Assessment Scope (Source: CalOES)

4.1.1 Climate Crisis Overview

There is international scientific consensus and growing certainty that climate change is occurring, and it is now widely considered a climate crisis, placing life, critical infrastructure, ecosystems, and property at continual and severe risk. The Earth's atmosphere, lands, and oceans are rapidly increasing in temperature, and that temperature increase is creating large, accelerated changes to the environment, which in turn creates critical socio-economic hazards. The primary causes of climate change, also called global warming, are attributed to greenhouse gases and pollutants such as carbon dioxide, methane, nitrous oxide, water vapor, black carbon particles, sulfur hexafluoride, and other emissions. The vast majority of these climate-forcing emissions are caused by human activity, primarily combusting carbon-based fuels for energy and transportation.

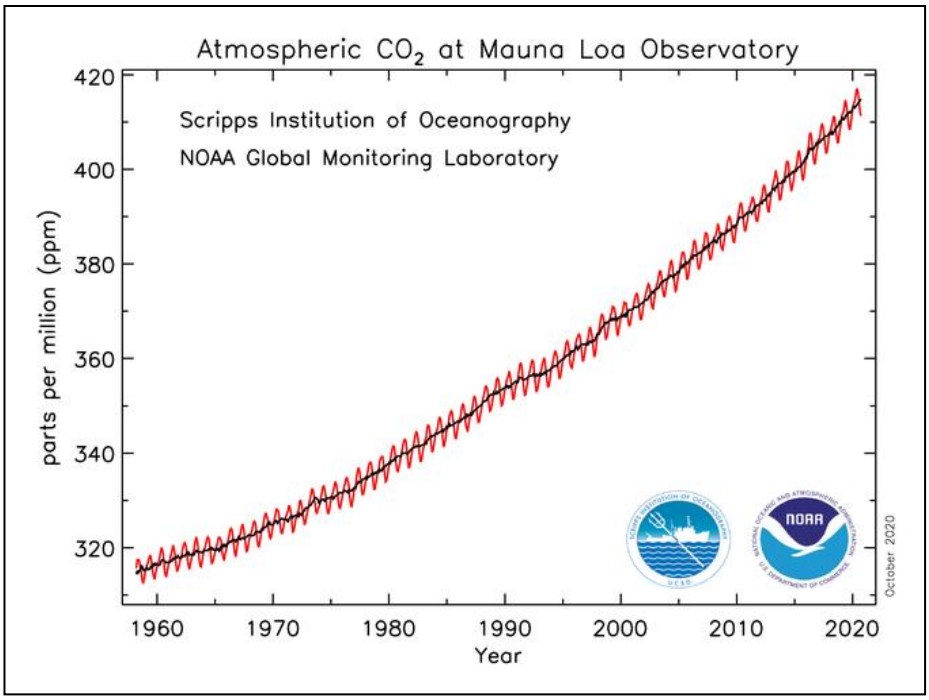


Figure 4.2 Carbon dioxide increases in the atmosphere. Source: Scripps; NOAA

Global climate changes, including rapidly increasing temperatures, are amplifying local hazards, making known issues more frequent and severe, and creating new, previously unknown impacts at local, regional, national, and global scales. Further, hazards that have typically been isolated occurrences are increasingly occurring in complex combined and cascading emergencies.

Local and regional climate crisis vulnerabilities, hazards, and impacts include but are not limited to:

- Extended drought
- Increased wildfire frequency, rate of growth, intensity, destruction, and lethality
- Hazardous air quality events
- Increasingly volatile weather
- Condensed rainfall events
- Recurrent flooding
- Lifeline sector outages (e.g., power, telecommunications, water/sewer systems)
- Supply chain disruptions (e.g., fuels, food)
- Sea level and ground water rise
- Increased disease vectors (e.g., mosquitoes, cyanobacteria)
- Increased threats to pollinators and other species
- "High to catastrophic threats" to security and cybersecurity
- Increased health hazards due to worsening air quality and other impacts
- Economic damages from various combinations of these issues.

As of this 2021 hazard mitigation plan, global and U.S. policy have not addressed the climate crisis with enough carbon emission reductions to slow the temperature increases. Across the next five-year timeframe of this plan, and a thirty-year hazard mitigation planning horizon (2020-2050), the Tribe assumes climate crisis vulnerabilities, impacts, hazards, and threats listed in this plan will increase, combine, and cascade.

Global impacts

Over the five year life of the 2015 BLR HMP, the science on the global climate crisis and its local impacts has improved. Climate impacts are increasing, as demonstrated across all measurements.

Globally the data are demonstrating accelerated warming and impacts. For example:

- in 2019 the oceans reached the highest temperatures ever recorded (NOAA)
- 2010-2019 was the warmest decade ever recorded (NOAA)
- September 2020 was the warmest month ever recorded (NOAA)
- the Antarctic and Greenland ice sheets contain a combined ~220 feet of sea level rise (SLR), and their melt is early and accelerating (NASA)
- Carbon dioxide (CO^2) concentrations in the atmosphere are highest in human history (>418 ppm), CO^2 increases are accelerating (NOAA), and the last time CO^2 concentrations were this high was ~3 million years ago, when sea levels were ~15-75 feet higher than they are today
- wildfires are increasingly the largest and most energetic in history (e.g., Australia, Alaska, California, and near dangerous sites)

In the past five years, global and local studies of feedback loops have strengthened. For example, as polar and Greenland ice caps melt, their ability to reflect sunlight reduces. The land and ocean underneath these ice sheets are much darker and absorb much more heat after they are exposed by the receding ice. This feedback loop increases temperatures and prevents ice from reforming. Warming temperatures are accelerating permafrost melt across Arctic regions, which could release ~1,600 gigatons of CO^2. By many estimates our remaining global budget for CO^2 to avoid catastrophic damage is less than one quarter of that amount, or ~360 gigatons.

Regional & local impacts

"In August 2020, Death Valley [California] reached 130 degrees Fahrenheit – possibly the highest temperature ever reliably recorded on Earth." Just as our understanding of global climate crisis is improving, so is our understanding of the regional and local vulnerabilities and impacts. Unfortunately, some of this understanding is due to real world events. In October 2019 the Blue Lake Rancheria simultaneously managed nearby wildfires, wildfire smoke inundation, power outages lasting several days, telecommunication outages, hosting evacuees from wildfire and smoke, serving the region with emergency supplies such as fuel and ice due to regional power outages and related disruptions of all kinds.

The increased wildfire events in the western US are attributed in part by the climate crisis. Local experts underscore the heat, dry condition of the fuels and soils, lower humidity, more frequent and intense wind events, and other conditions that combine with decades of fire suppression and fuel build-up to create these megafires. As shown in Figure 4, five of the six largest wildfires in California's history occurred in 2020, with the largest spanning August – November of 2020 burning over 1 million acres. Of California's top 20 largest fires, 17 have happened since 2003.

Local and other experts have documented Humboldt County as experiencing the fastest sea level rise (SLR) on the Pacific Coast, attributed to combination of sinking land/subsidence, and climate-caused ocean and ground water level increases. As a result, estimates from the "Humboldt Bay Shoreline Inventory, Mapping, and Sea Level Rise Vulnerability Assessment" (Laird, 2018) project the local anchor natural gas power plant owned by Pacific Gas and Electric Company (PG&E) will be

inundated by SLR or groundwater intrusion before 2070. Efforts are underway to redesign and/or relocate critical infrastructure at risk from SLR. Also impacting local SLR is the accelerated melting of the polar ice caps, including the Thwaites Glacier and the Greenland ice sheet. King tide events are increasing flooding in local coastal neighborhoods and infrastructure areas.

Because of historic heat waves (also called heat domes or heat storms) impacting the entire western U.S. simultaneously August-October of 2020, California had to conduct rolling electrical power outages to ease stress on the larger grid because the usual out-of-state reserves were not available. There were two power instability 'once-in-35-year events' in just two weeks, the most severe spanning the California grid on September 4-8, 2020 (CAISO briefing to SB 350 Disadvantaged Communities Advisory Group, 2020). There were several California Independent System Operator flex alert days in August, September, and October 2020 when the demand for electricity in California threatened to exceed the supply available. It should be noted that these grid instability events were not caused by California's clean energy portfolio, but by the unexpected malfunction of natural gas plant(s), and due to the heat storm affecting the entire western U.S. at once, resulting in insufficient out-of-state power to import.

In 2019, Pacific Gas & Electric began initiating planned de-energizations called "public safety power shutoffs" (PSPS) to mitigate against equipment-caused wildfire starts and effects during high wind events. The utility projects these to last from two to ten days each, or longer depending on the damage to the infrastructure during the weather/wildfire event. PG&E estimates PSPS events will be necessary for the next decade, until ~2030. In September 2020, the grid instability described above overlapped with a PSPS threat. For planning purposes, the power grid in California must be considered unreliable when climate-forced wildfire and/or extreme weather events occur.

Total annual precipitation at the Blue Lake Rancheria and across the North Coast region is not expected to change significantly, but is expected to be delivered in more intense storms and within a shorter wet season. As a result, the region is expected to experience prolonged dry seasons and reduced soil moisture conditions, even if annual precipitation remains the same or increases. There is a higher likelihood of extreme wet years and extreme dry years. An "average" rainfall year will become less common.

These impacts can also combine, and cascade, such as in August – October, 2020 as the Tribe simultaneously managed several life-threatening issues: Covid-19 pandemic (social distancing and other requirements), heat waves, wildfires, hazardous air pollution from wildfire smoke, power outages, evacuations, and more.

4.1.2 Types and Descriptions of Hazards

The Blue Lake Rancheria is subject to a variety of hazards, both natural and human caused. The degree to which each hazard affects the Tribe is based on frequency and severity. Descriptions of the hazards considered by the BLR for this update planning process are provided here, ranked from most to least severe overall.

Numbers in parentheses show the percentage of points awarded in the planning group's assessment of hazards.

1. **Earthquake (100%)** Earthquakes in the region can include both lateral and vertical earth movement, both from crustal and deeper subduction zone events. Local hazards include structural and non-structural damage, soil liquefaction, disruption of water, wastewater, communications, surface transportation and other essential systems.

Earthquake	
Factor	Rank
Total severity	1
Probability	3
Fatalities	1
Injured	1
Economic	2
Mental health	3
Critical facilities	1
Infrastructure	1
Environmental	7

Blue Lake Rancheria lies less than two miles from the Blue Lake Thrust Fault, McKinleyville Fault, Trinidad Fault, Falor Fault, and the primary trace of the Mad River Fault zone. It is also subject to the influences of major faults further described here.

Cascadia Subduction Zone (CSZ) - There is at least a one in three chance of a large (M8+) earthquake in the next 50 years originating from the Cascadia Subduction Zone (CSZ), lying a shallow eight miles beneath the Blue Lake Rancheria. Recent seismological research indicates earthquakes often originate off the California-Oregon border, and an event in modern times is predicted to result in massive casualties and damage to structures and infrastructure.

The Northern San Andreas Fault **-** The Northern San Andreas Fault ending off Cape Mendocino lies 44 miles west of BLR, and has been unusually inactive since the large San Francisco earthquake in 1906, when it ruptured all the way from just south of San Francisco to Cape Mendocino. The lack of expected major earthquake activity along the northern San Andreas Fault System ("seismic gap") increases earthquake probability to an unknown extent. It also typically increases the severity of a future event due to the release of additional accumulated strain.

Recent research indicates that an earthquake on the Cascadia Subduction Zone could trigger an earthquake on the northern San Andreas Fault. Chris Goldfinger, Director, Active Tectonics and Seafloor Mapping Laboratory, Oregon State University, noted that research is underway.

"I've been working on the chronology for San Andreas and Cascadia, and some of the events I can't really tell apart in time," Goldfinger explained. "They seem to have happened at more or less the same time." (Goldfinger, OPB 2/3/2019). https://www.opb.org/news/article/northwest-cascadia-san-andreas-fault-the-big-one-earthquake/

If verified, this connection would increase the probability of earthquakes along the northern San along the San Andreas Fault is ongoing.

Mendocino Triple Junction – **"**The Mendocino Triple Junction marks the collision point of three major tectonic plates including the Pacific, North American, and Gorda plates which are all moving at different rates and in different directions. Because of this oblique collision, significant strain builds up, resulting in one of the most seismically active regions on earth," (*David Jacobson, Temblor* 3/28/17).

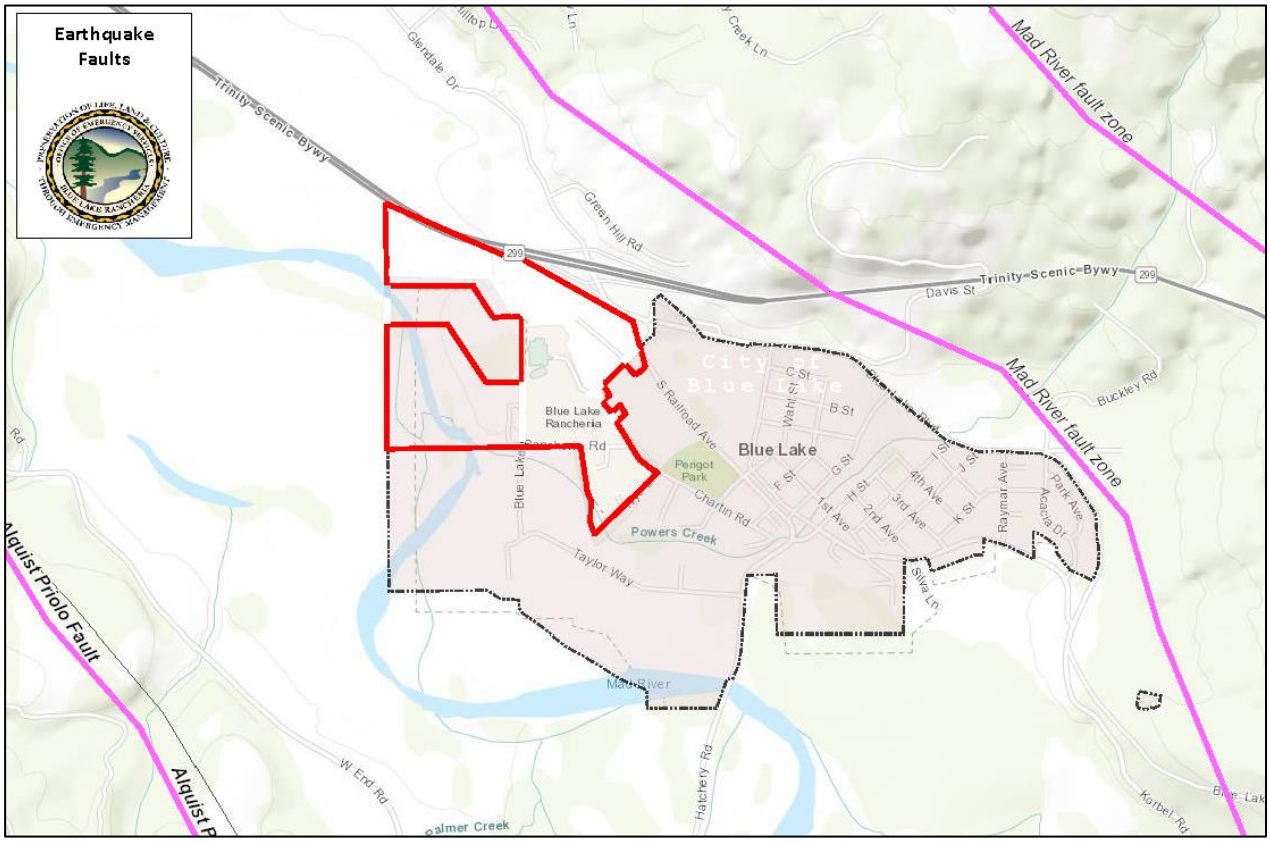


Figure 4.3 nearby fault lines

Recent observations indicate increased seismic activity where the northern San Andreas Fault trace turns westward to become part of the Mendocino Triple Junction. ("Why is the Northern San Andreas so Quiet when its Mendocino tip so Noisy?" (David Jacobson Temblor 3/28/17). This may increase the probability of seismic activity within the Triple Junction, which lies within 10 miles of the BLR.

Inland crustal faults probability – The Blue Lake Rancheria's proximity to numerous crustal faults and a deep subduction zone makes earthquakes a fact of life. A 2020 geotechnical exploration report by KC Engineering stated, "The Blue Lake Rancheria is located in a seismically-active region and earthquake related ground shaking should be expected during the design life of structures constructed on the site."

Earthquakes with a Richter magnitude of 6.0 or higher have occurred three times in the last fifteen years and larger earthquakes between 6.9 and up to 9.1 Richter magnitude are predicted.

The USGS database shows that there is a 93.38% chance of a major earthquake within 31 miles of Blue Lake within the next 50 years. The Rancheria has experienced several relatively large earthquakes in the recent past. Past estimates report that earthquakes causing serious damage to the Rancheria have occurred every 15-20 years, understandable given the Rancheria's location in a relatively complex tectonic environment. Although the earthquakes are generally infrequent, they can cause substantial damage to the Rancheria and surrounding communities. Most of the earthquakes listed below were centered at distant faults, so their magnitudes and effects were somewhat attenuated by the time they reached the Rancheria.

Nevertheless, the Rancheria is located near other faults that while they have not thus far caused damage to the BLR, they could have more damaging effects. Table 4.2 lists the Richter magnitudes of the significant, recorded earthquakes affecting the Rancheria as compiled by Woodward–Clyde Consultants (1980), Dengler (1992) and Scott (2015).

Year	Richter Magnitude
1922	7.3
1923	7.2
1932	6.4
1954	6.5
1976	6.3
1980	7.2
1992	7.1
1992	6.2
2005	7.2
2010	6.5
2014	6.9

Table 4.2 Recorded earthquakes with local effects

The associated hazard of liquefaction was determined in the KC Engineering report to be "within acceptable to slightly excessive tolerances" for the 2021 Tribal Government and Justice Center and fire station. The riverbed soils and fills on BLR make liquefaction likely.

The unpredictability and severity of area earthquakes can cause severe damage to community assets that are less susceptible to damage from other, more frequent hazard events. Earthquake early warning is being implemented throughout California, currently offering warning times of a few seconds to a few minutes for the Blue Lake area.

In a field of 21 hazards, earthquake was deemed the top hazard overall by the 2020 planning group, and ranked in the top three for six out of seven Effects categories.

Due to high ground water, the potential for liquefaction effects in soils during an earthquake is high.

Closures of State Route 299 and US 101 due to landslide, subsidence, and other earth movement (Figure 11), have disrupted ground transportation to, from, and within Humboldt County many times in the past. Disruptions of these critical routes are likely to impede delivery of disaster services and supplies and to restrict or prevent evacuation of casualties or evacuees.

2. Wildfire (87%) Wildfires of any cause generally pose the highest risk to dry areas near high-value developments. However, wooden structures and other fuel sources can exacerbate the effects of wildfires. Wildfires can be ignited by natural or human-caused ignition sources, and their effects can be compounded by both natural and artificial factors.

Wildfire	
Factor	Rank
Total severity	2
Probability	6
Fatalities	4
Injured	2
Economic	3
Mental health	2
Critical facilities	3
Infrastructure	3
Environmental	1

The 2017 and 2018 fire seasons in California were successively the worst fire seasons in state history, with 2018 being the deadliest and most destructive on record. The Humboldt County Community Wildfire Protection Plan (2017) predicts "an approximately 40% increase in probability of fire across the region by end-century.

The Rancheria is surrounded on all but one side by wildlands or former agricultural lands consisting of infrequently maintained grasslands and heavily wooded riparian corridors, beyond which are heavily forested slopes. To the north and east the Rancheria is bounded by roads from which ignition sources could ignite wildfires. A 2003 wildland fire

encroached to the Rancheria's boundary. The causes of the fires were inconclusive, but likely human caused. Although these fires burned tens of acres and threatened built infrastructure, no structures were damaged.

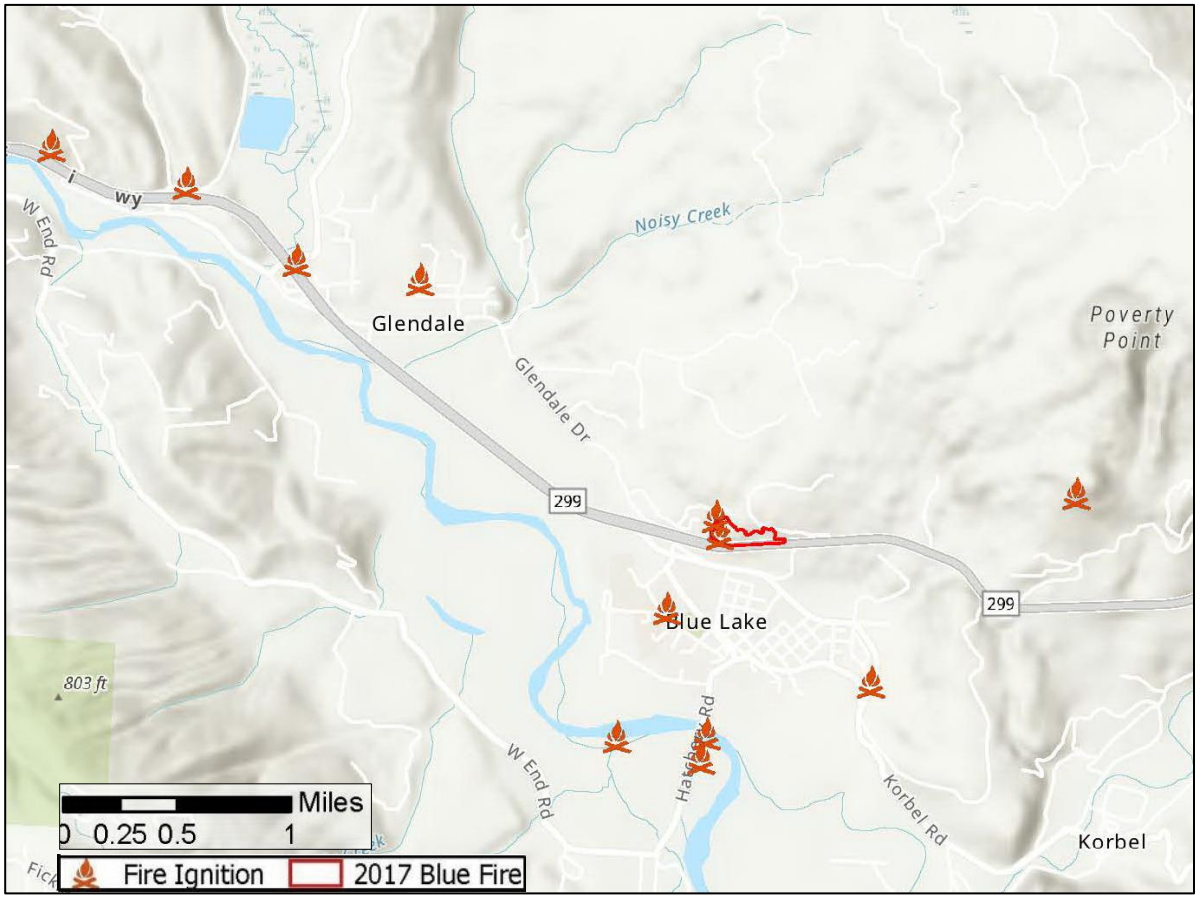


Figure 4.4 Wildfire starts 2015-2020 J. Renner, CalFire

Much of the residential construction on the Rancheria is highly vulnerable to fire. Wood frame construction and mobile homes are prevalent, and in many instances, closely spaced. Although 100% are equipped with smoke and CO^2 detectors, and inspected annually by the Tribe, none have fire sprinklers. The Rancheria's proximity to wildlands makes this hazard substantial. Detectors are expected to significantly reduce deaths and injuries, however losses of homes and contents could be high to extreme.

Indirect effects of large wildfires include air quality impacts which can affect vast areas for many weeks at a time. 2008 and 2020 stand out as recent examples. The dangers of heavy and prolonged wildfire smoke in ground-level air include significant human health effects, poor visibility, and mental health stresses.

Wildfires and post-fire landslides and mudslides in burn scar areas near the SR 299 corridor may disrupt traffic from the State's interior, including supply chain transportation and visitors on which the Rancheria's enterprises rely. These disruptions may range in severity from brief delays to full closures and may last many days or weeks.

An emerging effect in the past few years has been large influxes of evacuees and others seeking essential services where they are unavailable elsewhere due to planned or unplanned power outages.

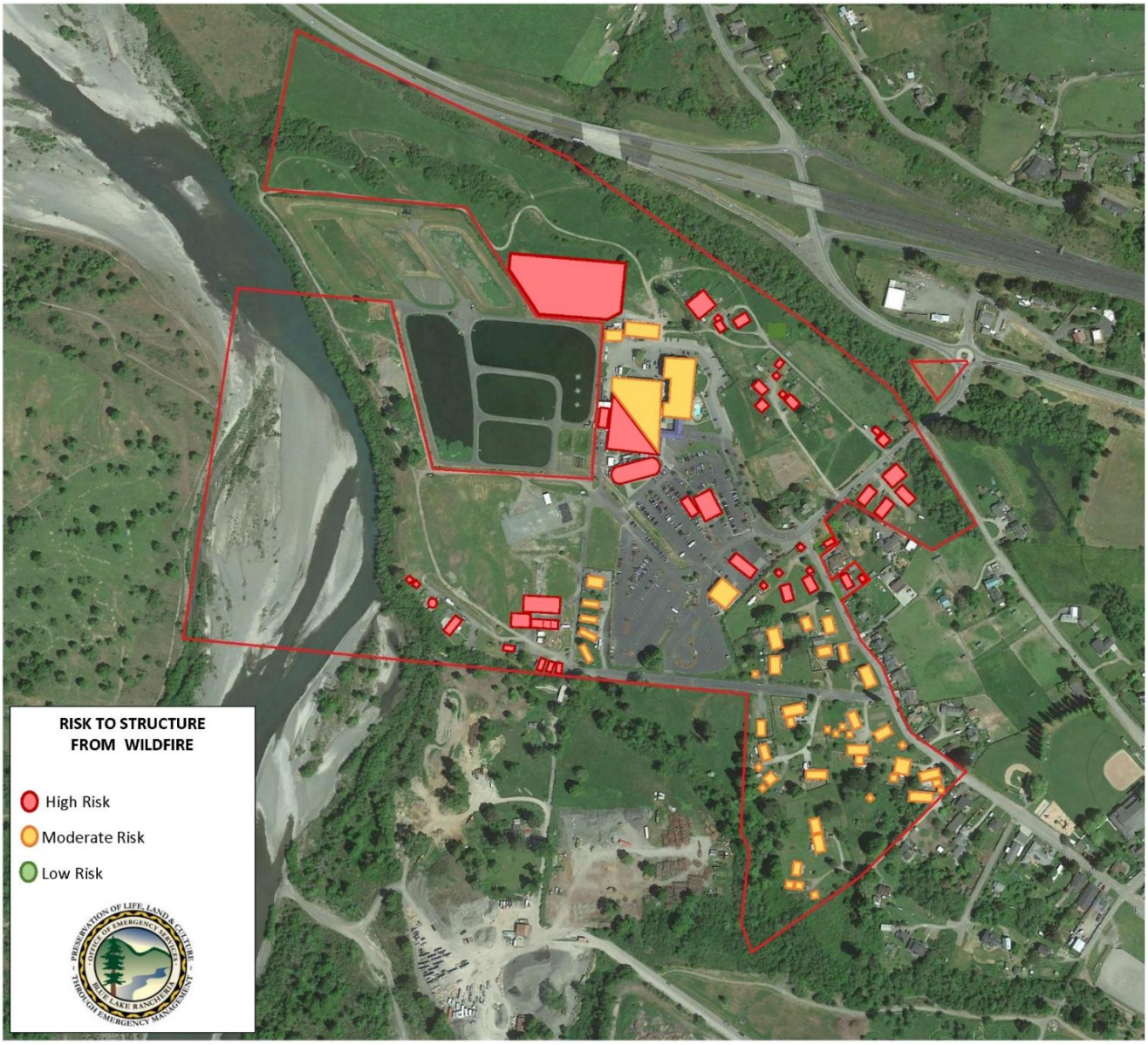


Figure 4.5 - Wildfire Hazard Risk Assessment Map

According to November 2020 CalFire data:

- 15 of California's 20 most destructive wildfires occurred between 2015 and 2020
- 10 of them occurred in Northern counties. Of those ten disasters:

Acres destroyed:	2,162,169
Structures destroyed:	35,736
Deaths:	138

Top 20 Largest California Wildfires

	FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1	**AUGUST COMPLEX** *(Under Investigation)**	August 2020	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, & Colusa	**1,032,649**	935	1
2	**MENDOCINO COMPLEX** *(Under Investigation)*	July 2018	Colusa, Lake, Mendocino & Glenn	**459,123**	280	1
3	**SCU LIGHTNING COMPLEX** *(Under Investigation)**	August 2020	Stanislaus, Santa Clara, Alameda, Contra Costa, & San Joaquin	**396,624**	222	0
4	**CREEK FIRE** *(Under Investigation)**	September 2020	Fresno & Madera	**377,693**	853	0
5	**LNU LIGHTNING COMPLEX** *(Under Investigation)**	August 2020	Sonoma, Lake, Napa, Yolo & Solano	**363,220**	1,491	6
6	**NORTH COMPLEX** *(Under Investigation)**	August 2020	Butte, Plumas & Yuba	**318,930**	2,352	15
7	**THOMAS** *(Powerlines)*	December 2017	Ventura & Santa Barbara	**281,893**	1,063	2
8	**CEDAR** *(Human Related)*	October 2003	San Diego	**273,246**	2,820	15
9	**RUSH** *(Lightning)*	August 2012	Lassen	**271,911 CA / 43,666 NV**	0	0
10	**RIM** *(Human Related)*	August 2013	Tuolumne	**257,314**	112	0
11	**ZACA** *(Human Related)*	July 2007	Santa Barbara	**240,207**	1	0
12	**CARR** *(Human Related)*	July 2018	Shasta County & Trinity	**229,651**	1,614	8
13	**MATILIJA** *(Undetermined)*	September 1932	Ventura	**220,000**	0	0
14	**WITCH** *(Powerlines)*	October 2007	San Diego	**197,990**	1,650	2
15	**KLAMATH THEATER COMPLEX** *(Lightning)*	June 2008	Siskiyou	**192,038**	0	2
16	**MARBLE CONE** *(Lightning)*	July 1977	Monterey	**177,866**	0	0
17	**LAGUNA** *(Powerlines)*	September 1970	San Diego	**175,425**	382	5
18	**SQF COMPLEX** *(Lightning)*	August 2020	Tulare	**170,384**	228	0
19	**BASIN COMPLEX** *(Lightning)*	June 2008	Monterey	**162,818**	58	0
20	**DAY FIRE** *(Human Related)*	September 2006	Ventura	**162,702**	11	0

There is no doubt that there were fires with significant acreage burned in years prior to 1932, but those records are less reliable, and this list is meant to give an overview of the large fires in more recent times.
This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.
*Numbers not final.

CAL FIRE
11/3/2020

Figure 4.6 Top 20 largest wildfires in California through 2020. Source: CalFire

Since 2008, nearby and distant wildfires have caused air quality alerts to be issued when offshore winds have driven heavy smoke to the Pacific Ocean from the interior.

3. Public Health/Infectious Disease Outbreak (86%) Although definitions vary among agencies and sources, epidemic is considered to be the occurrence of a disease within a specific geographical area or population in excess of what is normally expected. Pandemic is considered an epidemic occurring on a scale which crosses international boundaries. Outbreak is not firmly defined, but similar to an epidemic, however more limited in scale.

Public Health/ Infectious Disease	
Factor	Rank
Total severity	3
Probability	1
Fatalities	1
Injured	1
Economic	1
Mental health	1
Critical facilities	9
Infrastructure	15
Environmental	15

An outbreak of almost any magnitude may impact any community. A single local case of a virulent disease like Ebola may cause issues because of its lethality, communicability, and intensive response resource requirements. The 2015 plan included pandemic as a hazard; this update broadens the category because a lower level of outbreak can have severe impacts on the Blue Lake Rancheria community.

It is noteworthy that Pandemic ranked #13 in the 2015 version of this plan. The elevation to #3 in 2020 is attributed to the COVID-19 pandemic, which had severe personal, public health, economic, and operational impacts on the people and functions of the Rancheria.

Recent US outbreaks of Ebola and Zika, and relatively severe seasonal Influenza waves make clear that a variety of pathogens and conditions must be anticipated.

The 2020 Novel Corona Virus Disease (COVID-19) pandemic reached every US state and every California County. At the time of this plan, cases, disabilities, and fatalities continued to mount in Humboldt County and elsewhere.

Public health considerations may include:

- Illness prevention and infection control
- Disease surveillance, including testing, contact tracing, and other measures
- Monitoring of air, water, and other environmental sources, sanitation and food quality
- Establishment, management, or oversight of mass care shelters, healthcare locations, points of dispensing, and others

In response to the 2020 COVID-19 pandemic the Blue Lake Rancheria closed its casino, restaurants, and hotel in four different waves for a total of 194 days:

- 3/18/20 to 5/18/20 206 employees laid off for an average of 61 days
- 6/7/20 to 7/6/20 150 employees laid off for an average of 29 days
- 7/18/20 to 8/28/20 109 employees laid off for an average of 41 days
- 11/27/20 to 1/17/21 126 employees laid off for an average of 51 days

Data on the health impacts on all residents are unavailable, however these figures apply to casino and hotel staff:

- Known positive cases: 11
- Persons quarantined: 98

Economic loss to the Rancheria community was calculated for one 3-month period, revealing:

- $11.4 million in lost revenue
- $1.7 million in lost productivity
- $100,000 in estimated resumption cost
- Cost of implementing infection control measures totaled at $281,392

BLR's COVID-19 response activities included:

- Entered into an MOU with the County of Humboldt OES at the beginning of the pandemic to provide frozen, microwaveable meals that are produced on site for individuals quarantined in hotel rooms throughout Humboldt County. Over 24,000 meals were produced for this cause.

- Established a Homework Club for school aged children of BLR employees wanting to return to work but lacking childcare. Sessions were monitored by adult student interns extensively background checked and fingerprinted. This service was instituted due to schools remaining closed due to COVID-19. Costs for this service were absorbed by the tribe and no fees were charged.

- BLR partnered with Farmer Frog and the National Tribal Emergency Management Association to provide local individuals (including non-English speakers), agencies, tribes and schools with 5,467 21-pound USDA food boxes (114,807 pounds). Most were picked up, but 10,000 pounds was delivered by BLR emergency personnel to a neighboring tribal community that had just endured housing stock losses from a wildfire.
- BLR established a COVID-19 testing site early in the pandemic by partnering with tribal organizations. An average of 1,100 tests per week were conducted beginning in April of 2020 and are ongoing. Tests are accessible to not only tribal peoples but non-tribal peoples as well. These services are conducted free of charge.

Although vaccination was made available by the end of 2020, COVID-19 is expected to remain a significant threat for the five year life of this plan, with direct and indirect effects. Unknown numbers of residents, employees, and guests will be unable or unwilling to be vaccinated. The practical efficacy and duration of protection provided by early vaccines will take time to determine, and public concern may impact public health and enterprise operations.

The large volume of tourists and recreational visitors makes employees of BLR enterprises and their close contacts susceptible to other infectious disease threats including seasonal influenza and other pathogens.

Animal health is included under this hazard because the risk and potential impacts are considered quite low. Two conditions are worth consideration:

- Zoonotic diseases, that is, diseases transmissible directly between animals and humans are a consideration. Care must be taken to address these risks whenever the Rancheria may serve as a mass gathering location or experience high volumes of transient visitors, such as during an influx of evacuees.
- Experience has demonstrated over and over that many domestic animal owners will refuse to evacuate or take other protective actions unless they are confident their animals will be adequately cared for. Some will insist that their animals remain with them in mass gathering settings, increasing risks of injury, disease transmission, allergic reaction, anxiety, and other issues among the human population and other animals.

4. Severe Storm (68%). The Rancheria's location eight miles inland from the Pacific Coast make it vulnerable to significant weather systems as they make landfall. Severe storms locally include those originating offshore.

Severe Storm	
Factor	Rank
Total severity	4
Probability	2
Fatalities	7
Injured	6
Economic	10
Mental health	13
Critical facilities	8
Infrastructure	5
Environmental	9

Damage is typically a consequence of high winds, with or without heavy rainfall. Damage can also result from falling trees and localized flooding. For the purposes of this document, severe storm hazards refer to damage caused by the storm itself, not by associated flooding, which is covered in its own hazard category.

Such storms occur approximately every three to five years but have historically created only nuisance damage – including depositing debris, downing small trees, and causing power outages.

Two strong wind patterns pose a danger to the Rancheria. From April to September, winds predominately blow from the northwest, and from October to February they blow from the southeast. Winter wind patterns are stronger, reaching sustained speeds of 35 knots, with gusts exceeding 60 knots.

Resulting power outages have lasted for several days and occur three to six times a year. Although the Rancheria's independent microgrid reduces the impacts of power outages, the availability of power and services makes it an attractive location for large numbers of evacuees and others seeking shelter, provisions, and power to charge portable devices.

Some storms produce more nuisance than damage, but conditions can inflict severe damage on vulnerable structures and systems. This hazard may be a precursor or contributing factor to others.

Significant local weather events 2015-2020 included: (* Gubernatorial disaster declarations)

- 2012-2015: drought - included the driest water year on record
- January 3-12, 2017: severe winter storms and mudslides*
- January 3-5, 2017: Hoopa Valley Tribe severe winter storm*
- February 1-23, 2017: severe winter storms and mudslides*
- January 17, 2019: severe winter storm, power out to the entire county
- February 24-March 1, 2019: severe winter storms and mudslides*
- November 26, 2019: severe windstorm with widespread power outages

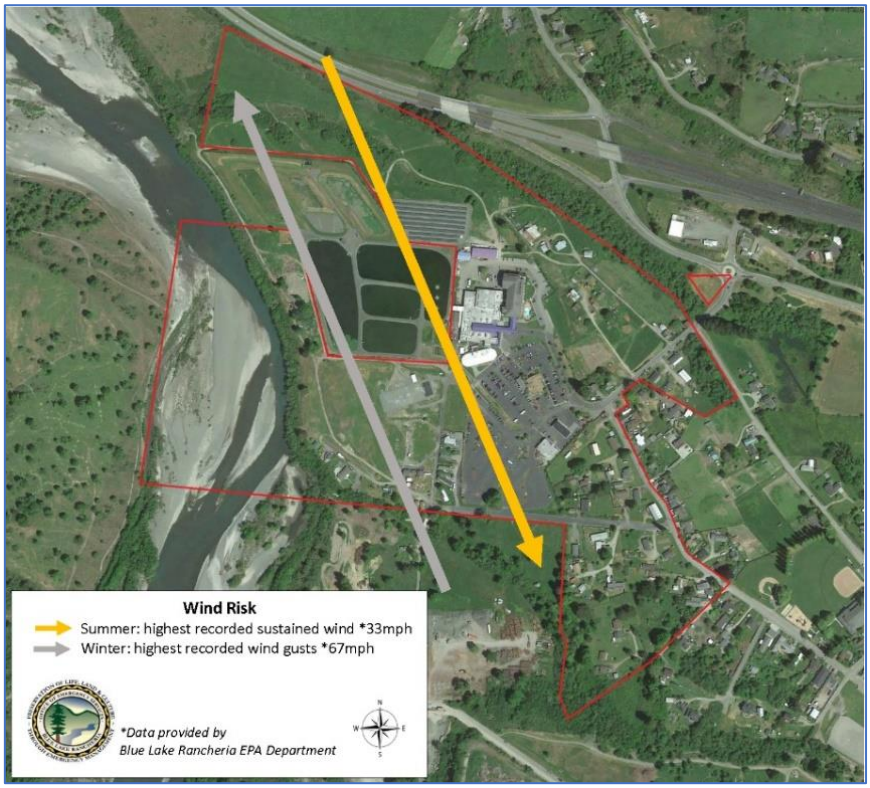


Figure 4.7: Local wind patterns

5. Flood, Including Dam Failure (55%). In prior plans, flood and dam failure were treated as separate hazards. Because the downstream hazards of a dam failure are flooding and the response and mitigation measures are consistent between both, they are combined for simplicity and brevity.

Although assessed separately, seiche was incorporated in this larger and more probable category. Seiche is defined by the National Oceanic and Atmospheric Administration as a standing wave oscillating in a body of water. Seiches can form in any enclosed or semi-enclosed body of water.

One-Percent Annual Chance Flood

Experts have been moving away from past reliance on terms like "100-year flood plain" in favor of a more realistic annual risk score. 100-year flood plain and 1 percent annual chance express the same level of risk and 500-year flood risk is referred to 0.2 percent annual chance. This document uses the percent chance term. This change is intended to reduce public assumption that a flood-prone area is safer during the years immediately after a 100-year flood event.

Flood & Dam Failure	
Factor	Rank
Total severity	5
Probability	6
Fatalities	7
Injured	7
Economic	5
Mental health	7
Critical facilities	4
Infrastructure	3
Environmental	4

FEMA-developed Flood Insurance Rate Maps (FIRMs) to analyze and delineate the 1-percent floodplains affecting communities. As a sovereign tribal nation, the BLR flood data is excluded from FIRM maps. As a result, the flood plain determination is based on the Environmental Assessment for the Blue Lake Rancheria Casino (ESA, June 2001). This document concludes that the Rancheria is likely to be inundated during a 1-percent flood like event. In general, the ground in the Rancheria slopes up westward from the Mad River, although there are low-lying areas in the eastern portions of the Rancheria. Values of the exact elevations, however, are not consistent among different maps, such as the USGS quad sheets and topography used in the Casino Environmental Assessment.

Past recorded events and tribal elder experiences indicate that flooding occurs through a combination of backwater effects of the Mad River impacting flood depths along Powers Creek, and the Mad River topping its own banks. Therefore, conditions that heighten the flood elevation in the Mad River will also worsen flooding on the Rancheria. Some examples of these potential conditions include: a debris jam at a bridge crossing downstream of the Rancheria causing backed up floodwater in the Mad River, sediment delivered to the Mad River or Powers Creek (via natural methods or due to fires in the watershed) decreasing flow conveyance at or downstream of the Rancheria, and development occurring within the watershed above the Rancheria, which could both increase peak flows and the occurrence of lower flow events within Powers Creek and the Mad River.

The Mad River Right Bank Project by the U.S. Army Corps of Engineers has constructed two miles of levee since 1955, protecting BLR and the City of Blue Lake. It has a 12 foot average height, 12 foot average crest width, and a design flow of 105,000 cubic feet per second (CFS). The largest historical flood in 1964 reached 81,000 CFS, and not more than 50% of the levee height.

Damage from a 1-percent flood like event could include structural damages to residences and commercial buildings, as well as to vehicles. Although the 1-percent flood like event waters are not necessarily rapid outside of the river and creeks' banks, they can carry debris that could harm individuals or structures, as well.

Smaller Floods

Most of the damage the Rancheria has experienced is nuisance flooding caused by events smaller than the 1-percent flood like event due to overtopping of the Mad River tributary creeks. In addition to Powers Creek, several additional named and unnamed creeks, both seasonal and perennial, are in near proximity or meander through Rancheria lands. These waterways discharge into the Mad River and frequently overflow onto Rancheria lands. These smaller floods have depths from 9 to 18 inches and have occurred five times in the past 20 years, including 2003, 2005 (times 2), 2006, and 2014. In general, whenever Powers Creek overtops its northern bank, the Rancheria experiences flooding through natural low-lying swales that stretch north-south through the Rancheria. Rancheria Road acts as a functional levee holding back floodwaters, although it is not technically a levee based on FEMA standards. Two culverts (18" and 24") pass flood waters through Rancheria Road, at which point the waters merge and continue to flow northward through the BLR Casino parking lot and some residential lots.

A contributor to nuisance flooding was removed in 2016 by the replacement of an undersized bridge on Powers Creek. The project was funded by a U.S. Fish and Wildlife Service Tribal Wildlife grant.

Construction of new Tribal government buildings was completed in 2021. They occupy an area vulnerable to shallow flooding, however are engineered and constructed to maintain functionality and safety during 1-percent flood events.

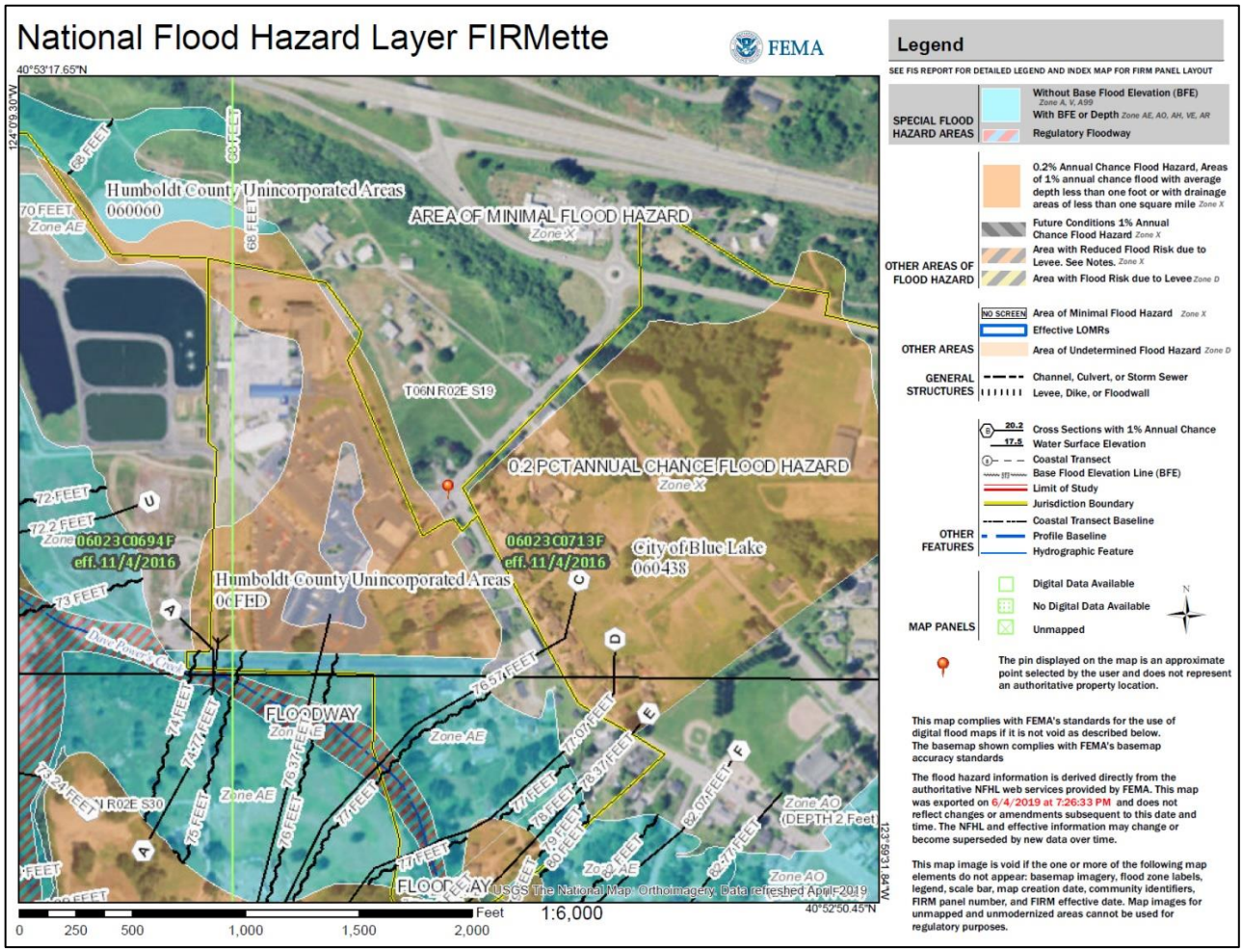


Figure 4.8: Flood Hazard Risk Assessment Map (Source: FEMA)

Dam Failure

The R.W. Matthews Dam, located on the Mad River 65 miles upstream of the Rancheria, is an earthen structure that impounds runoff from the upper quarter of the Mad River basin to form Ruth Lake in southern Trinity County. The reservoir's capacity is 48,030 acre-feet. Operated by the Humboldt Bay Municipal Water District, the dam and its operations are subject to regulation by the Federal Energy Regulation Commission and the California Division of Safety of Dams. It is the only dam upstream of the Rancheria.

No dam failures have been recorded in Humboldt County.

Based on a worst case failure scenario, the 2016 Humboldt Dam Failure Plan shows a leading edge time to Blue Lake of 5 hours, 30 minutes. Peak flows are estimated at 7 hours, 35 minutes. These times are expected to provide ample lead time for effective evacuation of residents, employees, guests, domestic animals, and many portable and mobile items of value.

At 82 feet Mean Sea Level, a predicted 96 foot maximum water surface elevation would inundate the Rancheria to a depth of approximately 14 feet. The loss of residential, commercial, and government buildings in could be near total.

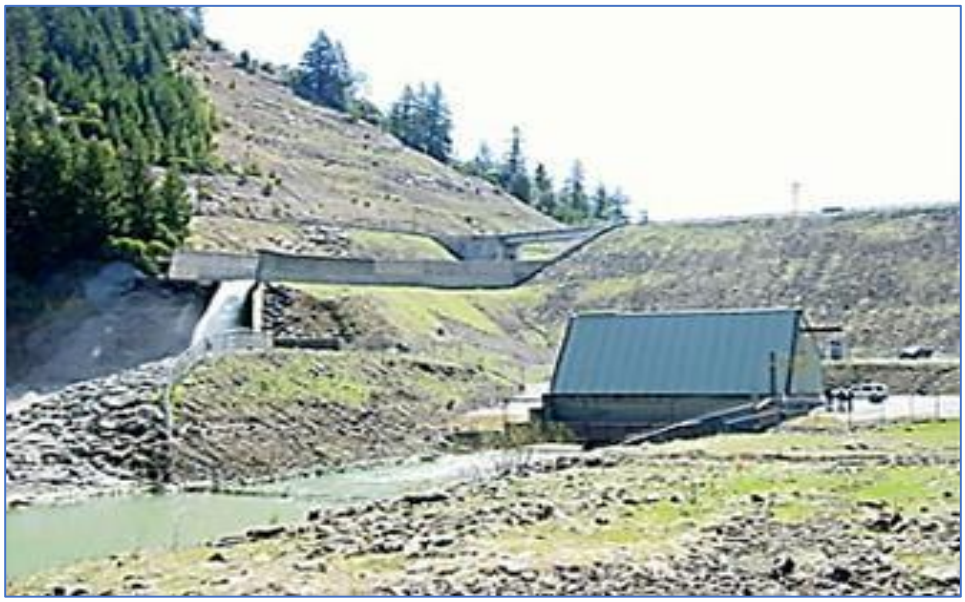
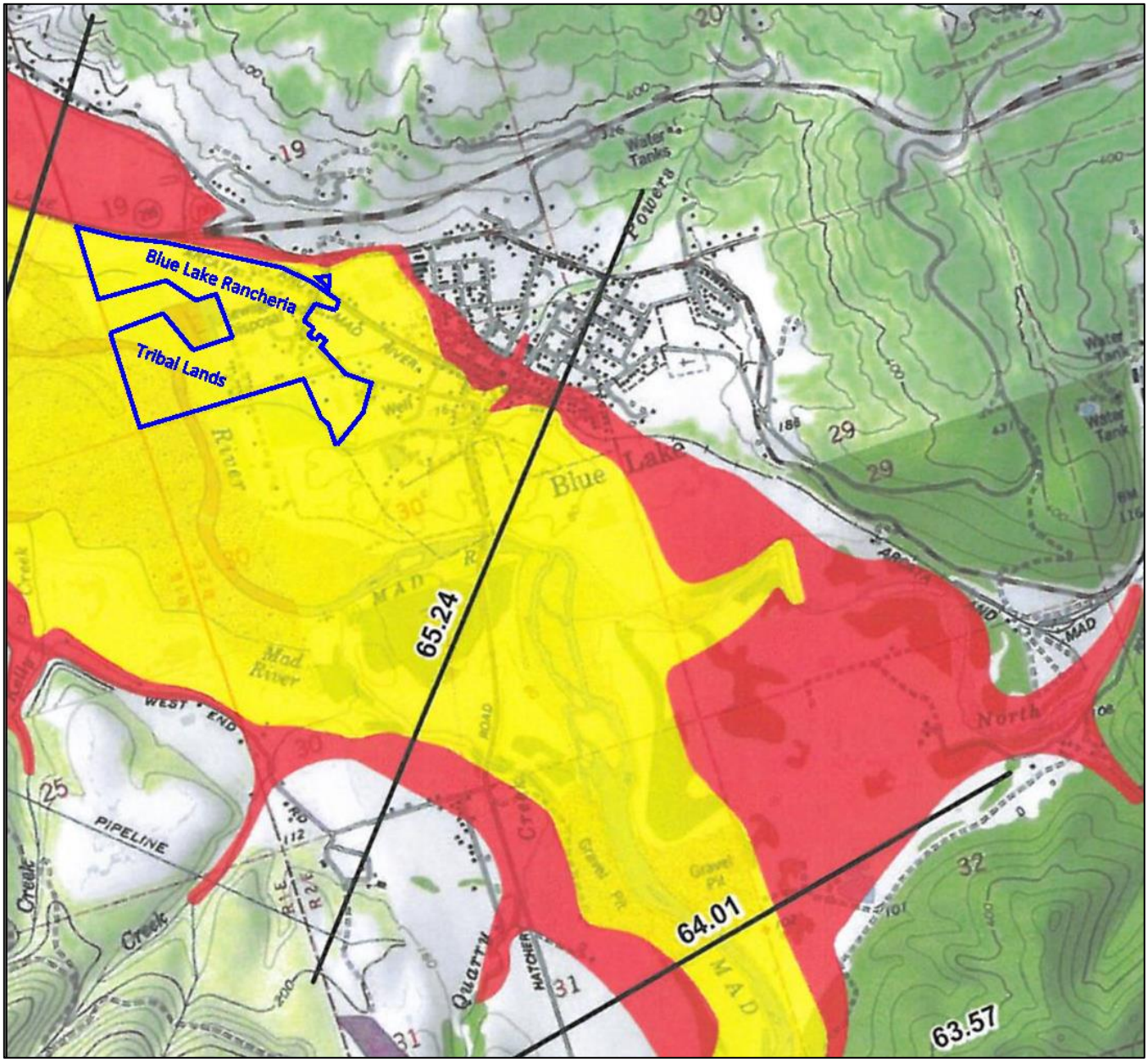


Figure 4.9: R.W. Matthews Dam near Ruth

Predicted effects of substantial flooding include:

- Disrupted utilities, including BLR's power generation, storage, and distribution
- Residential, business, and government buildings rendered unusable, including some likely to be beyond repair and reoccupation
- Loss of containment at the wastewater treatment facility
- Temporary loss of some streets
- Long term loss of revenues from enterprises
- In the event of significant failure of the R.W. Matthews Dam, many other communities would be impacting, creating competition for response and recovery resources.



FLOOD BOUNDARIES	MILES FROM MATTHEWS DAM	SUMMARY DATA - RECORD FLOOD				SUMMARY DATA - SUNNY DAY			
		MAX. WATER[1] SURFACE ELEV.	MAX. MAIN CHANNEL WATER DEPTH	ARRIVAL TIME OF LEADING EDGE	ARRIVAL TIME OF PEAK FLOW	MAX. WATER[1] SURFACE ELEV.	MAX. MAIN CHANNEL WATER DEPTH	ARRIVAL TIME OF LEADING EDGE	ARRIVAL TIME OF PEAK FLOW
MAXIMUM RECORDED FLOOD (1964) AND FAILURE OF MATTHEWS DAM	64.01	120 FT.	45 FT.	5 HR 25 MIN	7 HR 20 MIN	107 FT.	32 FT.	6 HR 50 MIN	7 HR 50 MIN
	65.24	96 FT.	24 FT.	5 HR 30 MIN	7 HR 35 MIN	90 FT.	16 FT.	7 HR 30 MIN	8 HR 15 MIN
	66.71	83 FT.	26 FT.	5 HR 55 MIN	7 HR 50 MIN	72 FT.	15 FT.	8 HR 05 MIN	8 HR 50 MIN
SUNNY DAY SUMMER FLOW CONDITIONS WITH PIPING FAILURE	67.67	80 FT.	33 FT.	6 HR 10 MIN	9 HR 00 MIN	67 FT.	21 FT.	8 HR 35 MIN	9 HR 55 MIN
	69.61	66 FT.	46 FT.	6 HR 35 MIN	10 HR 05 MIN	46 FT.	26 FT.	9 HR 20 MIN	11 HR 15 MIN

[1]APPROXIMATED BY SHADED AREAS SHOWN ON USGS 7.5' QUADRANGLE BASE MAPS

0 1,000 2,000 ft

1 inch = 2,000 feet printed at 11x17

Figure 10
INUNDATION MAP
SHEET 10 OF 13

R.W. MATTHEWS DAM
RUTH LAKE, CA

WINZLER & KELLY
www.w-and-k.com

Figure 4.10 Predicted inundation from Matthews Dam failure

6. Influx of Evacuees (48%) Blue Lake Rancheria's successful efforts in emergency preparedness have made it an appealing location for evacuees to seek shelter, refuel vehicles, obtain provisions, recharge personal devices, and obtain other goods and services. This was demonstrated repeatedly in 2019 and 2020 as the Rancheria became an island of services when Humboldt County and neighboring communities were essentially shut down due to power outages. This is certain to continue for the foreseeable future.

The Tribe's ability to deliver power and provide essential goods and services is both a valuable capability and a challenge to limited resources. Such an influx is likely to complicate response and recovery measures by BLR when an emergency impacts it directly, or could be an incident of its own when an event impacts surrounding communities, driving evacuees and those seeking goods and services unavailable elsewhere.

Influx of Evacuees	
Factor	Rank
Total severity	15
Probability	5
Fatalities	20
Injured	15
Economic	17
Mental health	15
Critical facilities	15
Infrastructure	17
Environmental	3

Recent events brought as many as 10,000 visitors seeking shelter, fuel, food, ice, power for device charging, and other goods and services. This demanded extraordinary efforts in traffic and crowd control, reassignment of staff to address urgent needs, rationing of fuel, and near-term planning.

The Tribe has entered into agreements with the American Red Cross to use the event space and hotel as a shelter, and has also served as a large volume COVID testing site. Plans for the Toma Resilience Campus and the Hula Sports Facility include design and operation as shelter locations.

Spontaneous arrivals may arrive in numbers that far exceed current and planned capacities. Past successes have brought considerable public attention to the Rancheria's ability to provide these essentials, and it is anticipated that future emergencies will result in greater and more immediate demand.

An influx of short duration could offer a small financial windfall as hotel occupancy and retail sales increase. Longer duration events could have a negative impact as interest in casino gaming and other services is likely to be low.

7. Drought (48%) Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. Human factors such as water demand, substandard quality, and management can exacerbate the impact that drought has on a region.

Drought	
Factor	Rank
Total severity	7
Probability	4
Fatalities	16
Injured	17
Economic	8
Mental health	12
Critical facilities	17
Infrastructure	18
Environmental	3

Since 2000, the state's longest duration event lasted 376 weeks from 2011 to 2014 and resulted in a gubernatorial state of emergency declaration from January 17 to April 2, 2017. The Rancheria and surrounding area were impacted less than more inland, arid portions of the state.

2013 was the driest year ever recorded for Humboldt County, resulting in river levels at low flow rates unseen in more than 100 years. During the previous 100 years the lowest flow rate for the month of January was 308 cubic feet per second. On January 28, 2014 the flow rate was 157 cubic feet per second; approximately half the previous low for that time of year. By September 2014, some sections of the Eel River had ceased to flow above ground.

Although direct drought impacts on Blue Lake and Humboldt County are typically minor due to Northern California coastal climatic factors, indirect impacts can include increased frequency, intensity, rate of spread, and duration of wildfires, including those well inland that have generated widespread unhealthy or hazardous air quality as recently as November 2020.

Since BLR relies on the Mad River for most of its water supply, future drought could impact that supply, requiring rationing and other demand controls.

As of early 2021, drought is again prevalent throughout California, and including Blue Lake Rancheria and surrounding counties. Predictions include another especially early, long, and severe wildfire season due to low snowpacks and dry fuel loads.

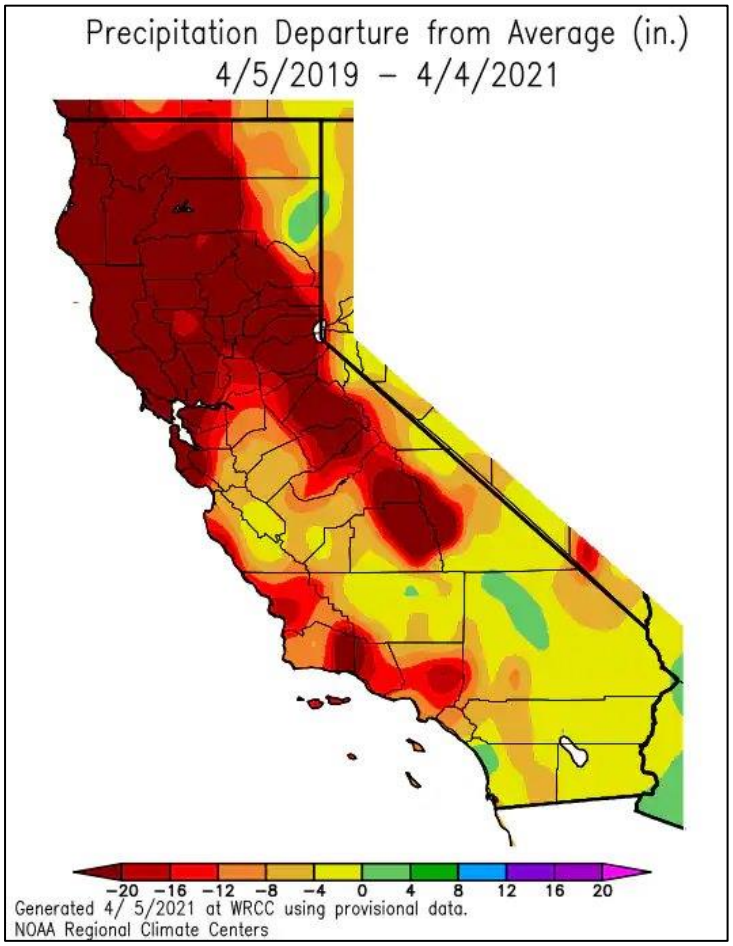


Figure 4.11 Precipitation deficit for Northern California

8. Sustained Power Outage (44%) This hazard was added to the 2021 update, and includes full outages and less complete disruptions to power generation and distribution. This plan avoids using the term "power failure" because most recent outages have been planned by the electric utility. Regional and local outages of several days have been experienced since the 2015 update. These may occur without warning as results of a windstorm, earthquake, other natural phenomenon, or technical malfunction. Power infrastructure has been an historical target of terrorism and criminal acts.

Sustained Power Outage Factor	Rank
Total severity	9
Probability	8
Fatalities	14
Injured	14
Economic	6
Mental health	10
Critical facilities	6
Infrastructure	8
Environmental	14

In recent years deliberate Public Safety Power Shutoffs (PSPS) have been planned and executed by utilities to mitigate the mutual hazards between wildfire damage and electrical generation and transmission facilities. PSPSes are typically preceded by warnings from the utilities and local emergency services, and may last several days. As utilities have gained experience and upgraded systems, PSPSes have become more focused and additional support services have been provided by the utilities and local organizations.

On October 9, 2019, a PSPS occurred with only six hours of notice. An estimated 10,000 visitors arrived at BLR for vehicle fuel, food, ice, hot meals, and other goods and services. Hotel rooms were

provided to evacuees reliant on powered medical devices. Humboldt County Public Health credits BLR with saving eight lives as a result. The daily newspaper serving the region was published from the Blue Lake Hotel. This capability is now well known, and BLR is expected to see similar influxes of evacuees and others for the foreseeable future.

The same incident cut off power from the Port of Eureka, preventing fuels and other cargoes from being unloaded. The City of Blue Lake water system had no backup power, limiting BLR's potable water reserves to approximately 24 hours.

Impacts included sharply increased demand for traffic management, coordination and control of an unplanned event, the need to ration quantities of fuel provided to customers, and other adaptations.

Figure 4.11 shows the impact area for one PSPS, including virtually all of the population of Humboldt County. Once the public became aware that BLR had its own power source, thousands converged seeking fuel, food, ice, device charging, power for medical devices, and other essentials.

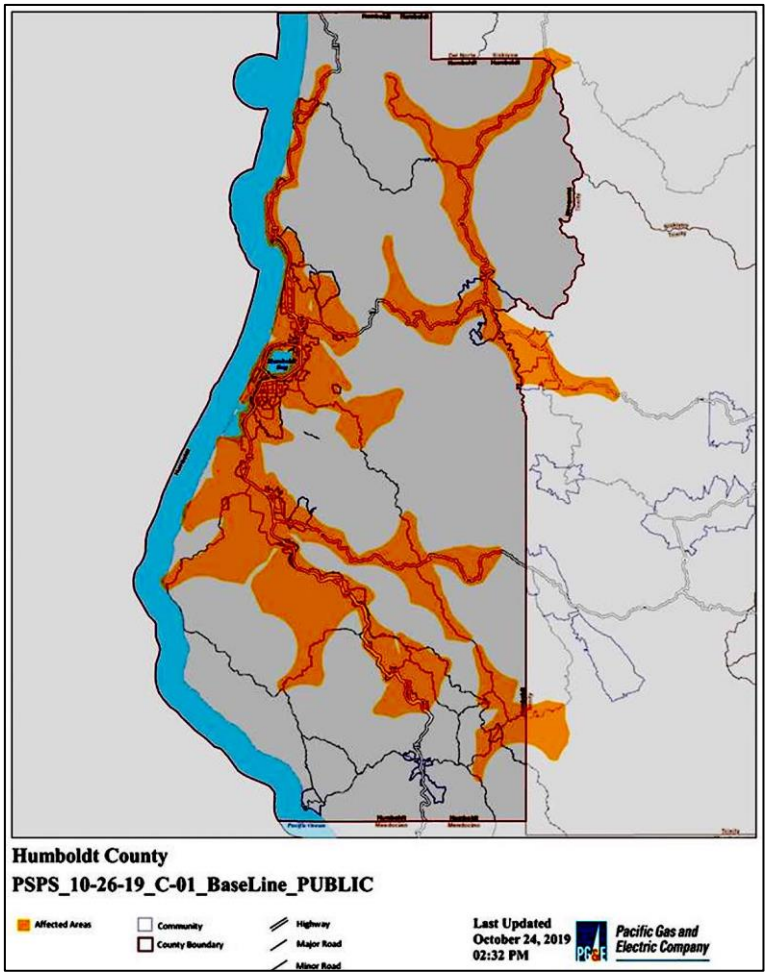


Figure 4.11 Public Safety Power Shutoff map for October 26, 2029

BLR's own solar powered microgrid provides high endurance capacity to generate, store and manage its own power, allowing it to maintain operations at the hotel, convenience store, fuel facilities, event center, government facilities, and other locations. This capability has been tested during PSPSes in 2019 and 2020.

9. Criminal or Terrorist Act (41%) The Federal Bureau of Investigation defines terrorism as: "Violent, criminal acts committed by individuals and/or groups to further ideological goals stemming from domestic influences, such as those of a political, religious, social, racial, or environmental nature."

Criminal & Terrorist Act	
Factor	Rank
Total severity	10
Probability	14
Fatalities	6
Injured	5
Economic	9
Mental health	2
Critical facilities	7
Infrastructure	7
Environmental	13

For the 2021 update, terrorism and other criminal acts are combined because many effects occur from a given attack without regard for the motives that qualify a crime as terrorism. The 2015 plan's category of Workplace Violence is included here, and defined as any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site.

Although serious and violent crime is not common in BLR, they remain a hazard. The proximity to larger cities and a major highway connecting California's coastal communities with the Central Valley increase the probability that planned or spontaneous criminal acts of all kinds may occur. In 2018 an armed robbery and carjacking occurred, and in 2020 an armed robbery and shooting occurred in the neighboring city of Blue Lake.

Threats of bodily harm have been made against the leaders of the tribal nation, and the Rancheria at large. On a national scale, the Association on American Indian Affairs reports American Indians and Alaska Natives are 2.5 times as likely to experience violent crimes as the population as a whole.

For the years 2015 through 2020, the numbers of crimes in categories with potential to cause a significant event were:

YEAR	2011	2012	2013	2014	2015	11-15 Total	2016	2017	2018	2019	2020	16-20 Total	Change
Assault	25	37	46	29	60	**197**	53	67	61	49	21	**251**	**+27.4%**
Property Damage	48	52	74	81	175	**430**	154	229	242	172	62	**859**	**+99.7%**
Robbery	0	2	3	3	0	**8**	0	0	1	0	0	**1**	**-87.5%**
Threats	31	40	47	39	34	**191**	13	16	19	13	9	**70**	**-63.4%**
Weapons	0	0	4	1	10	**15**	3	4	1	2	0	**10**	**-33.3%**
Totals	104	131	174	153	279	**841**	223	316	324	236	92	**1,191**	**+41.6%**
					Years of Tribal Police presence								

Table 4. 3 selected crime report statistics 2011-2020

For the five year period 2016-2020, the total for listed crimes excluding property damage rose 38.0% compared to 2011-2015. Although causation was not analyzed, some of the increase is likely attributable to the establishment of the Blue Lake Rancheria Tribal Police in 2015. A local law enforcement presence may have resulted in more minor crimes being reported or discovered, and as a deterrent to crime overall.

The year 2020 is considered anomalous because of 194 days of closure for the casino and hotel in response to the COVID-19 pandemic.

10. Hazardous Materials Release (38%) Hazardous materials are classified under nine hazard classes:

1. Explosive
2. Compressed gas
3. Flammable liquid
4. Flammable solid
5. Oxidizer
6. Poison
7. Radioactive
8. Corrosive
9. Other regulated materials

Hazardous Materials Release	
Factor	Rank
Total severity	11
Probability	12
Fatalities	9
Injured	9
Economic	16
Mental health	14
Critical facilities	12
Infrastructure	10
Environmental	4

Any cargo or even individual products can exhibit multiple hazards. Uncontrolled releases may result in explosion, fire, chemical burns, radiation exposure, and traumatic injuries from container failures and other physical effects. Common consequences of this hazard may include acute and chronic human and animal health effects, environmental damage, transportation disruptions, business disruptions, damage to individual and organizational reputations, and others.

The Rancheria is vulnerable to any of these factors on Tribal Lands and in adjacent businesses, facilities, and transportation routes:

- Highway 299 has substantial commercial truck traffic carrying hazardous substances. A 2020 commodity flow study revealed motor fuels (gasoline, diesel and liquified petroleum gas) as the most common products.
- The PlayStation 777 convenience store on the Rancheria stores and dispenses all of those same motor fuels and miscellaneous other products with hazardous qualities. Transportation and transfer operations are especially vulnerable to releases.
- Residences have unknown types and quantities of hazardous materials, typically including fuels, paints, solvents, pest control products and cleaning products.
- Visitors arrive in the community with unknown types and quantities of products in their vehicles. Some may be innocent in nature, however it's possible that some could intend a release or reaction on Tribal lands.
- As a product of the region's abundant cannabis enterprises, extraction of Butane Honey Oil (BHO) has increased dramatically. These range from small personal operations to large commercial labs. Although none are known to have occurred on the Rancheria to date, the storage and use of butane and other flammable solvents often results in releases, explosions and fires in these criminal enterprises.

The largest fixed facility on the Rancheria with reportable quantities of hazardous materials is the convenience store, with these maximum storage capacities:

- Unleaded gasoline 30,000 gallons
- Diesel fuel 10,000 gallons
- LPG 2,000 gallons

Deliveries are made by 8,000 to 15,000 gallon tractor/trailer combinations on a nearly daily basis. No fixed industrial facilities use or generate hazardous materials near enough to pose a significant hazard to the people and resources of the Rancheria. In 2020 eleven locations outside of the Rancheria, but with Blue Lake addresses were registered with the State of California to have reportable quantities of hazardous materials.

The Tribe also maintains a diesel generator with a 2,000 gallon storage tank.

Entity	Max Combined Weights (lbs)	Maximum Combined Gallons	Max Combined Cubic Feet
AT&T California		538	
Blue Lake Power	13,585	27,895	5,256
Blue Lake Patriot		24,000	
Christie Ranches		500	726
City of Blue Lake Corp Yard		1,000	
City of Blue Lake Waste Water		1,950	
Green Point School District		950	
Mad River Brewing Co.	12,610	525	1,062
PG&E Blue Lake Substation		6,678	
T-Mobile West		106	
Visser Farms		9,680	

Table 4.4 Maximum registered hazardous materials quantities in Blue Lake (excludes BLR)

Of a total of 72,784 gallons of liquid products, 58,460 (80.3%) are motor fuels (gasoline, diesel fuel, and liquified petroleum gas (LPG).

A 2020 hazardous materials commodity flow study identified placarded road cargoes on SR 299 near the Blue Lake interchange and at the Blue Lake traffic circle adjacent to Rancheria lands. Peak days and hours were obtained from the California Highway Patrol's commercial and technical officer, determined to be weekdays between 7:00 AM and 6:00 PM.

Average daily count (placarded vehicles):	9.2
Placarded Motor fuels (gasoline, LPG, diesel)	52.2%
Placarded Carbon Dioxide	4.3%
Placarded Nonflammable Gas[1]	13.0%
Placarded Flammable Gas[2]	8.7%
Placarded Corrosive[3]	4.3%
Placarded Dangerous[4]	8.7%
Others	13.0%

1. Nonflammable gas examples include oxygen, nitrogen, argon, compressed air, and others
2. Flammable gas examples include hydrogen, acetylene, ethylene, petroleum, and others
3. Corrosives are liquid or solid acids or bases capable of full thickness human tissue destruction at the point of contact.
4. "Dangerous" placards may be displayed when hauling non-bulk packages in two or more hazard classes, as an alternative to multiple placards.

Table 4.5 Placarded hazardous materials vehicles, SR 299 and Blue Lake

No significant releases have been reported on BLR lands or neighboring areas near enough to pose a threat, however the risk is significant. State Route 299 is one of few connectors between California's north coast and the Central Valley. In the immediate area of the jurisdiction, the highway is divided, with two lanes in each direction. Just east of Blue Lake, the route becomes a conventional two-lane highway through winding mountain areas. Commercial truck traffic is significant, and the risk of incidents is high.

Year	Incident	Disposition
2015	Possible leak from an auto	Unconfirmed
2016	Report of an auto pushed into a ravine	No spill detected
2017	20 gallons of mineral oil spilled	Cleaned up by contractor
2018	5 gallons of waste oil spilled	Spill contained
2018	2 gallons of transformer oil released	Spill contained
2018	Less than 100 gallons of hydraulic oil	Spill contained
2019	Report of a recreational vehicle into a creek	No spill detected

Table 4.6 Hazardous materials reports to the State of California 2015-2019

Pacific Gas and Electric Company owns a decommissioned nuclear power plant near the mouth of Humboldt Bay, approximately 15 miles southwest of Blue Lake Rancheria. The Unit 3 nuclear facility was shut down in 1976, and the intention to decommission it was announced in 1983. The facility has operated in a safe storage status since then. Active decommissioning began in 2009. Demolition was slated for 2019 completion, and final site restoration, decommissioning surveys, and NRC approval are expected in 2021.

This information is included in the plan because many people are aware of the facility, without understanding the nature or degree of any hazard. The facility is not considered a hazard to BLR, and this information is intended to inform any concerns.

11. Air or Water Quality Event (37%) This category was added to the 2021 plan largely because of the effects experienced during large wildfires. In recent years such fires have generated hazardous air quality over large areas of California, lasting many weeks at a time, and creating respiratory and cardiovascular effects on the population, poor visibility, and impacts on local retail and hospitality industries. The 2015 plan's category of Airborne Particulates is included in this broader category.

Air or water quality	
Factor	Rank
Total severity	12
Probability	7
Fatalities	15
Injured	12
Economic	17
Mental health	7
Critical facilities	18
Infrastructure	16
Environmental	5

According to the National Weather Service office in Eureka, the greatest risk from wildfire and smoke occurs when offshore, easterly winds develop across the northwest California region following the dry summer months. In the vast majority of situations, the strongest easterly winds and dry conditions remain inland and in the higher elevations. In these situations, smoke from distant wildfires can spread west over the Rancheria but remain thousands of feet above the surface. However, on rare instances the offshore winds can mix down to the surface causing the coastal marine inversion to erode. This will allow the smoke to mix down to the surface resulting in impacts on air quality.

These conditions also result in rapid drying of the air mass at the coast and an enhanced risk of locally developed wildfires. Large wildfires have historically developed in these situations with historical burn scars from the 1930s and 1940s located in the Trinidad and northern McKinleyville areas.

The public often takes perceived protective measures that are known to have limited, if any, effectiveness. Dust masks, N-95 masks, and other face coverings are often obtained and worn, although

it is known that the particulates smaller than 2.5 microns (PM 2.5) are not effectively filtered out of inhaled air.

Many residents and others are vulnerable to PM 2.5 particulates, including seniors, those with pre-existing cardiovascular disease, and reactive airway disease.

Air quality hazards may increase for a number of natural, technological, and human-caused reasons:

- Most noticeable in this area are the prolonged periods of poor visibility and air quality from upwind wildfires. These can go on for several weeks and range from a mild nuisance to a significant health hazard.
- Vehicle traffic along State Route 299 contributes less visible, pollutants.
- Large influxes of evacuees or others seeking provisions and services during sustained power outages can result in long lines of automobiles moving slowly or idling on the Rancheria.
- Volcanic ashfall has historically reached acutely hazardous levels hundreds of miles from its origins. Effects can include poor visibility, health hazards, and damage to mechanized equipment, including emergency vehicles.
- Climatic and weather conditions may create inversions that hold pollutants close to the ground in lower-lying areas.
- Beginning in 1985 the BLR has been experienced impact of particulates from the Blue Lake Biomass Plant, Blue Lake Power, LLC. The particulates impact the BLR based on wind patterns within the Mad River Valley. BLR sustains the most fall-out from the plant in the area.

Prolonged periods of darker daytime skies and the incessant smell of smoke are believed to contribute to mental health effects, including depression, fatigue, and heightened alert states. In recent years this condition has persisted for many weeks at a time.

Another air quality threat is volcanic activity. While not at significant threat from volcanic flows, airborne ash is a consideration. This was considered as its own hazard during planning, however due to the relatively low risk, included as an air quality hazard instead.

Volcanic ash is a condition related to volcanic eruption wherein significant ash ejections are pushed into the atmosphere and carried by the wind where they ultimately descend to earth.

The vast majority of ash from volcanoes is ejected high into the atmosphere. This ash is then subject to the movement of the prevailing winds at the time of the eruption. The upper level winds in Northern California are primarily dominated by westerlies, which would normally push any ashfall from volcanoes east of the region into Nevada and Oregon. However, easterly winds are not uncommon and develop multiple times a year for up to 5 days in a row, primarily during the spring, summer, and fall months. If a volcano east of the Rancheria, such as Mount Lassen or Mount Shasta in the southern Cascade Range, were to erupt during these conditions, ashfall would be expected on the Rancheria and all the way to the Pacific Coast.

The composition of the ash can be a particulate hazard and in some cases the chemical components can cause harm. The ash itself may be abrasive, caustic and a respiratory hazard. Many harmful effects may continue until the ash is removed.

The Cascade Range is home to several volcanoes, with Mt. Shasta and Mt. Lassen significant examples 100 miles and 135 miles due the east as the crow (and ash) flies. Occasional easterly winds could bring hazardous quantities of ash to the Blue Lake area.

Described below is a summary of United States Geological Survey reports from the 1980 eruption of Mt. St. Helens, another Cascade Chain volcano similar in size and potential activity to California's Mt. Shasta and Mt. Lassen:

- Ash deposits of up to 2 inches were recorded as far away as Ritzville, Washington, 195 miles away
- During the first day, airborne ash was heavy enough to screen out nearly all sunlight and make driving hazardous
- During the first 9 hours of vigorous eruptive activity, 540 million tons of ash fell over an area of more than 22,000 square miles

The USGS continuously monitors both Mt. Shasta and Mt. Lassen for signs of activity.

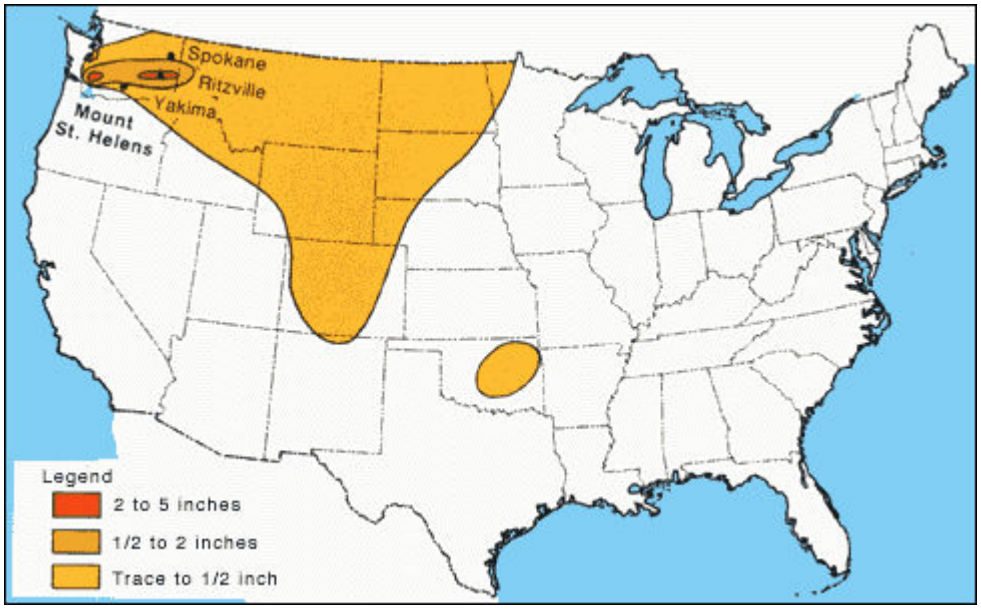


Image 4.12 distribution of ash fallout from Mt. St. Helens eruption May 18, 1980 (USGS)

Water quality issues are related to limited capacities of the current water and wastewater systems. A wastewater treatment plant serving the City of Blue Lake and the Rancheria sits adjacent to the Rancheria's northern boundary. The plant is past its design service life, and there is a danger of the treatment ponds overflowing should their containment berms fail. Sewage effluent would then flow onto Rancheria lands. The likely cause of a spill from the neighboring wastewater treatment plant would be equipment failure from heavy rainfall, flooding, or backup of sewer lines that cross the Rancheria. The immediate entrance to Tribal businesses would likely flood.

In September 2014, equipment from a relay station for the sewage treatment plant located adjacent to the Rancheria entrance backed up and overflowed into the street. Effluent flowed down the street and accumulated beneath a tribal residence. The City of Blue Lake was notified; they reported the flow, cleaned up, and sanitized the area.

In 2018, the California Department of Toxic Substances Control announced the failure of containment measures at an abandoned mill in nearby Glendale. Recent groundwater monitoring has detected elevated levels of cadmium, chromium, lead, and pentachlorophenol near the Mad River, the water source for more than 80,000 people in Blue Lake and neighboring communities.

12. Aircraft Crash (35%) Blue Lake Rancheria lies under the airway for approach and departure for California Redwood Coast-Humboldt County Airport's main runway. The facility serves regional commercial, military, and general aviation eight miles northwest of the Rancheria's lands, facilities, and resources.

Aircraft Crash	
Factor	Rank
Total severity	13
Probability	16
Fatalities	3
Injured	4
Economic	14
Mental health	9
Critical facilities	10
Infrastructure	11
Environmental	10

The airport reports an average of 115 operations (landings and takeoffs) daily. 61% of those are military, due to the U.S. Coast Guard's Air Station Humboldt Bay located there. 14% of the operations are commercial, typically flying 69-passenger twin turboprop aircraft. The remaining 25% are general aviation.

Aircraft using Runway 32 routinely pass over BLR lands at an altitude of 5,700 feet. On the chart shown below, the blue line passing near BLR marks the center of the airway, which extends four nautical miles to either side. BLR lies 1.9 miles from the center.

No accidents have occurred on or near the Rancheria. The probability of a future incident is deemed low, but worthy of consideration because of the location and potential consequences.

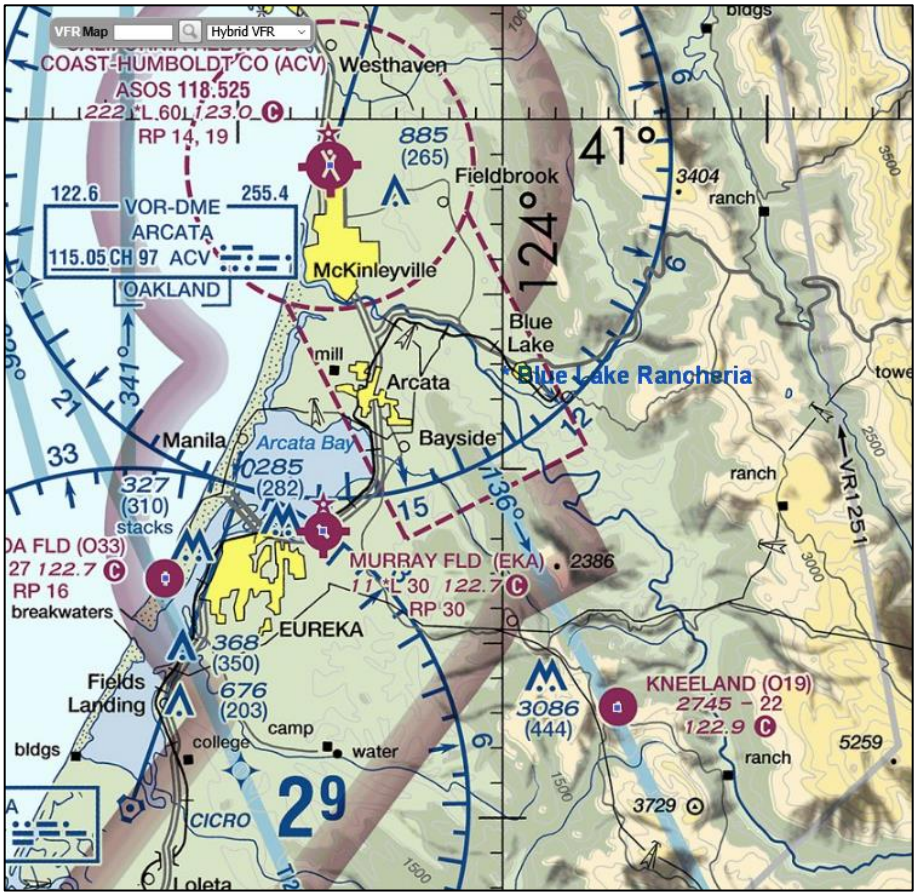


Figure 4.13 FAA Airway to and from California Redwood Coast-Humboldt County Airport

13. Cyber Incident (35%) A cyber incident is defined as a breach of the system's security policy in order to affect its integrity or availability and/or the unauthorized or attempted access to one or more systems. In general, types of activity commonly recognized as breaches of security policy include, but are not limited to:

Cyber Incident	
Factor	Rank
Total severity	14
Probability	10
Fatalities	17
Injured	18
Economic	5
Mental health	17
Critical facilities	5
Infrastructure	6
Environmental	13

- Attempts to gain unauthorized access to a system and/or data
- Unauthorized use of systems for the processing or storing data
- Use of systems to socially engineer staff interactions to perform unauthorized activities
- Changes to a system's firmware, software or hardware without consent and authorization
- Malicious disruption and/or denial of service of technology resources

These incidents have been and remain frequent among BLR's government and enterprises. Within the defensive measures deployed in the BLR government and enterprises IT infrastructure, a typical 30-day period average these attempts:

- 10 dedicated recon attempts: Recon is the first activity that occurs in a typical cyber incident, providing the aggressor a set of data representing a footprint of possibly accessible systems.
- 10,000 external unauthorized authenticate attempts again the e-mail system.
- 1,900 exploit attempts against externally exposed webservers.
- 14,000 medium or higher category threats detected and prevented by next gen firewalls.
- 55,000 spam, malware and other malicious e-mails detected and blocked by the system.

Detected, blocked, and remediated issues are only part of the scope. Within cybersecurity it is a question of when-- not if-- a beach will occur and how long it will take to detect. Some notable events:

- 2013: The Rancheria Tribal Government experienced a successful intrusion, yielding passwords, account numbers and other highly private and identifying information. Protections were breached and an attempt to transfer funds was made by an outside entity.
- 2014: Externally exposed servers were affected by the Heartbleed zero-day vulnerability. Systems downtime occurred in major system including e-mail while the threat was mitigated
- 2015: One of the Rancheria's economic enterprises experienced a ransomware attack. The attack originated on a remote user system, then passing into the network systems. The activity of this ransomware was detected in a timely manner, damage eradicated, and affected data restored. Without timely detection this would have fully encrypted the enterprise's data and restricted the ability to work with that data.
- 2016: A team member at one of the Rancheria's enterprises experienced a ransomware attack on a laptop that was not attached to the main network or protected by the infrastructure. Out of personal embarrassment, the team member paid the ransom before informing IT or management.
- 2017, 2018, 2019, 2020, 2021: BLR Tribal Government and enterprises suffered a number of social engineering attacks via e-mail, requesting gift cards be purchased or bank transfers be made on behalf of people in the organization. All of these were caught by policy or by the suspicions of users but were in varying stages of being complete.

- 2021: A remote worker of the tribal government suffered a breach from an undetected malicious e-mail. This breach then triggered a number of other different social engineering attacks. The user that suffered the breach experienced downtime as IT removed the malware from the computer over several days.
- 2021: BLR Tribal Government and enterprises were affected by the Microsoft Exchange zero-day vulnerability. While the vulnerability was not exploited at the BLR, the e-mail systems were taken offline to remediate the problem.

14. Transportation/Supply Chain Disruption (34%) Blue Lake Rancheria's location alongside State Route 299 constitutes a vulnerability as a primary cause or secondary effect of many hazards. US Route 101 follows the Pacific shoreline and is also subject to sustained closures, delays, and other disruptions. A multi-vehicle, multi-casualty collision or hazardous material release can close either highway for a day or more. Earth movements are common, including those that undermines the integrity of the road.

The area's topography and the nature of the ground transportation infrastructure means alternative routes may be prohibitively long or hazardous.

Transportation/Supply Chain Disruption	
Factor	Rank
Total severity	15
Probability	11
Fatalities	13
Injured	11
Economic	15
Mental health	16
Critical facilities	13
Infrastructure	14
Environmental	12

Figure 4.14 Landslide along US 101

Recent causes include:

- Increasingly volatile weather, such as concentrated rain events causing landslides and localized flooding
- Wildfires requiring closure of key routes because of direct fire hazards, restrictions to emergency response operations, and reduced visibility from heavy smoke
- Power outages, including PSPSes, which have disabled port infrastructure to unload ships and airport functions such as navigation and landing aids.
- A pair of 2017 landslides across SR 299 and US 101 reduce fuel deliveries to the Tribe's fuel station by 60% for two weeks.

Closure or disruption is likely during and after primary events such as earthquake, severe storm, or visibility limitations brought on by atmospheric conditions of wildfire or distant volcanic eruption.

Such disruptions can impact essential travel to obtain medical services and essential provisions, and to carry on the business of government and community entities. BLR's enterprises are especially vulnerable to economic disruption because they are heavily reliant on patrons arriving via SR 299.

Date	SR 299	US 101	SR 36	Cause of Unscheduled Full/Partial Closure
1/ 9/19	•			Rock/mud slide
1/17/19	•			Intermittent closure due to emergency work
1/22/19		•		Northbound lanes - Fatal collision @ Spruce Point
2/5/19		•		Overturned truck
2/10/19		•		Heavy snowfall
2/26/19		•		Flooding @Hopland
2/26/19	•			Last Chance Grade Slide*
2/27/19			•	Flooding
3/1/19		•		Partial closure due to slipout
3/6/19	•			Tree falling project
5/17/19	•			Slide
6/19/19		•		Overturned Semi
6/25/19			•	Down telephone poles and power lines
8/9/19		•		Partial closure – paving project
9/24/19		•		Northbound closure @ Eureka
10/27/19		•		Wildfire
11/4/19		•		Traffic collision
11/12/19	•			Rock blasting operations
11/27/19		•		Multiple collisions due to conditions
1/10/20	•			Partial closure, slide
1/28/20			•	Partial closure, slide
2/5/20	•			Slide
4/29/20		•		Last Chance Grade –full PM closure*
6/2/20		•		Traffic collision
6/4/20	•			Partial closure, Slide repair
6/5/20	•			Partial closure, Slide repair
6/6/20		•		Emergency closure
6/15-18/20		•		Last Chance Grade – 4 days full PM closure*
6/30-7/2/20	•			Slide repair 3 days
7/1/20	•			Wildfire
7/21/20	•			Partial closure - Repairs
7/28/20		•		Southbound closed – ongoing incident
8/26/20		•		Partial closures, wildfires and evacuations
9/7/20		•		Wildfire and evacuations
9/14/20		•		Overturned semi
9/25-28/20			•	Wildfire 4 days closure
10/14/20		•		Traffic collision
12/14/20		•		Last Chance Grade, Slide*
1/4/21		•		Traffic collision
1/12/21	•			Partial closure, slide
1/1421			•	Slide
1/19/21	•			Slide
1/26/21		•		Heavy snow and debris
2/321		•		Fallen Redwood Tree
2/13-15/21		•		Last Chance Grade, slide* 3 days
2/18-21/21		•		Last Chance Grade, slide* 4 days
3/16/21		•		Last Chance Grade, tree fall*
3/18/21		•		Traffic collision
3/31/21		•		Semi tractor/trailer roll over

Table 4.6 Unscheduled closures on critical highway routes. Source: Caltrans District 1

* Last Chance Grade is a 3-mile segment of U.S. Highway 101 north of Blue Lake Rancheria. Since 1981, the California Department of Transportation (Caltrans) has invested more than $67 million to respond to events related to unstable ground beneath and adjacent to the highway. Alternatives are being sought by the Federal Highway Administration (FHWA) to correct this unstable segment of critical transportation for less than $1 billion.

Summary information:

- Survey period: 25 continuous months
- Major projects causing regular delays or closures for a year or more: 3 (1 on each highway)
- 299 closure days: 17
- 101 closure days: 37
- 36 closure days : 8
- Total unscheduled closure days: 62

In addition to these closures, each of these routes are subject to routine delays and closures for major work to stabilize roadbeds and adjacent slopes. Although most of this work occurs in the summer season, urgent repairs can occur year round. These projects often last more than a year. Examples include:

- Recent SR 36 work closes the highway except for a 1-hour mid-day opening.
- SR 299 work on a slide area between Helena and Big Bar results in 24-hour traffic controls and long delays.
- US 101 work is ongoing as the highway is notoriously unstable to both the north and south. Closures and long delays are common.

The rugged mountainous nature of the region makes reliance on these highways nearly complete. Where alternate routes exist, they are often narrow, unpaved roads unsuitable for trucks or high volumes of car traffic. They are typically not maintained during winter months.

Disrupted deliveries of food, fuels, and supplies threaten residents, many of them dependent on Tribal programs for nutrition and other essentials. Cold chain disruptions threaten availability of foods, medicines, and vaccines. As this plan is being finalized, vaccines against COVID 19 are being distributed, requiring extreme cold storage.

Most government and enterprise functions within BLR rely on staff who in turn rely on the integrity of SR 299. As the economic engine for the Tribe, the casino, event center, and hotel rely on the ability of guests and customers to use the same route safely.

BLR and the neighboring City of Blue Lake have limited manufacturing and long-term storage capacities to provide for self-sufficiency. Ground transportation system disruptions of even a few days result in shortages of essential supplies and impacts on local revenues.

15. Civil Disturbance (30%) Civil Disorder is defined in Title 18, U.S. Code as "any public disturbance involving acts of violence by assemblages of three or more persons, which causes an immediate danger of or results in damage or injury to the property or person of any other individual." Lesser disturbances are included in this category to include acts of any size which, while not violent, may be harmful to the peace, effective operations of Tribal government, enterprises, programs, and economy.

Civil Disturbance	
Factor	Rank
Total severity	16
Probability	13
Fatalities	10
Injured	7
Economic	12
Mental health	6
Critical facilities	16
Infrastructure	13
Environmental	18

This hazard may range from peaceful, but disruptive, demonstrations to violent confrontations that constitute an immediate and serious threat to public safety, facilities, response personnel, and social order. The summer of 2020 saw widespread disturbances across the US, exhibiting a wide range of size, organization, hazard, and response. Civil disturbances are at high risk of escalation into violent, destructive, and even lethal confrontations.

16. Land Movement Other Than Earthquake (17%) This category includes all movements of soil, rock or debris as a result of falling, sliding or flowing, except that caused by earthquake. The topography surrounding the Rancheria is inherently steep, and much of it has been cut for highway and other construction.

Land Movement	
Factor	Rank
Total severity	18
Probability	19
Fatalities	12
Injured	13
Economic	13
Mental health	18
Critical facilities	14
Infrastructure	9
Environmental	11

The category was broadened from simple Landslide in the 2021 plan to include these mass movement hazards:

- Subsidence, which the USGS describes as a gradual settling or sudden sinking of the Earth's surface due to removal or displacement of subsurface earth materials. Underlying causes can be human-caused or natural.
- Falls, described as abrupt movements of masses of geologic materials, such as rocks and boulders, that become detached from steep slopes or cliffs.
- Slump and Creep, described as less dramatic, even imperceptible movement of masses over time.

Most significant to Blue Lake is State Route 299, a key corridor between California's North Coast and Central Valley. Closures, delays, or other disruptions may last several days, impeding response and evacuation operations. Even distant disruptions may affect supply chains and access to the Tribe's hospitality facilities with significant economic impact.

Rainfall runoff, especially in large or sustained rain events, may bypass or overwhelm the storm drainage systems of such roads. Furthermore, the steep cuts along these roads are susceptible to failure under heavy rainfall runoff, traffic, and other causes. Although the roads and services on the Rancheria are not at risk to landslides, nearby transportation corridors that serve the Rancheria are vulnerable.

In March of 2011, a massive slide deposited tons of mud, rocks and trees completely covering all four lanes of US Route 101 near Garberville in Humboldt County. The slide clogged the County's main artery in both directions (north/south) and covered the roadway at least 10 feet deep above the highway. The highway was closed for two weeks. All traffic had to be re-routed for 5 days over

Highway 299 while a single lane was re-established. The slide continued to periodically close the highway, at times impeding delivery trucks throughout the county and region.

Although crucial routes, State Routes 299 and 36 and U.S. Highway 101 are undependable roadways during the winter and early spring months due to snow, ice, and slides. Long delays and closures are common during other parts of the year for major construction projects attempting to improve highway stability, safety, and capacity.

4.1.3 Other Hazards were considered by the planning committee and project staff. Each was either consolidated into another pertinent category or omitted for the reasons provided:

Climate Change was included as a hazard in the 2015 plan. For this update it was originally considered as its own hazard type, however because of its significant impact on many other hazards, effects, response considerations and mitigation measures it was decided to provide a broad overview and treat is as a contributing factor to other hazards, such as extreme weather, wildfire, flood, sustained power outage, and others. That overview is provided at the beginning of this section.

These hazards were assessed by the planning group, and scored in the bottom four ranks for severity, probability, and all effects.

Animal Health. Although goats, horses, and household animal are maintained on Tribal lands and in homes, there are no large numbers, such as might occur in a ranching community. Local hazards include complications of evacuating the population when owners fear for the health and welfare of their animals, and small potential for zoonotic diseases, which may be transmitted from animals to humans. Risks of zoonotic disease are considered in the Public Health/Infectious Disease category.

Seiche. Although a potential hazard of a large earthquake, risks from the ponds and other small standing bodies of water in and near the Rancheria are minimal and are considered in the Flood category.

Tsunami. Although a significant hazard to coastal areas of the region, Blue Lake Rancheria's elevation and distance from the Pacific coast were deemed to make it an extremely improbable direct hazard to the Rancheria. Indirect impacts could include transportation system and supply chain disruptions, addressed in that category.

Workplace Violence is considered under Criminal and Terrorism, although cyber incidents are treated separately because of their very different nature, effects, and mitigation measures.

4.2 Profiling Hazards

Requirement 201.7(c)(2)(i): *The risk assessment shall include a description of the location and extent of all natural hazards that can affect the tribal planning area. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

A historical perspective is useful in determining current and future hazards, risks, vulnerabilities, and successful mitigation actions. The following tables list significant local events dating from 1914. The second provides information since approval of the 2015 TMHMP.

4.2.1 Hazard Event Timeline

Year	Incident Type	Notable Effects
1914 -17	Volcanic ashfall	
1949	Flood (Powers Creek)	
1922	Earthquake (7.3)	
1923	Earthquake (7.2)	
1932	Earthquake (6.4)	
1954	Earthquake (6.5)	
1955	Flood (50 year)	
1964	Flood (Powers Creek & Mad River)	Per USACE, the largest Mad River flood
1976	Earthquake (6.3)	
1980	Earthquake (7.2)	
1985	Airborne particulates	
1992	Earthquake (7.1)	
1992	Earthquake (6.2)	
1992	Flood (Powers Creek)	
1994	Flood (Powers Creek)	
2003	Flood (Powers Creek)	
2003	Wildfire threatened the casino	
2005	Flood (Powers Ck.) & power outage	
2005	Earthquake (7.2)	
2005	Flood	
2006	Flood	
2008	Wildfires w/ hazardous air quality	Described as “the summer of smoke”
2010	Earthquake (6.5)	
2011	Severe storm	
2011	Landslide	
2012	Severe storm	
2012-15	Drought	Included the driest water year on record
2013	Cyber attack	
2014	Severe storm	
2014	Earthquake (6.9)	
2014	Flood	
2014	Climate change	
2014	Wildfire	
2014	Wastewater spill	
2014	Workplace violence	

Table 4.6 Locally significant events 1914-2014

The 2015 plan's timeline was updated with events occurring since its approval. In 2020, members of the planning group were provided a timeline of recorded past hazard events and were asked to add any additional past hazard events. Additional input was solicited from federal, state, and local agencies.

Year	Incident Type	Notable Effects
All	Constant cyber intrusion attempts	Financial, government, and business disruptions; direct and indirect financial loss
2015	Continuing drought*	
2015	Severe rainstorms*	Declared emergency for 3 California counties
2015	Wildfires*	Declared emergency for 15 counties
2016	December winter storms*	
2017	January winter storms and mudslides* **	Multiple separate storm systems
2017	February winter storms* **	
2017	Wildfire	
2017	Multiple landslides US 101 and SR 299	Reduced fuel deliveries by 60% for 2 weeks
2018	Failure of toxic containment at an abandoned Glendale mill site	Elevated ground water levels of dioxin near the Mad River
2018	Armed robbery and carjacking	
2019	Severe winter storms*	Declared emergency for 21 California counties
2019	Storm-caused power outage	Effects throughout Humboldt County
2019	Public Safety Power Shutoffs (4.5 days total)	Port was without power; Local water system failed
2019	Historic wind event and wildfires*	Widespread power outages; declared for all CA counties
2019	Unhealthy air quality from wildfires	
2020-2021	COVID-19 pandemic* **	Severe impacts, including closures of the casino & hotel for 194 days between March 18, 2020 and January 17, 2021
2020	Armed robbery and shooting in Blue Lake	
2020	Extreme weather, wildfires & air quality*	Declared for all California counties
2020	Record breaking wildfires*	Declared for all California counties
2020	Widespread air quality events*	Declared for all California counties
*Gubernatorial emergency declaration including Humboldt County **Presidential Major Disaster declaration for California		

Table 4.7 Locally significant events 2015-2020

4.2.2 Hazard Ranking Comparison from 2020 and 2015

Table 4.8 compares survey rankings from 2015 and 2020. Differences are attributed to these factors:

1. Human-caused hazards are not required in multi-hazard mitigation plans. The 2021 planning group opted to include them as significant to the community.

2. The update project worked to develop an improved understanding of hazards by members of the planning group. In the course of the planning process the group was provided briefings on significant hazards by members from the National Weather Service, FEMA, and other group members with subject matter expertise. The category of volcanic activity is added for this reason.

3. Considerable practical experience was gained in the intervening five years, the very reason plans are required to be updated at that interval. Since 2015 an 11-year California drought ended, record-breaking wildfires caused widespread air quality degradation, power shutoffs became a fact of life, and the Coronavirus COVID-19 pandemic had severe impacts across the West and the globe.

Hazard	Type	Ranking		Net Change
		2020	2015	
1. Earthquake	Geological	1	1	0
2. Wildfire	Multiple	2	8	+6
3. Public Health/Infectious Disease Outbreak	Multiple	3	12	+9
4. Severe Storm	Meteorological	4	5	+1
5. Flood, Including Dam Failure	Multiple	5	4	-1
6. Influx of Evacuees	Multiple	6	N/A	N/A
7. Drought	Meteorological	7	3	-4
8. Sustained Power Outage	Multiple	8	N/A	N/A
9. Criminal/Terrorism	Human-Caused	9	9	0
10. Hazardous Materials Release	Human-Caused	10	11	+1
11. Air/Water Quality	Multiple	11	6	-5
12. Aircraft Crash	Human-Caused	12	N/A	N/A
13. Cyber Incident	Human-Caused	13	N/A	N/A
14. Transportation/Distribution Chain Incident	Human-Caused	14	N/A	N/A
15. Civil Disturbance	Human-Caused	15	N/A	N/A
16. Landslide	Geological	17	2	-15
Climate Change	Multiple	Contributory	13	N/A

Table 4.8 Comparative hazard rankings 2015 and 2020

Other 2015 Hazards Considered	Status
Airborne Particulate Other Than Volcanic	Incorporated into the Air/Water Quality
Animal Health	Determined to be low threat
Dam Failure	Incorporated into the Flood hazard
Pandemic	Broadened into Public Health/Infectious Disease
Terrorism	Combined with Criminal
Tsunami	Determined to be very low threat
Workplace Violence	Incorporated into Criminal/Terrorism

Table 4.9 Status of other 2015 hazards considered in this update

4.2.3 Hazard Locations, Extent (Magnitude or Severity), and Previous Occurrence

Frequency, Severity, Uncertainty and Compound Effects

The small footprint of Rancheria lands, housing, enterprises, and resources means few large or complex emergencies occur within its boundaries. It remains highly vulnerable to a variety of hazards nearby and throughout the region. The frequency and severity of some hazard events are difficult to quantify, and their effects may be varied and unpredictable. Local examples include sedimentation of the Mad River with its effect on flooding, and climate change with its effects on weather, wildfire risk, air or water quality, tourism, and other factors.

During the assessment of potential hazard events, compound and cascading events were considered, for example an earthquake that affects Mad River channel morphology resulting in flooding, and causes secondary land movement, structural damage, supply chain disruption, hazardous materials releases, and other hazards. For the following reasons, compound events were not analyzed in detail for the TMHMP:

- The variables and interrelationships of multiple primary, secondary, and tertiary hazards, complicating factors, and potential events makes them difficult to accurately model and predict.
- The FEMA HAZUS and other programs do not provide modeling of compound events

4.2.4 Hazard Probabilities

Probabilities for each hazard are provided in their identification and risk assessments. Table 4.10 provides a summary here.

Category	Ranking	Hazard	Probability Score
High (7 to 8)	1	Public health/infectious disease	8.1
	2	Severe storm	7.7
	3	Earthquake	7.5
	4	Drought	7.5
	5	Influx of evacuees	7.2
Moderate (5 to 6)	6	Wildfire	6.8
	7	Air or water quality	6.4
	8	Sustained power outage	6.3
	9	Flood, including dam failure	6.0
	10	Cyber incident	5.8
Low (4 and under)	11	Transportation/supply chain disruption	4.9
	12	Hazmat	4.8
	13	Civil disturbance	4.7
	14	Criminal or terrorist act	4.3
	15	Airplane crash	3.4
	16	Volcanic activity	3.2
	17	Land movement other than earthquake	2.8

Table 4.10 hazard probability assessment

4.2.5 Hazard Operational Impacts and Vulnerabilities

Rank	Hazard	Last 3 Occur-rences	Description of Hazard and Operational Impacts	Sources
1	Public Health/ Infectious Disease Outbreak	2020	For the purposes of this plan, the category includes pandemic, epidemic, and smaller local outbreaks of infectious disease. Impacts may include: delayed onset of discovery and signs/symptoms; initial impact on non-emergency services, such as doctors' offices and clinics; may deplete staffing of response entities and ability to receive and distribute essential goods and services; shortage of patient receiving options; saturation of healthcare facilities may require establishment of ad hoc facilities or many transfers outside of the county; positive identification of the infectious agent may be delayed for several days.	• United Indian Health Services

Table 4.11 Hazard descriptions, vulnerabilities, and operational impacts

Rank	Hazard	Last 3 Occur-rences	Description of Hazard and Operational Impacts	Sources
2	Severe Storm	2014 2012 2011	Severe Storm refers to any dangerous meteorological phenomenon with the potential to cause damage, serious social disruption, or loss of life. It includes thunderstorms, downbursts, freezing rain, snowstorms, ice storms, wind storms and dust storms. Physical damage or destruction to key facilities including schools, healthcare, communications and emergency services sites; damage or destruction of numerous homes, business and other structures, with potential for injury and death; disruption of utilities; impaired land transportation; grounding of air transportation; hazardous conditions for field responders; may cause hazardous materials releases and fires.	• Rancheria residents, staff • Local emergency plans • National Weather Service Eureka Office
3	Earthquake	Above M 6: 3/10/14 01/9/10 06/14/05	The Rancheria's proximity to the Cascadia Subduction Zone and Mendocino Triple Junction increases its risk of a Magnitude 9 event. Structural and non-structural damage to fixed facilities including government, emergency services, healthcare, schools and residences; may require evacuation of entire facilities; disrupted ground transportation systems; disruption of utilities; risk of fire, landslide, dam failure; high incidence of blunt and penetrating trauma and secondary medical emergencies; displaced populations may be reluctant to accept shelter indoors.	• Blue Lake Rancheria PDMP • Rancheria residents, staff • Humboldt County Hazard Mitigation Plan • Planning project staff
4	Drought	2014 2013 2012	Drought is caused by low precipitation over an extended period of time. Community and individual water systems are particularly vulnerable during drought conditions. Impacts may include increased number, size, intensity, and rate of spread of wildfires.	• Rancheria residents, staff • http://ca.gov/drought/
5	Influx of Evacuees	2019 2020	Sharp and sustained increase in demand for goods and services; sustained and serious traffic congestion and backup; interference with regular operations of Tribal government and enterprises; reduced patronage of the casino.	• Rancheria emergency services and staff

Table 4.11 Hazard descriptions and operational impacts (continued)

Rank	Hazard	Last 3 Occur-rences	Description of Hazard and Operational Impacts	Sources
6	Wildfire	2014 2008 2003	Uncontrolled fire in a forest, grassland, brushland, or land sown to crops. Impacts may include mass fatalities and mass casualties; threatened, damaged or destroyed fixed facilities including schools, healthcare services and emergency services; may require evacuation of entire communities and/or schools, medical facilities and key public safety facilities; impaired land and air transportation, including emergency services; air quality can cause health problems for vulnerable populations well outside of the area threatened by the fire itself; fire suppression needs may limit personnel availability for emergency medical response; hazardous conditions for field responders; may be sustained for several weeks	• Humboldt Operational Area Hazard Mitigation Plan Update
7	Air or Water Quality Event	2008 2018 2019	Hazardous air and water can be pervasive and unavoidable; exposure can endure for many days or weeks; many in the community may be exceptionally vulnerable to health impacts; events may escape detection and resist mitigation; hazards may persist in the environment for many years	• BLR OES and EPA
8	Sustained Power outage	2019 2020	Influx of evacuees and all issues related to that hazard; lack of power grid support in the event of a failure of the BLR microgrid; increased logistical demands to maintain operation of backup generators; in the event of a cascading failure, increased reliance on government support for basic needs.	• BLR OES
9	Flood Including Dam Failure	2014 2006 2005	Flood may occur from: Overflow of inland or tidal waters; Unusual and rapid accumulation or runoff of surface waters from any source; Mudflow; or Collapse or subsidence of land along the shore of a lake or similar body of water. Dam failure may be caused by a seismic event, severe weather, mechanical failure, or criminal/terrorist act. While inundation of BLR lands and buildings may occur, several hours of notice are expected before flood waters reach the area. Impaired land transportation; closure or diminished functionality of some fixed facilities; disruption of utilities; may require evacuation of medical facilities; ongoing hazardous conditions for field responders; may cause hazardous materials releases; may be sustained for several days.	• Humboldt Bay Municipal Water District • Matthews Dam Failure Response Plan • BLR OES • Humboldt County Hazard Mitigation Plan

Table 4.11 Hazard descriptions and operational impacts (continued)

Rank	Hazard	Last 3 Occur-rences	Description of Hazard and Operational Impacts	Sources
10	Cyber Incident	2018 2019 2020	Impaired operations of BLR governmental and business operations; potential for significant loss of revenue; potentially high costs of detection, protective actions, and resumption of services.	• BLR IT Dept.
11	Transporta-tion System/ Supply Chain Disruption	2016-2020	Short term delays on key highways can impact local businesses. More substantial disruptions can interfere with evacuation of casualties and those in danger, emergency response, receipt of essential goods and services, and a full range of logistical support for day-to-day and emergency/disaster operations.	• BLR staff
12	Hazardous Material Release	2015	The type of response required is dependent on variables such as product, quantity, location, presence of vulnerable people or environment, and others. Impacts may include: the need to evacuate and/or shelter-in-place high occupancy locations and large areas; closure of major transportation routes; safe access by responders may be limited; behavior of unknown and mixed commodities may be highly unpredictable; changes in weather may require changes in the response; high incidence of "worried well" and psychosomatic presentations for care; may be sustained for a day or more; criminal/terrorist acts may include sequential devices or booby traps to impact response operations.	• Blue Lake Rancheria residents, staff • Local emergency plans
13	Civil Disturbance		Disruption of routine government and business operations; increased anxiety and risk to residents, staff, and visitors; potential to escalate into destructive or violent confrontation.	• BLR staff
14	Criminal or Terrorist Act	2018 2019 2020	Criminal and terrorist acts may be indistinguishable early in the incident and investigation. Local acts may be directed against individuals, institutions, the environment, or other targets. Included in this category are workplace violence and cybercrime. Acts may not be immediately identified as a criminal or terrorist act; highly complex response involving many agencies and disciplines; may take many forms—explosion, chemical, radiological, biological or other; need for evidence preservation may complicate response; high risk of one or more sequential event targeting responders.	• Current and retired BLR Tribal police chiefs

Table 4.11 Hazard descriptions and operational impacts (continued)

Rank	Hazard	Last 3 Occur-rences	Description of Hazard and Operational Impacts	Sources
15	Aircraft Crash	None locally	Potential for mass casualties, damage or destruction of facilities and residences, hazardous materials release; potential for sustained closure of the area and businesses for incident response, investigation, and recovery.	• Humboldt County Airports Dept.
16	Land Movement Other Thank Earthquake	3/2011	The rapid downward sliding of a mass of earth and rock. Landslides usually move over a confined area. Many kinds of events can trigger a landslide, such as the over steepening of slopes by erosion associated with rivers, glaciers, or ocean waves; heavy snowmelt which saturates soil and rock; or earthquakes that lead to the failure of weak slopes. Impacts may include impaired land transportation, impact on fixed facilities; disruption of utilities; possibility of subsequent landslide; potential isolation of residences, business or communities for sustained periods.	• Humboldt Operational Area Hazard Mitigation Plan Update • Rancheria residents, staff

Table 4.11 Hazard descriptions and operational impacts (continued)

4.2.6 Data Deficiencies

Blue Lake Rancheria, being both a tribal entity and located in a rural area, has fewer data sources available to it. One example is FEMA's Flood Insurance Rate Maps, which exclude tribal lands. This plan has endeavored to address those gaps wherever possible with data from within the Tribe and its many collaborators in the region.

4.3 Assessing Vulnerabilities

4.3.1 Overview of Hazard Vulnerabilities

Requirement 201.7(c)(2)(ii): *[The risk assessment shall include a] description of the Indian Tribal government'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 tribe.*

Our assessment is based on information gained in the initial PHMP and updated as appropriate. While some new data have been acquired and some changes have taken place, much of our original plan is still relevant and it has been preserved. Additional data were gained in desktop analysis, Tribal Member input and a number of stakeholders and subject matter experts.

The BLR has been familiar with vulnerabilities to a number of hazards and has taken steps over the years to mitigate many of those. The years 2019 and 2020 introduced some hazards previously identified, but not considered highly likely. The power outages of those years brought attention to the Rancheria's appeal to those seeking essential goods and services unavailable at other locations.

Widespread and sustained wildfire smoke pollution during those years did the same, and the COVID-19 pandemic of 2020 prompted a significant shift in priorities. While there are multiple hazards and risks, our focus for the purpose of this TMHMP is limited to those 17 deemed most significant.

4.3.2 Potential Hazard Impacts Ranked by Vulnerability. The following section of hazard vulnerabilities is shown in order of overall hazard severity regardless of probability. Each hazard has an additional hazard specific breakdown of level of vulnerability for key hazard effects: high, moderate, and low.

Ranking	Hazard	Severity Score Excluding Probability
1	Earthquake	40.2
2	Wildfire	39.0
3	Flood incl. dam failure	33.9
4	Public health/comm. disease	32.2
5	Aircraft crash	31.4
6	Criminal/terrorist act	28.8
7	Severe storm	26.6
8	Hazardous materials release	23.9
9	Sustained power outage	21.2
10	Transportation/supply chain	20.7
11	Influx of evacuees	20.3
12	Drought	19.4
13	Civil disturbance	19.2
14	Land movement not EQ	18.4
15	Cyber incident	18.3
16	Air or water quality event	17.3

Table 4.12 hazards ranked by rated severity

4.3.3. Hazard Specific Vulnerabilities

1. Earthquake. (High Severity)

Effect	Vulnerabilities
Fatalities	High: residential structures are vulnerable to structural and non-structural damage; large, dense gatherings are commonplace
Injured	High: residential structures are vulnerable to structural and non-structural damage; large, dense gatherings are commonplace
Economic	High: damage to facilities and infrastructure could be expensive to repair; damage to State Route 299 could delay response and recovery
Mental Health	High: mass care and shelter needs could be severe and long-lasting
Critical Facilities	Moderate: most are of modern construction, however vulnerable to non-structural damage
Infrastructure	Moderate: roads, utilities, and other systems are vulnerable to damage
Environmental	Moderate: damage to ecosystems could be harmful and lasting

Significant system failures during and after significant shaking could include:

A strong earthquake could cause structural and non-structural damage throughout the community. In particular, many residential structures in the Rancheria are older and not designed to recent seismic codes. Many residential structures are mobile or modular construction without foundations, or not secured to those foundations.

Another potential consequence of an earthquake is the failure of utility infrastructure within the community. Power poles could fall, waterlines rupture, underground septic tanks shift or rupture and contaminate nearby wells.

Earthquake events, along with many of the other hazard events, also have the potential to disrupt the Highway 299 & 101 transportation corridors and isolate the Tribe from critical emergency services, hospitals, shelter, and food. Evacuation of casualties and others could be delayed for many days, or reliant on cross-country or air transport.

Communications with outside governments and agencies may be reliant on emergency systems, including satellite, amateur radio, and other redundant mechanisms.

Government structures are of modern construction and generally expected to maintain enough integrity to allow evacuation, if not functionality after an earthquake. All residential structures are at substantial level of risk.

It is estimated that Humboldt County is unlikely to receive substantial state or federal aid in a regional or statewide seismic disaster for a minimum of one week and possibly much longer. The area's ground transport challenges and low population density could be a handicap.

2. Wildfire (High Severity)

Effect	Vulnerabilities
Fatalities	Low: spread into Rancheria lands is of low threat, and warning/evacuation times are typically enough to evacuate effectively
Injured	Low: spread into Rancheria lands is of low threat, and warning/evacuation times are typically enough to evacuate effectively
Economic	Moderate: large fires in neighboring areas impact Tribal revenues by restricting vehicle traffic and creating unhealth air quality
Mental Health	Moderate: long duration fires and air quality issues create population fatigue
Critical Facilities	Low: modern construction materials and techniques reduce this risk
Infrastructure	Low: roads and systems are considered to be at low risk
Environmental	High: damage to forestlands takes decades to recover; air quality routinely suffers during large wildfires including distant incidents; water quality can be affected by particulate fallout

Much of the residential construction on the Rancheria is highly vulnerable to fire. Wood frame construction and mobile homes are prevalent, and in many instances, closely spaced. Although 100% are equipped with smoke and CO^2 detectors, and inspected annually by the Tribe, none have fire sprinklers. The Rancheria's proximity to wildlands makes this hazard substantial. Detectors are expected to significantly reduce deaths and injuries, however losses of homes and contents could be high to extreme.

BLR's vulnerability to wildfires is compounded by its interfaces with vegetation along the Mad River and Powers Creek, to which emergency vehicles have limited access. Once a wildland fire enters the Rancheria, there is a high probability that the fire would ignite residential areas comprised of wooden houses, wooden outbuildings, manufactured homes, and trailers – most with combustible siding and decks and non-rated roofing materials – and combustible trees and brush. Insufficient ingress and egress for emergency vehicles, less than 70% defensible space, and limited fire hydrants make portions of the Rancheria particularly vulnerable.

The Sapphire Palace event center is a plastics-based, tented building that will resist ignition but will easily melt where wind-blown hot embers land.

The casino, hotel, event center, Tribal government office and justice center and fire station are all sprinkler-equipped.

Figure 4.15 displays what structures are vulnerable to wildfire events. Structures are color-coded into the following categories according to their vulnerability:

- Low – Wildfire damage would be minimal due to construction materials but risk is not zero because of neighboring grasslands.
- Moderate – Damage would be substantial due to construction materials but risk is not high given distance from wildlands.
- High – Damage would be substantial due to construction materials and risk is high given proximity to propane tanks.

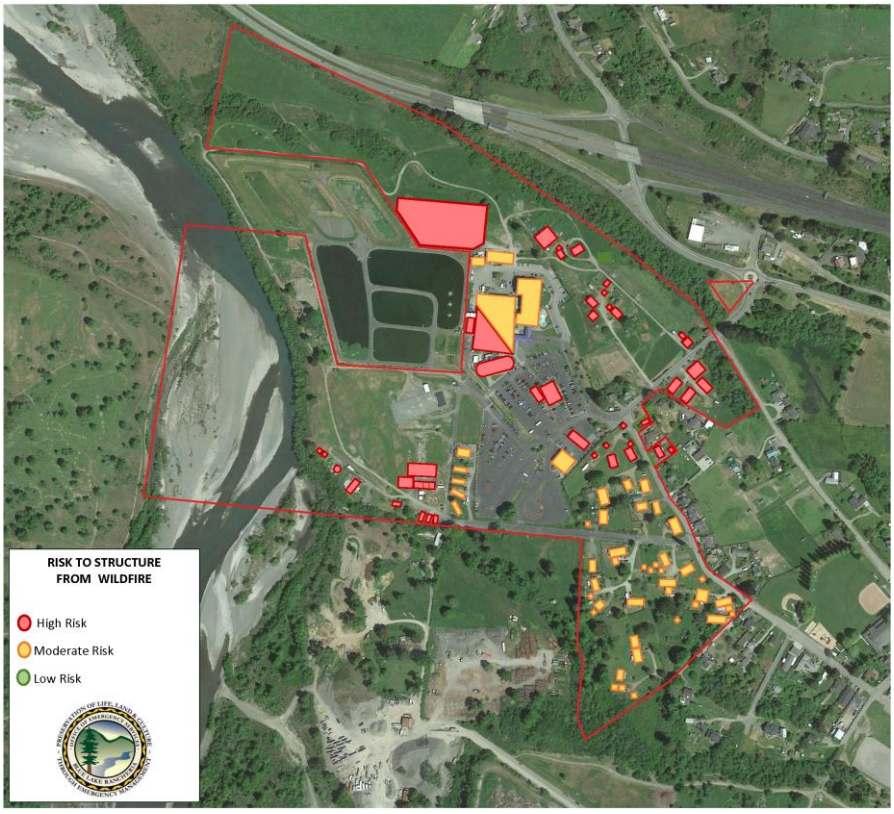


Figure 4.15 - Wildfire Hazard Risk Assessment Map

Should a wildfire threaten the Rancheria, the damage could be substantial due to:

- Many Rancheria homes have substandard outbuildings (i.e., sheds, barns, and workshops)
- The mobile home park has little defensible space and a higher risk of structural fires
- Since the 2015 plan was completed, BLR established a Tribal fire department, which is still being developed at the time of this update. The Rancheria receives additional fire protection from the California Department of Forestry (CDC) and the City of Blue lake Volunteer Fire Department, both of which can take a significant amount of time to respond. During wildfires of the magnitude of recent years, California's wildland and municipal fire agencies have experienced severe resource depletion as they support responses.

Distant wildfires may create unhealthy or hazardous air quality for several weeks at a time, may disrupt traffic on SR 299, and may impact availability and response times of firefighting resources.

3. Flood Including Dam Failure (High Severity)

Effect	Vulnerabilities
Fatalities	Low: warning times are expected to be ample for effective evacuation
Injured	Low: warning times are expected to be ample for effective evacuation
Economic	High: damage and disruption to revenue sources may be high and long-lasting
Mental Health	High: displacement from homes, services, and community will occur
Critical Facilities	High: community services and enterprises may be severely impacted
Infrastructure	High: roads, utilities, and other infrastructure may be severely impacted
Environmental	Moderate: hazards may include changes in water courses, hazardous materials releases, scouring of topsoil, and other effects

The Environmental Assessment for the BLR Casino (ESA, June 2001) shows that the western portion of the Rancheria would experience flooding during a 1-percent like event. A base flood elevation of about 70 feet MSL is predicted (NGVD 29). Since the actual 1-percent like event floodplain is a matter that still needs more definitive study, BLR has relied more heavily on community input to determine the vulnerability of the Rancheria to local flood events

The mobile home park closest to the Mad River (and nearest to the Powers Creek confluence with Mad River) is subject to the most severe flooding in a 1-percent event. The mobile homes in the park have skirts that could trap debris, which would add to the floodwater forces to topple the trailers. Furthermore, none of the mobile homes has a concrete foundation. Instead, they are set on jacks, further increasing the potential of the structure to topple over during a flood event.

Local flooding, as described previously, poses the most threat to the mobile homes south of Rancheria Road. Also vulnerable are the following assets:

- Vehicles parked in the Casino parking lot or elsewhere on the Rancheria
- Rancheria-owned land on the west side of Mad River that is particularly vulnerable to the river's erosive effects

Damage from smaller floods is mostly minor structurally but can be costly to repair. The most severe residential flooding risk for these smaller events is along a swath of low-lying land that stretches north from about mid-way of Ivye Lane. There are no culverts at Rancheria Road for this swale.

During 2006 storm events, none of which reached the severity of a 1-percent event, areas up to an acre west of the Mad River were simply washed away.

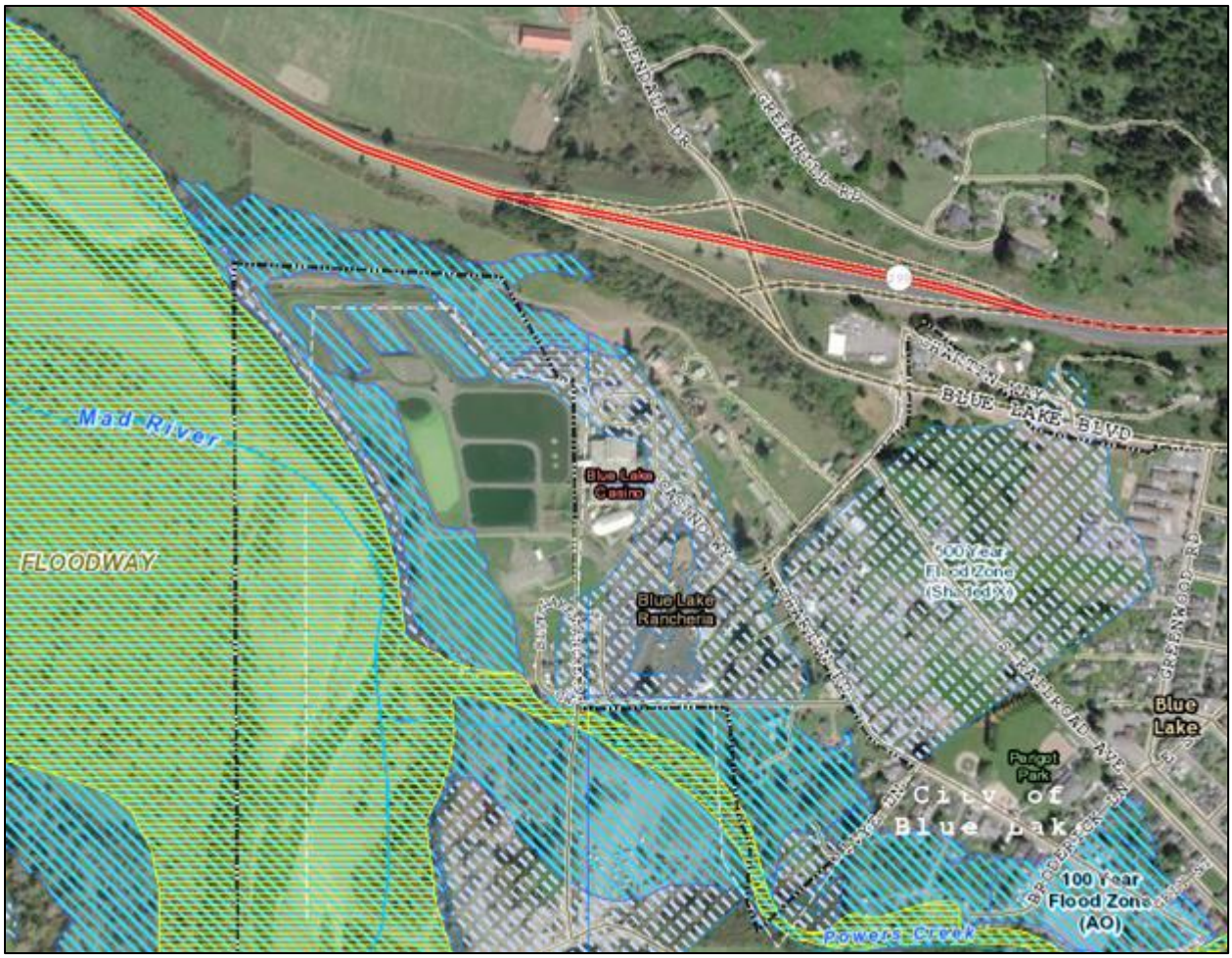


Figure 4.16 Flood risk 2017 Source: FEMA

Figure 4.16 shows the level of flood risk faced by various parts of the Rancheria for smaller floods of concern. The blue hatched areas signify 0.2% annual occurrence probability, the white 1%, and green the established floodway of the Mad River.

As the map indicates, much of the Rancheria is at risk to some level of flooding.

A worst-case failure of Matthews Dam could cause a high-velocity debris wave at a depth roughly 90 – 96' max water surface elevation, 5 ½ - 7 ½ hours after breach of the dam. This event could result in a 100% loss of all structures on the Rancheria. Timely warning to the Rancheria would allow sufficient time to avert loss of life, and a small percentage of personal effects could be saved.

The more likely scenario would be a more gradual and lower volume of water at the Rancheria.

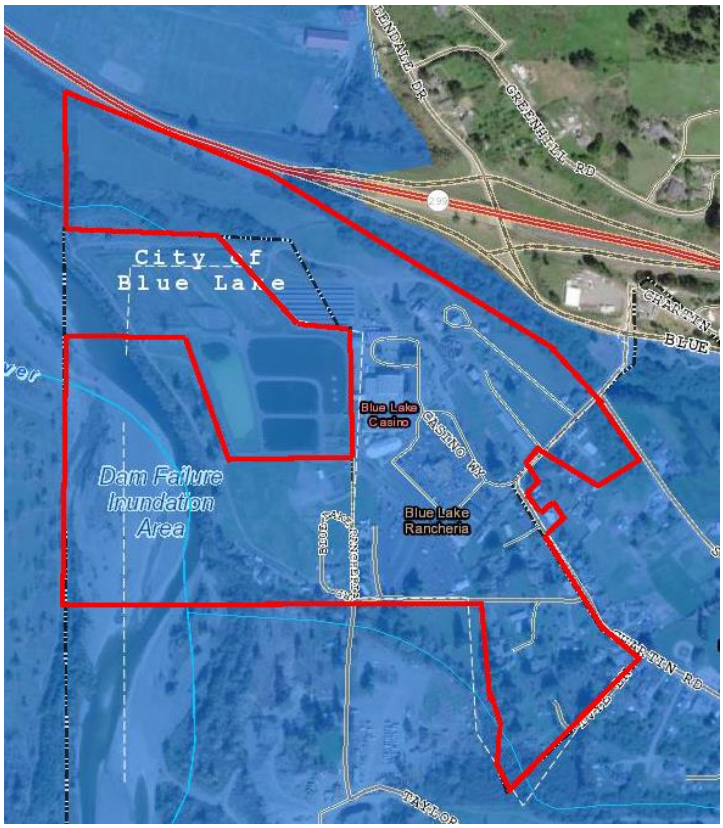


Figure 4.16 - R.W. Matthews Dam Failure Inundation Model

4. Public Health/Infectious Disease Outbreak (High Severity)

Effect	Vulnerabilities
Fatalities	Moderate: similar to other jurisdictions in Humboldt County
Injured	Moderate: similar to other jurisdictions in Humboldt County
Economic	Severe: closures of enterprises deprive the jurisdiction of revenues
Mental Health	Moderate: similar to other jurisdictions in Humboldt County
Critical Facilities	Low: reduced revenues could necessitate deferred maintenance
Infrastructure	Low: reduced revenues could necessitate deferred maintenance
Environmental	Low: reduced traffic and human impacts could benefit the environment

The SARS COVID-19 pandemic of 2020-21 provided a vivid example of the vulnerabilities of every community and organization to communicable diseases. At the time of this update, more than 500,000 fatalities had been attributed to the disease in the US alone, including healthcare, law enforcement, fire rescue, and other public service workers. By the first quarter of 2021, it was the leading cause of death for both law enforcement officers and fire service personnel in the country.

As a jurisdiction without a healthcare facility, Blue Lake Rancheria is perhaps less vulnerable because it doesn't have a natural venue for gatherings of those with, or vulnerable to, infection. On the other hand, the lack of nearby health services may mean those with illnesses may delay seeking attention, allowing disease progression.
Throughout the 2020-21 event the greatest impact to BLR was sustained closures of the casino and hotel, with resulting layoffs of staff and severe reductions in revenues. Even without government-

mandated restrictions on public gathering locations , sharply reduced business would have been expected regardless due to reluctance of many potential visitors to gather in large numbers.

An analysis of Tribal operations showed a 3-month total loss of $13.1 million during the pandemic, including $11.4 million in revenue loss and $1.7 million in productivity loss. As of early 2021, impacts continue to be felt across the full spectrum of Tribal government, enterprise, and life.

5. Aircraft Crash (High Severity)

Effect	Vulnerabilities
Fatalities	High: any aircraft accident has an inherently high risk of fatalities among those aboard and any populated areas or structures at the site
Injured	Moderate: injuries may be numerous and serious, especially among those on the ground at the site
Economic	Moderate: impact in the hotel, casino, or event center could create sustained loss of use
Mental Health	Moderate: grief and depression at incident locations is common
Critical Facilities	Low: unless directly impacted, effects should be minor
Infrastructure	Low: unless directly impacted, effects should be minor
Environmental	Low to moderate: depending on aircraft size and cargoes

Blue Lake Rancheria's position near the approach to the commercial and military airport at McKinleyville makes it more vulnerable than most communities to an incident. Any crash could involve fatalities, major injuries, fire, and hazardous materials releases. Commercial flights into the airport have capacities of 70+ passengers and crew. Military flights may pose special challenges.

A crash into a residential neighborhood, the casino, hotel, or event center could generate hundreds of additional fatalities, while impact at or near key infrastructure sites could disrupt power, water, sewage, communications, and other services.

6. Criminal or Terrorist Act (High Severity)

Effect	Vulnerabilities
Fatalities	Low: these incidents typically have low numbers of fatalities
Injured	Moderate: acts intended to cause casualties can yield scores of injured
Economic	Moderate: an act targeting an enterprise can result in damage, closure, and unfavorable public exposure
Mental Health	Moderate: any criminal or terror event in a small community can impact the public's mental health
Critical Facilities	Low to moderate: depending on the target and nature of the act
Infrastructure	Low to moderate: depending on the target and nature of the act
Environmental	Low to moderate: depending on the target and nature of the act

Simple criminal impacts include but are not limited to; economic loss due to theft, damage, or destruction of assets; loss of customer confidence and recreational enjoyment; risk of injury or death to personnel and visitors, and; environmental damage.

A terrorist act can compound any or all of these effects, as they are often designed for maximum human, economic, and environmental impacts.

In either case, the true nature of the act, its effects and motive behind it may be concealed to delay and complicate detection, assessment, response and investigation.

7. Severe Storm (Moderate Severity)

Effect	Vulnerabilities
Fatalities	Low
Injured	Moderate: some injuries possible due to wind and traffic hazards
Economic	Moderate: enterprises experience reduced business
Mental Health	Moderate: could be higher for long duration or exceptionally severe events
Critical Facilities	Moderate: some are vulnerable to wind and water damage
Infrastructure	Moderate: some are vulnerable to wind and water damage
Environmental	Moderate: storm conditions may impact lands and protective systems

The Rancheria is subject to two strong wind patterns throughout the year. At-risk trees in the Rancheria pose a danger of falling onto residential structures, damaging above ground utilities, blocking road access, damaging vehicles on the Casino parking lot, and causing injury. The five singlewide mobile homes in the trailer park that are up on jacks are vulnerable to damage from strong winds. The planning group noted that the structures in the newly acquired lots could be damaged; one of the houses has old shingles that could be propelled by the wind and damage other structures, residents, or cars parked in the casino parking lot.

Several stands of isolated mature trees are believed to be vulnerable to strong winds, although an arborist has not confirmed this. Other forms of wind damage include nuisance damage to old shingle roofs and damage to the weather station, which has been felled by the wind in the past.
Figure 4.17 shows the structures vulnerable to major wind events, color-coded by their relative vulnerabilities. The following risk levels are used to categorize the vulnerability of specific structures:

- High – Risk of wind damage from proximity to vulnerable trees combined with weak structural support.
- Moderate – Risk of wind damage primarily because of broad exposure to prevailing winds and weak structural support.
- Low – Some risk of wind damage because of proximity to vulnerable trees or other vulnerable structures.
- None – No reasonable risk of wind damage.

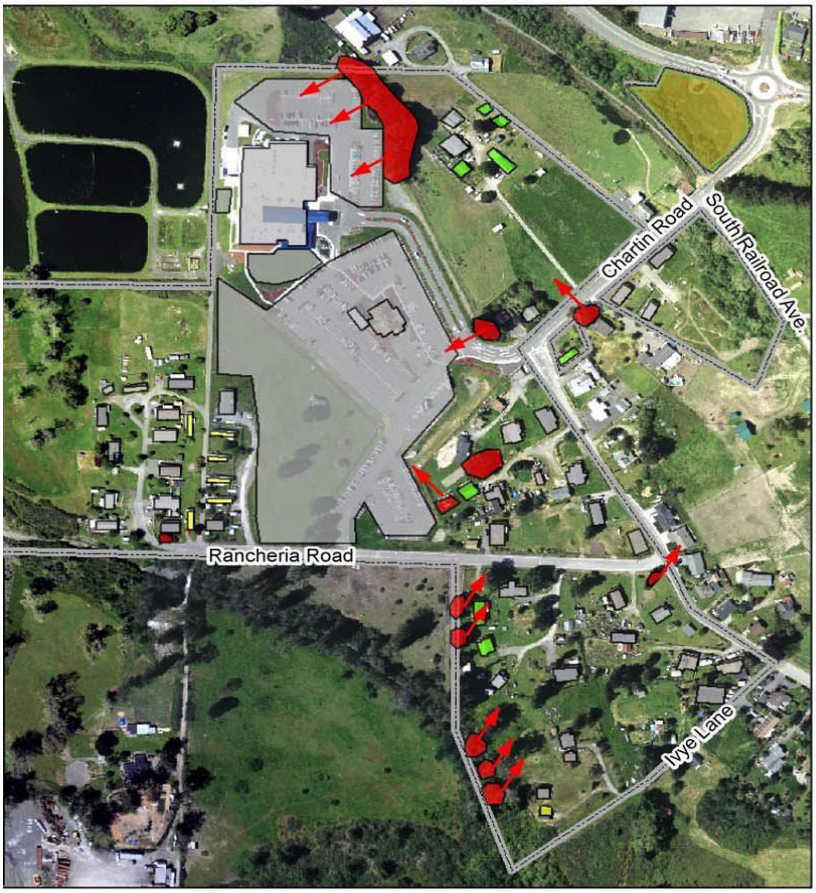


Figure 4.17 Severe Storm Hazard Risk Assessment

8. Hazardous Material Release (Moderate Severity)

Effect	Vulnerabilities
Fatalities	Low: acute cases are typically few; fatalities may be delayed by many years
Injured	Low: acute cases are typically few; delayed and chronic cases may occur
Economic	Moderate: any closures would typically be of short duration
Mental Health	Moderate: community concern about exposure could be common
Critical Facilities	Low: unless directly affected, effects should be minor
Infrastructure	Low: roads and systems should recover quickly from an incident
Environmental	Low to severe: depending on the nature and quantity of the product released, lasting environmental damage is a possibility

As with other modern communities, Blue Lake Rancheria's enterprises and operations include storage, transfer, and use of hazardous materials. Perhaps the greatest risk is from the adjacent State Route 299, with daily commercial transportation of a variety of products in large quantities. Surreptitious transportation, storage and use are common in area activities such as extraction of cannabis products.

BLR is vulnerable to the direct effects of any release, including fire, explosion, toxic exposure, and environmental harm. Indirect and delayed effects may include toxic and environmental effects. Impacts could include fatalities and injuries to residents, visitors and staff, damage to facilities, disrupted business and governmental operations, and lasting environmental issues.

9. Sustained Power Outage (Low Severity)

Effect	Vulnerabilities
Fatalities	Low: BLR's power independence should keep these impacts very low
Injured	Low: BLR's power independence should keep these impacts very low
Economic	Low to Moderate: retail and lodging business may increase when surrounding communities are without power; reduced casino business could occur
Mental Health	Low: increased vehicle and visitor traffic may increase anxiety
Critical Facilities	Low: provided the independent microgrid remains functional, these facilities are expected to remain intact and functional
Infrastructure	Low: provided the independent microgrid remains functional, these facilities are expected to remain intact and functional
Environmental	Low: additional vehicle and visitor traffic may increase environmental burdens for the duration of an outage

Although the Rancheria's independent power generation and distribution capabilities make it less vulnerable than in the past, cascading system failures could occur. Impacts could include closure or disruption of facilities and enterprises and operational challenges for government operations.

Increasing numbers of residents are reliant on powered devices to maintain their health and independence. Although most such devices now have battery backup, a sustained failure poses a risk to their safety.

10. Transportation/Supply Chain Disruption (Low Severity)

Effect	Vulnerabilities
Fatalities	Low:
Injured	Low:
Economic	Low to Moderate: dependent on the degree and duration of disruption
Mental Health	Low to Moderate: dependent on the degree and duration of disruption
Critical Facilities	Low to Moderate: dependent on the degree and duration of disruption; delays of shipping of essential goods and impeded transportation for personnel are possible
Infrastructure	Low
Environmental	Low

The Rancheria's reliance on local ground transportation makes it vulnerable to closures, significant delays, and other disruptions. Essential supplies and services to residents rely heavily on road traffic. The absence of local healthcare facilities poses challenges to the population. The logistical demands of the casino and hotel operations are high. Routine government and business operations are hampered when routine transportation suffers. Conditions that interfere with visitor traffic can quickly and seriously impair revenues.

11. Influx of Evacuees (Low Severity)

Effect	Vulnerabilities
Fatalities	Low:
Injured	Low:
Economic	Low to Moderate: Some enterprises may see sharp increases in business; recreational enterprises may see sharp decreases
Mental Health	Low: increased vehicle and visitor traffic may increase anxiety among the local community
Critical Facilities	Low to Moderate: some may be impacted by large numbers of visitors
Infrastructure	Low to Moderate: traffic may increase sharply and remain high; local services may experience significant surges in demand
Environmental	Low: short term effects are possible from short term population increases

An unplanned influx of thousands of evacuees or others makes Blue Lake Rancheria vulnerable to a number of challenges. Traffic management requirements, security considerations, and impacts on businesses can quickly become severe and last as long as the emergency conditions exist.

Demand for fuel, foods, water, ice, shelter, and electrical power will be high, and may require rationing. The added stress on people already under stress from a local or regional emergency creates the risk of many conflicts, including a potential for violence. Law enforcement and security resources are at high risk of becoming overwhelmed or exhausted.

12. Drought (Low Severity)

Effect	Vulnerabilities
Fatalities	Low: gradual onset typically permits adaptation
Injured	
Economic	Moderate: drought and related conditions can impede revenue streams for prolonged periods
Mental Health	Moderate: fatigue may result from long term conditions and restrictions
Critical Facilities	Low to Moderate: depending on severity and duration
Infrastructure	Low: gradual onset typically permits adaptation
Environmental	Moderate to High: depending on severity and duration, lasting harm is possible

The BLR is vulnerable to drought, and many sources expect that hazard to increase throughout the West. This contributes to an increase in the frequency, duration and intensity of wildfires and their impacts throughout the environment. Drought conditions could impact firefighting capability due to a lack of adequate water supply.

Drought could impact current and future water well usage of the BLR. Reduced rainfall could impact the depth of the water table impacting the BLR's ability to use wells.

A serious cultural and environmental consideration of drought is its impact on our traditional fisheries. Drought can lower waterways are so that fish have difficulty reaching their traditional spawning grounds. Impacts can persist for several years after drought conditions end.

13. Civil Disturbance (Low Severity)

Effect	Vulnerabilities
Fatalities	Low: although possible, fatalities are rare
Injured	Moderate: injuries during these events are commonplace
Economic	Moderate to Severe: events may disrupt business operations repeatedly or for prolonged periods, with impacts on revenue sources
Mental Health	Moderate to Severe: depending on frequency and intensity, may be extremely distressing to residents, staff, and visitors
Critical Facilities	Moderate to Severe: facilities may be targeted for action and damage
Infrastructure	Moderate to Severe: facilities may be targeted for action and damage
Environmental	Moderate: targeted facilities may have environmental impacts

Recent political and social upheaval across the U.S. in recent years highlights the Rancheria's vulnerability to protests for social, political, environmental, cultural, and other causes. These may range from peaceful protests that interfere with business and government operations to aggressive, even violent disturbances that place people, facilities, and the environment at risk.

BLR's limited law enforcement and security capabilities make it reliant on mutual aid for these events.

14. Land Movement Other Than Earthquake (Low Severity)

Effect	Vulnerabilities
Fatalities	Low: typically low impact where people congregate
Injured	Low: typically low impact where people congregate
Economic	Low to Moderate: may impair customer access, especially on SR 299
Mental Health	Low: travel delays and rerouting may increase stress and frustration
Critical Facilities	Low: modern construction of critical facilities reduces their vulnerability
Infrastructure	Low to Moderate: depending on severity and location, could impact roads and other systems
Environmental	Low: the size and nature of these events typically have low impacts

The roads and lands on the Rancheria itself are not at significant risk to landslides, but SR 299 and other nearby transportation corridors that serve the Rancheria are.

15. Cyber Incident (Low Severity)

Effect	Vulnerabilities
Fatalities	Low: no life safety systems are in place
Injured	Low: incidents unlikely to generate injuries
Economic	Moderate to High: an incident could disrupt revenue generating operations and incur significant costs to recover infrastructure and data
Mental Health	Low: most attempts will be unknown to residents, guests, and most staff
Critical Facilities	Low to Moderate: an incident could target these facilities
Infrastructure	Moderate to High: an incident could affect the entire IT infrastructure of the Tribal Government and enterprises, affecting their ability to function effectively
Environmental	Low to Moderate: an incident could have temporary environmental effects

A cyber incident has the potential to compromise the reliable functioning of the Rancheria's critical infrastructure and enterprises, the security of employees, residents, and customers, and the economic stability of the Tribe.

16. Air or water quality incident (Low Severity)

Effect	Vulnerability
Fatalities	Low: possible for those with pre-existing medical conditions or vulnerabilities
Injured	Low: possible for those with pre-existing medical conditions or vulnerabilities
Economic	Low to Moderate: a severe or prolonged incident may impair revenues
Mental Health	Low to Moderate: fatigue, depression and anxiety may increase
Critical Facilities	Low to Moderate: an incident may increase demands on air handling systems
Infrastructure	Low to Moderate: an incident may increase demands on power and water systems
Environmental	Low to Moderate: an incident may directly and indirectly affect the environment

Because most sources of pollution are likely to be distant, BLR will have little control over prevention or mitigation. Public health measures such as avoiding outdoor activities and use of tap water may be necessary, however adherence to precautions may be difficult to monitor.

A 2020 review of Special Status species and regulated habitats was performed specifically for the Blue Lake Rancheria Tribal Justice Center project but is valid for the entire property due to its small size. The U.S. Fish and Wildlife Service (USFWS) noted that these protected species are present on the adjacent Mad River:

- Northern California Coastal Coho *(Oncorhychus kisutch)*
- California Coastal Chinook *(Oncorhynchus tshawytscha)*
- Northern California Coast Steelhead *(Oncorhynchus mykiss)*
- Bald Eagle *(Haliaeetus leucocephalus)*
- Willow Flycatcher *(Empidonax traillii)*

Both perennial and seasonal wetlands occur within the Rancheria holdings.

4.4. Identifying Structures

Requirement 201.7(c)(2)(ii)(A): *[The plan should describe vulnerability in terms of the] types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.*

4.4.1. Existing Buildings, Infrastructure, and Critical Facilities

A document review and on-the-ground survey were done to validate the changes to buildings, infrastructure and critical facilities. In addition, insurance values were analyzed as part of the valuation. Overall, earthquake events have the potential to cause the most damage of all the surveyed hazard events. Floods, both shallow and deep, also cause substantial losses, followed by wildfires and finally severe storms. Even severe storms can cause a significant amount of damage, costing nearly a million dollars, especially structural damage.

The following items in Tables 4.13 and 4.14 demonstrate the value of vulnerable resources on BLR property as discussed in the previous paragraph. While they are subject to a number of hazards, these tables focus on the loss regardless of the hazard that impacts it.

Blue Lake Rancheria Utilities Inventory		
Description	**Quantity**	**Value**
Solar array (community)	1	$3,000,000
Diesel generators (80 – 175 kw)	3	$300,000
Utility poles	80	$104,000
Solar arrays (residential)	2	$40,000
Communications (IT equipment)	596	$1,495,665
Wells (potable/non-potable)	12	$600,000
Septic tanks	24	$480,000
Propane tanks	3	$5,700
TOTALS		**$6,025,365**

Table 4.13 Rancheria Utilities Inventory

Blue Lake Rancheria Buildings Inventory		
Location Address	**Description**	**Value**
1 Ayekwee Loop	Tribal Government Office & Justice Center	$4,702,532
2 Ayekwee Loop	Tribal Fire Station	$2,990,000
3 Ayekwee Loop	Bio diesel building	$82,000
428 Chartin Road	Gaming Commission	$697,000
428 B Chartin Road	Convenience store/gas station	$5,250,000
777 Casino Way	Casino & Event Center	$32,000,000
777 Casino Way	Hotel	$13,900,000
391 S. Railroad Avenue	Mobile home - rental	$10,000
725 Rancheria Road #1	Mobile home - rental	$40,000
725 Rancheria Road #2	Mobile home - rental	$40,000
725 Rancheria Road #3	Mobile home - rental	$40,000
725 Rancheria Road #6	Yurt - rental	$67,000
523 Chartin Road	Mobile home	$40,000
504 Chartin Road	Rental House - single story	$94,500
504 Chartin Road #A	Rental house – single story	$68,250
433 Chartin Road	Rental trailer	$25,000
502 Chartin Road	Rental home – two story	$102,375
562 Chartin Road	Rental home – two story	$115,500
525 Chartin Road	Mobile home	$220,000
525 Chartin Road	Carport/garage	$20,700
560 Chartin Road	Rental home – single story	$105,000
560 Chartin Road	Garage	$10,000
560 Chartin Road	Redwood barn – single story	$17,000
725 Rancheria Road #7	Warehouse - distillery	$60,000
1 Woogey Kwech Road	Utility barn	$60,000
777 Casino Way	Maintenance building	$300,000
415 Chartin Road	Mobile home - rental	$185,000
428 Chartin Road	Microgrid project	$3,250,000
550 Rancheria Road	Rental home	$148,960
695 Rancheria Road #5	Mobile home - rental	$89,530
695 Rancheria Road #3	Mobile home - rental	$52,920
Total Value		**$64,783,267**

Table 4.14 Rancheria Buildings Inventory

4.4.2. Future Buildings, Infrastructure, and Critical Facilities

BLR recognizes that there are still unmet needs in the community. The facilities referenced below remain goals for the next 5-year cycle. Any future development will take into consideration updated hazard and risk information and this TMHMP.

- Toma Resilience Campus
- Hula sports facility
- SmartWater Grid
- RV Park
- Assisted Living Facility
- Further generation projects for utility power
- Agricultural projects

4.5 Estimating Potential Losses

Requirement 201.7(c)(2)(ii)(B): *[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate.*

4.5.1 Loss Estimation Methodology

After identifying potential hazards, profiling them, and analyzing the vulnerability of assets in the community, the final step in risk assessment is to estimate the potential losses of the assets due to each hazard event. In other words, "How much damage will be done by the events?"

Estimating the potential losses is crucial in analyzing the cost-effectiveness of any mitigation activities. Less damaging events, in terms of lower value damages, do not pose as great a risk as more damaging events. The lists of assets from the previous section were used in estimating the value of expected losses to people, buildings, and other important assets. Loss estimates include not only the costs of initial damage to structures, people, and other assets but also the daily costs of functional downtime of specific facilities, such as commercial and governmental offices.

The BLR loss methodology was determined in close coordination with our insurer, who serves some 40 tribes. Dollar values were established through consultation between the insurer, the BLR OES Director, and mitigation plan project staff

4.5.2 Estimated Loss Values

Table 4-15 summarizes loss estimates for the various hazards prioritized in this TMHMP. These values are current as of April 2021In the 'Extent' column of Table 4-15 the earthquake measurements is a measure of 'G' Force; i.e. 0.55g is slightly over ½ of a standard 'G' (or gravity) force of vertical movement.

Type of Event	Extent	Structural Loss	Content Loss	Functional Loss	Total Loss
1. Earthquake	0.55g	$6.6M	$3.1M	$13.6M	$23.3M
	0.80g	$23.2M	$9.3M	$39.0M	$71.5M
2. Wildfire		$7.2M	$1.7M	$7.0M	$15.9M
3. Public health/infectious disease outbreak	Flu pandemic per day	N/A	$350K	$100K	$450K
4. Severe Storm		$856K	$72K	$6.5K	$935K
5. Flood , including dam failure	Shallow	$2.3M	$2.8M	$9.2M	$14.3M
	Deep	$4.2M	$5.5M	$14.5M	$24.2M
6. Influx of evacuees	500 @ 30 days	N/A	N/A	$1.2M	$1.2M
7. Drought		N/A	N/A	N/A	N/A
8. Sustained power outage	1 day	N/A	$350K	$100K	$450K
9. Criminal or terrorist act	1 day act	N/A	N/A	$100k	$100k
10. Hazardous materials release	2,000 gal	$75K	$5K	$100K	$180K
11. Air or water quality event	Wildfire per day	$5K	N/A	$80K	$85K
12. Aircraft crash	Direct casino impact	$25.2M	$19.7M	$39.2M	$84.1M
13. Cyber incident	Per data breach event	N/A	$300K	$500K	$800K
14. Transportation or supply chain disruption	Fuel delivery disruption per day	N/A	N/A	$30K	$30K
15. Civil disturbance	Riot/looting per day	N/A	$300K	$100K	$400K
16. Land movement other than earthquake	Local mudslide	$23.2M	$9.3M	$39.0M	$71.5M

Table 4.15 – Historical Loss estimates for specific hazards

4.5.3. Hazard Loss Descriptions

1. Earthquake

Potential earthquake damages on the Rancheria could exceed the HAZUS and FEMA How-To Guide estimates because of the complex tectonic environment. The Blue Lake fault runs directly though the Rancheria and this fault can create an intense Peak Ground Acceleration (PGA) of up to 0.8g. The highest PGA predicted in the HAZUS model is 0.55g, so all of the damage and loss estimates were extrapolated from the numbers given in the How-To Guide. The initial costs of a strong earthquake would be substantial, since all of the Rancheria's assets have some vulnerability to earthquakes. 22.

2. Wildfire

While the risk of wildfire was shown to be smaller than some of the other hazard events, a wildfire event could cause heavy losses to the Rancheria. The considerable increase in California's wildfire frequency, intensity, duration and fatality in recent years is noteworthy. Large wildfire behavior has changed enough that structures, and even whole communities are vulnerable, even at greater distances than previously considered at risk.

3. Public Health/Infectious Disease Outbreak

These events directly result in loss of business as people become less inclined to travel and public health restrictions and recommendations affect congregate businesses. Use of facilities may be converted from entertainment to incident support. During the 2020 COVID-19 pandemic, the event center was used for mass testing, vaccination, and educational services as schools were closed for a prolonged period.

4. Severe Storm

Direct effects may include damage to facilities, residences, and infrastructure. Loss of business is anticipated, and could include postponement or cancellation of major events.

5. Flood Including Dam Failure

A dam failure or major flooding could inundate the developed areas and facilities of the Rancheria, causing total or near-total losses. Even so-called nuisance flooding is predicted to cause considerable loss.

6. Influx of Evacuees

The experience of recent Public Safety Power Shutoffs brought visitors to the Rancheria in numbers of approximately 10,000 daily, in search of fuel, food, ice, power to charge personal devices, and other goods and services. Hotel rooms were provided to those who required power for life sustaining devices. While bringing increased revenues to the convenience store, the demands on public safety and other staff skyrocketed.

7. Drought

Drought loss on the Rancheria is considered greatest for loss of business. Secondary effects of drought such as increased wildfire intensity may lead to diminished travel and recreation in at-risk areas..

8. Sustained Power Outage

Although the Rancheria's own electric micro-grid maintained service during recent outages of the commercial power system, loss of business is inevitable, and some loss of refrigerated goods are possible in some cases.

9. Criminal or Terrorist Act

Although difficult to quantify, losses could include damage or destruction of property, infrastructure, and environment. Even an incident of short duration could have facilities closed for several days of investigation, evidence collection, and restoration to serviceable condition. Some events could result in long-term patron fearfulness and damage to the Rancheria's reputation.

10. Hazardous Materials Release

A large or dangerous release is unlikely within the Rancheria, however commercial truck traffic on State Route 299 involves daily transportation of a variety of dangerous goods. Even a distant accident on the highway could close it for a day or more. A nearby release may require evacuation of residents, patrons, and staff, or measures to shelter them in place.

11. Air or Water Quality Event

The most likely event is currently heavy smoke from distant wildfires, which can persist for many days. This can result in hazardous driving conditions and reductions in business.

12. Aircraft Crash

The Rancheria's proximity to the airway of a nearby airport increases the risk of an incident, however loss is difficult to predict, depending on where an aircraft and crash debris come to Earth. Impact in an unpopulated area may result in low losses, while impact of a facility could have much more serious consequences. Loss of business is likely as investigation may require closure of enterprises.

13. Cyber Incident

Losses could include replacement of damaged hardware and software, and loss of function.

14. Transportation or Supply Chain Disruption

Losses could include sharply reduced patronage for enterprises and logistical challenges in meeting the needs of Tribal government and businesses.

15. Civil Disturbance

Losses are likely from reluctance of patrons to enter or remain in facilities, with potential long-term reductions due to damaged reputation or loss of confidence in safety and security.

16. Land Movement Other Than Earthquake

Landslides and similar movements can close State Route 299 with resulting impacts on business operations.

4.5.4 Analyzing Development Trends

Requirement 201.7(c)(2)(ii)(C): *[The plan should describe vulnerability in terms of a] general description of land uses and development trends within the tribal planning area so that mitigation options can be considered in future land use decisions.*

Land Use and Development Trends

As the ultimate goal of planning at the Rancheria is the education and upward mobility of its Tribal Members, there is a desire to upgrade aging infrastructure, expand facilities for community health, welfare, and education, and create a ceremonial and cultural area. Given the amount of undeveloped land on the Rancheria and presence of a somewhat stable industry, the BLR plans to execute new development as capital improvement and new construction funds become available.

Some projects on the planning horizon are briefly described below. The BLR is still in the process of upgrading topography and hydrology maps prior to determining a location for the proposed new developments;

- The Toma Resilience Campus is planned for a 20,000 square foot, state-of-the-art multi-functional venue supporting development of regional resilience strategies, focusing on disaster preparedness, clean energy, smart technologies, light manufacturing, and sustainable food production. Plans include rooftop solar power with battery backup, passive solar heating, cooling, and ventilation features, rainwater catchment, and more.
- The Hula pavilion and park area are designed as an outdoor sports and activity facility. During emergencies, the Hula—in concert with other facilities and services at BLR--will provide a staging site for critical services for tribal members, staff, guests/patrons, emergency responders, and evacuees from other communities.
- The SmartWater grid is a smart-controlled, high efficiency potable water grid and the Rancheria's first backup water storage of 240,000 gallons.
- RV Park
- Assisted Living Facility
- Further generation projects for utility power
- Agricultural projects

Adding these development projects will increase the potential losses from hazard and risk impacts and events. The BLR will update this document (and other documents in the BLR family of plans) with new growth and potential losses as it becomes appropriate.

Development Changes in Hazard Areas

The BLR has identified some data deficiencies that affect their ability to do more detailed analysis of hazard areas. A mitigation strategy that is reflected in the next chapter identifies this task. Suffice to say any new development will be in accordance with mitigation strategies already in place and also in accordance with the most up to date UBC's. It is also assumed that the potential vulnerabilities and potential losses will increase to some degree regardless of efforts in mitigation for hazard areas.

4.6 Cultural and Sacred Sites

Requirement 201.7(c)(2)(ii)(D): *[The plan should describe vulnerability in terms of] cultural and sacred sites that are significant, even if they cannot be valued in monetary terms.*

No Wiyot cultural or sacred sites have been identified or located within the exterior boundaries of the Rancheria in Blue Lake. Most of these lands have been systematically surveyed and reported on by archaeologists that meet the Secretary of the Interior's Professional Guidelines for Archaeologist Principal Investigator (Prehistory). Multiple consultations with knowledgeable tribal elders have concluded that no sacred Wiyot sites are present on tribal lands.

According to BLR's Tribal Historic Preservation Officer, the Tribe has a site of cultural, historical, and archeological value, located outside of the exterior boundary of the Rancheria. Its location may be susceptible to tsunami and subsidence associated with a major earthquake.

The Tribe has obtained possession and control of the site and monitors it for preservation. Its location and exact nature are not provided in this plan in order to protect it from unwanted interest. It is

currently in open space with no physical improvements on the property. Although an emergency at this site is unlikely to have life safety or economic impacts, its open, undeveloped character may put it at risk for unauthorized use and disturbance for camping, vehicle parking, gathering, and trash/debris disposal in an emergency impacting nearby residences.

4.7 Exclusions

Neither FEMA's guidelines for risk assessment and hazard mitigation planning address the unique hazards caused by compound disturbances. Therefore, compound hazards are not analyzed in detail in the TMHMP. Examples of such compound hazards include the following:

- Catastrophic changes in floodplain geometry, such as lateral migration of river and creek channels, historic channel re-initiation, meander or oxbow development. These changes could be caused by seismic events, such as earthquakes or landslides, or weather-related events, such as floods.
- Peak flows resulting from rain-on-snow events in heavily logged portions of the Mad River watershed
- Increase in floodplain hazard areas resulting from increase flow and large woody debris transport associated with large wildfires
- Earthquakes during winter when soils are excessively saturated and shaking/liquefaction impacts are increased.
- Flood or earthquake induced breach of berms containing four ponds of the Blue Lake Sewage Treatment Plant immediately adjacent to the gaming facilities. The associated health risks and duration of closure of the gaming facilities is a potentially substantial loss.

5.0 – MITIGATION STRATEGY

201.7(c)(3): *[The plan shall include a] mitigation strategy that provides the Indian Tribal government's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

5.1 Tribal Hazard Mitigation Goals

Requirement 201.7(c)(3)(i): *[The mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

The BLR planning group reviewed the existing goals with an eye to the current situation and needs of the Tribe. In some cases they were lacking in specificity and required changes. The BLR has updated the mitigation goals for this TMHMP. The mitigation goals were evaluated and revised to continue to reflect community considerations, priorities, and goals.

1. Unchanged
2. This goal was modified to more realistically "reduce" risks, compared to "minimize", which could be beyond the resources and abilities of the Tribe.
3. This goal was reworded to place more emphasis on public awareness of local hazards, not just vulnerabilities.
4. "Organizations" was revised to add jurisdictions, neighboring tribal entities, and groups which might not fall into the other categories.
5. This goal was added to reflect the importance of continuity of government and continuity of operations in emergency response, recovery, and mitigation.

The updated overarching hazard mitigation goals for the BLR are depicted in Table 5.1 below:

Goal # 1	Prevent or reduce the loss of life and personal injuries from hazard events
Goal # 2	Reduce the risks from hazards to existing and proposed development, tribal assets, culture, and the environment
Goal # 3	Increase public awareness of local hazards and community vulnerability to them
Goal # 4	Improve coordination and communication with other relevant jurisdictions, organizations, tribal entities, and other groups
Goal #5	Protect Tribal Government's ability to serve the community and its guests

Table 5.1 - Updated Hazard Mitigation Goals

A number of mitigation actions are incorporated into Tribal Resolution 14-20 from 2014, adopted unanimously by the Tribal Business Council. That resolution adopted California State and Humboldt County construction codes, specifically the Uniform Building Code, Uniform Mechanical Code, Uniform Plumbing Code, National Electric Code, National Fire Protection Code, and the International Building Code, all as modified by the State of California.

These standards have been applied to more recently constructed buildings, such as the Hotel, Casino, Tribal government buildings, and convenience store/gas station.

5.2 Identification and Analysis of Tribal Mitigation Actions

Requirement 201.7(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.*

Mitigation actions from prior plans were reviewed and adapted to reflect the current understanding of local hazards and Tribal government's increased capabilities to prepare the community and manage events, emergencies, and disasters.

5.2.1 Hazard Specific Mitigation Actions

The BLR planning project documented a comprehensive list of mitigation action projects specific to each hazard. The below listing of mitigation action projects are listed in relation to the hazard they address. A comprehensive roll-up of all mitigation action projects is listed in Table 12.

Based on all considerations the following actions were chosen to retain as general mitigation action projects:

- Tribal leadership should continue to promote individual, family, and community emergency preparedness, including household plans for evacuation, sheltering in place, 21 days of self-sufficiency, and maintenance of emergency kits
- Continue to promote familiarity with neighbors, including special skills or needs to consider in an emergency. Although formal programs such as Map Your Neighborhood are available, an informal campaign could suffice.

The below hazards will be addressed by the specific mitigation actions we feel are most appropriate, depicted immediately below, and as rolled up and **prioritized** in Table 12. In many cases mitigation actions will be shown under more than one hazard, if and when they apply to more than one hazard.

Hazards are ranked by total score (severity + probability). New and substantially changed actions are shown in *Italics*.

Individual mitigation actions are ranked according to their assessment scores. Tie scores are not differentiated.

All Hazards: These apply to multiple, or all, hazards, and are not repeated for individual hazards

1. Maintain community emergency preparedness initiatives, with emphasis on hazards most impactful on BLR and actions that will serve the community for multiple hazards
2. *Review and maintain BLR emergency plans annually or more frequently as needed to maintain current assessments of risks, vulnerabilities, capabilities and actions*
3. Maintain support of the neighborhood Buddy System
4. *Establish and maintain supplies of multi-casualty incident response resources, including triage tags, forms, ICS position checklists and vests, and patient care supplies*
5. *Review multi casualty incident response plans annually and conduct or participate in a functional or full scale exercise biennially*
6. *Maintain utility facilities, plans, and emergency procedures in anticipation of emergencies and disasters; Plan for redundancies and alternatives*
7. *Develop a BLR multi-casualty plan, or BLR annex to a county or regional plan; train public safety personnel in the plan and established multi-casualty response procedures*
8. *Plan, equip, and supply for a minimum of 21 days of shelter operations, including residents, staff, guests, service animals and vulnerable pets; promote 21 days of individual and family preparedness*
9. Maintain Shelter Manager training for Tribal Members and staff
10. Maintain provision of emergency kits in facilities and promote personal/household kits in the community
11. *Establish and/or maintain mass notification capabilities to include Humboldt County's emergency alert system; promote enrollment among BLR residents and staff; exercise the system annually*

1. Earthquake

1. *Provide community and staff awareness of Earthquake Early Warning (EEW) resources including those for smart phones, and immediate actions to be taken when an alert is received. Details are available from the USGS at www.shakealert.org*
2. *Identify and prioritize homes without foundations and those not secured to their foundations; Seek opportunities to assess and manage this vulnerability*
3. *Explore training for appropriate staff to identify pre- and post-earthquake hazards, post warnings and/or make notifications*
4. *Explore automated public safety actions in response to EEW alerts*

2. Wildfire

1. Maintain community preparedness initiatives such as Firewise and evacuation planning
2. Maintain fire breaks, safety zones and other hazard buffers around BLR structures
3. *Equip, train, and drill members of the Tribal Fire Department in strategies and tactics to protect people, lands, and resources from wildfire*
4. *Include wildfire and air quality considerations in community preparedness initiatives*
5. *Maintain joint training and exercise opportunities with neighboring wildland and other fire service agencies*
6. *Plan and equip Tribal facilities to withstand airborne contaminants in high concentrations and for prolonged periods*

3. Public Health/Communicable Disease Outbreak

1. I*nclude communicable disease risk management and prevention in community preparedness initiatives*
2. *Maintain readiness to implement recently established training, cleaning, and customer service procedures as necessary for predicted and existing conditions*
3. *Maintain sufficient personal protective equipment and sanitation supplies to protect Tribal Members, staff, and guests during early stages of a future outbreak*
4. *Analyze the Tribal government's and community's response to the 2020-2021 COVID-19 pandemic for lessons learned; develop an after action report and corrective action plan to guide future efforts*

4. Severe Storm

1. Maintain analysis of needs for those with access and functional needs during a severe storm or utility outage
2. Maintain NOAA's StormReady and Weather-Ready Ambassador® designations for the BLR community
3. Maintain hazardous tree and brush removal from critical lifelines such as power lines and residences

5. Flood, Including Dam Failure

1. Continue work to maintain flood risk analysis data for BLR
2. Maintain participation in R.W. Matthews Dam emergency planning processes with preparedness and response partners
3. Pursue resources to develop a flood plain management plan
4. *Assess residential structures for mitigation measures that might apply for low level, low velocity flooding, such as maintaining water runoff and drainage, lot grading, elevating utilities, and anchoring fuel tanks; seek resources to implement mitigation measures*

6. Influx of Evacuees

1. *Analyze 2019-2020 events, develop after action reports and after action plans; incorporate into BLR emergency plans as appropriate*
2. *Train public safety personnel, including reserves, in skills to manage rapid influxes under conditions that generate high stress among visitors*
3. *Assess physical facilities for vulnerabilities and opportunities to meet surge needs while protecting Tribal assets and guests*
4. *Develop plan annexes for these events, including but not limited to crowd control, traffic control, managing rationing requirements, and mass communication*

7. Drought

1. Maintain a drought mitigation strategy that considers all possible sources of water to maintain residential, business and agricultural requirements
2. Maintain readiness to develop, monitor, and enforce water conservation measures
3. Establish drought specific memoranda of understanding with area water resource providers
4. *Include drought and related hazards in community preparedness initiatives*
5. *Pursue resources to develop a community drought plan*

8. Sustained Power Outage

1. *Assess and prioritize needs for generators to maintain essential services; seek opportunities to obtain and maintain additional generators and install transfer switches in selected structures*
2. *Assess the residences of elders and those with access and functional needs for installation of solar power and battery systems*
3. *Manage the electric utility's facilities, plans and procedures to meet local needs during outages on the larger grid*

9. Criminal or Terrorist Acts

1. Maintain related staff training; drill and exercise protective actions as practical
2. Include criminal hazards in community outreach initiatives
3. *Assess physical facilities for vulnerabilities and establish physical and operational mitigation measures to protect Tribal assets and guests*
4. *Maintain and enhance the Tribal Police Department as practical, including the reserve force; Include terrorism threats and vulnerabilities in training and exercise strategies*

10. Hazardous Materials Release

1. Collaboratively review and update BLR hazardous materials plans
2. Assess BLR hazardous materials response resources and augment to reflect the hazard and risk
3. *Maintain training, drills and exercises to reflect local hazards, threats, and capabilities; pursue joint efforts with neighboring response organizations*
4. *Maintain household hazardous materials awareness and disposal into community preparedness initiatives*
5. *Consider establishing agreements or relationships with neighboring response and support agencies*

11. Air or Water Quality Incident

1. *Maintain internal capabilities to monitor air and water quality and/or relationships with agencies with those capabilities*
2. *Maintain plans for water and wastewater utility impacts, including redundancies and alternatives*
3. *Maintain the program issuing personal and family water filters to community members and staff*
4. *Include sheltering in place as part of facilities' emergency plans and community outreach initiatives; exercise sheltering in place biennially or more frequently*
5. *Plan and equip Tribal facilities to withstand airborne contaminants in high concentrations and for prolonged periods*
6. *Develop an annex to BLR's emergency plans regarding vulnerability to a volcanic ashfall event*

12. Aircraft Crash

1. *Establish and maintain a working relationship with Humboldt County's airport in McKinleyville to promote joint planning, training and exercises*

13. Cyber Incident

1. *Develop a network security operations center for situational awareness to monitor, identify, and prevent unauthorized intrusions or transactions in the systems of Tribal government and enterprises.*

2. *Develop, maintain and deliver cyber security awareness programs for function sections (IT, IT security staff, other organizational staff, community) and evaluate IT staff knowledge, level identify training and knowledge increase activities to keep team up to date on current threats, metrologies and best practices.*
3. *Develop and test a cyber-attack Standard Operating Procedure (SOP)/plan. Update and implement cyber security policy. Update and implement cyber incident response framework, plan, policy and procedures to respond to any detected incidents*
4. *Support annual Cybersecurity and Infrastructure Security Agency (CISA) assessment of Tribal government and enterprise systems. Perform external network penetration & vulnerabilities testing, identify risks and vulnerabilities and remediate were possible.*
5. *As necessary, secure subject matter expert support and assessment of cyber-attack hazard and risk for existing and planned systems. Asses network design according to best practices. Where possible implement changes for simplification and security.*

14. Transportation System or Supply Chain Disruption

1. *Include transportation emergencies and supply chain disruptions in updates to the Tribal Transportation Plan*
2. *Assess the need for local storage of essential supplies, considering full operation of enterprises, reduced operation, and minimum requirements to support residents and staff*
3. *Identify local alternatives where available, and establish agreements and/or relationships to mee needs*
4. *Develop a plan for prolonged disruption of surface transportation routes to and from BLR and other supply chain interruptions*

15. Civil Disturbance

1. *Develop and maintain a plan for civil disturbance and similar events which may not rise to the level of criminal activity, yet are disruptive to the effective operations of Tribal government and enterprises*
2. *Maintain training for BLR public safety personnel, including reserves, to distinguish non-criminal civil disturbance from criminal acts and respond accordingly*
3. *Assess physical facilities for vulnerabilities and establish physical and operational mitigation measures to protect Tribal assets and guests*

16. Land Movement Other Than Earthquake.

1. *Develop an annex for these hazards for BLR emergency plans, including movement on Tribal lands and adjacent areas likely to impact BLR or its operations*
2. *Maintain awareness of lands at risk and plan development accordingly*

5.2.2 Mitigation Action Effects on Existing and New Buildings and Infrastructure

The above mitigation specific actions are expected to reduce, and in some cases nearly eliminate the risk of BLR to named hazards. These actions apply to existing and planned buildings and infrastructure, including the new Tribal government building scheduled for occupancy in 2021 and the fire station scheduled for construction during the same year.

5.3 Implementation of Tribal Mitigation Actions

Requirement: 201.7(c)(3)(iii): *[The mitigation strategy shall include an] action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the Indian Tribal government.*

5.3.1 Mitigation Action Priority Analysis and Criteria

Primary priorities are:

1. Human life and health safety
2. Ability to prevent, mitigate, and stabilize incidents and protect the public when they occur
3. Protection of Tribal government operations, enterprises, economy, culture, and the environment

In addition, these factors will be considered for each action as appropriate:

- Does it provide social equity in its benefits and burdens?
- How many hazards are mitigated?
- Is it technically feasible?
- Are there predictable secondary effects, and how likely are unforeseen effects?
- What are the initial and ongoing costs involved to implement?
- Will additional staffing be required to implement and maintain?
- Does it require additional initial and ongoing training?
- Does it require ongoing maintenance?
- Are new laws, regulations, or policies required to implement?
- What liabilities and risks are involved?
- Is it eligible for outside funding?
- Does it protect or restore the environment?
- Does it have potentially negative effects on the environment?
- Are environmental, historical, or cultural assessments required or desired?
- Are the benefits proportional to the costs and efforts to be expended?

Based on the above criteria Table 5-2 lists the new BLR TMHMP Mitigation Action Projects in order of priority. In this table actions are organized from highest to lowest priority scores within each hazard.

5.3.2 2021 Mitigation Strategy

Blue Lake Rancheria's leadership places a high value on the advancement of its people, protection of the environment, and advocacy for cooperation among tribal and non-tribal entities. Its mission statement reads: *"The Blue Lake Rancheria strives each day to secure a better future for its people; protect its sovereignty and heritage; learn from the past; and build a resilient, healthy economy and environment, with benefits for the Tribe, the region, and the planet."*
These values guide the selection and prioritization of mitigation actions.

Table 5.2 outlines mitigation actions for the updated 2021 TMHMP. Year 1 begins upon plan approval expected in 2021. The funding for future projects will come from BLR internal funds as available, grants from federal and state sources and other sources yet to be determined, and as mentioned in section 5.10. Developing cost estimates is an objective for the BLR planning group in year 1.

This table is meant to be a working document and BLR will maintain a running project update list with each project's status indicated.

As shown in Table 5.4, 69% of 2015 TMHMP actions have been completed outright, or have been completed and are receiving ongoing maintenance, updates, review, or development. Another 28% remain in progress or are carried over, in spite of the impacts of several declared disasters directly affecting the Tribe. Only one 2015 action was discarded, and that was in favor of a superior solution to the mitigation challenge. The Tribe considers this a success.

As the Tribe's prior mitigation plans have, the 2021 document will be used to prioritize mitigation projects between targeting funding programs and sources. A few examples include:

- All-hazard mitigation planning and a broad range of hazard mitigation efforts through the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM) and Building Resilient Infrastructure & Communities (BRIC)
- Hazardous materials planning, training equipment, courses, and exercises through the Tribal Hazardous Materials Emergency Preparedness Program (THMEP)
- Terrorism and related planning and training, THIRA development, fire department development and law enforcement protective equipment through the Homeland Security Grant Program (HSGP), and development of a regional training center through the Tribal HSGP.
- Funding of full time sworn personnel, training and other law enforcement initiatives through the Office of Community Oriented Policing Services (COPS).
- Planning and construction of a Tribal Justice Center through the Department of Justice Coordinated Tribal Assistance Solicitation (CTAS)
- Equipment, furnishings, references, and assessment for the Tribal Justice Center through the BIA Tribal Justice Support.
- Obtained OES vehicles and organizational support, TERT equipment, law enforcement reserve equipment, and developed the Tribal fire department in part with the Emergency Management Performance Grant (EMPG)
- Regular funding of environmental projects through EPA's Indian Environmental General Assistance Program (GAP)
- Developing the SmartWater grid through a Bureau of Reclamation grant
- Medical staffing, equipment, COVID-19 community protective measures, testing staff and supplies, and other Tribal health projects through the Health Resources and Services Administration, the Centers for Disease Control and Prevention, and Indian Health Services.
- Climate adaptation planning training through the Bureau of Indian Affairs Tribal Resilience Program.

5.4 Action Evaluation and Prioritization Worksheet

Each mitigation action was evaluated and prioritized by these criteria:

1. Social Considerations – Life/Safety Impact
   • Will the project have minimal, direct, or significant impact on the safety of businesses, residents, and properties within the Tribe?
   • Will the proposed action have an adverse impact on any one segment of the population within the Tribe?
   • Will the project be a proactive measure to reducing natural hazard risk?

1. Administrative Considerations – Administrative/Technical Assistance
   • Is there sufficient staff currently to implement the project?
   • Is training required for the staff to implement this project?

2. Economic Considerations – Project Cost
   • What is the approximate cost of the project?
   • How will the project be funded?

4. Other Considerations – Tribal Objectives
   • Does the action advance other Tribal objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of the Tribal reservation master plan (or another comprehensive-type plan)?

Rank each of the criteria with using the following scale:

CRITERIA	POINTS	HIGH	POINTS	MEDIUM	POINTS	LOW
LIFE/ SAFETY IMPACT	10	Significant impact on public safety for businesses, residents, properties	6	Direct impact on businesses, residents, properties	2	Minimal/negligible impact on businesses, residents, properties
ADMINISTRATIVE/ TECH ASSISTANCE	5	No additional staff or technical support needed to implement	3	Some administrative and technical support needed to implement	1	Significant administrative and technical support needed to implement
PROJECT COST	5	Low cost (<$25,000)	3	Moderate cost ($25,000-$100,000)	1	High cost to implement (>$100,000)
OTHER CONSIDERATIONS	5	Strongly supports/ advances other Tribal objectives	3	Supports other Tribal objectives to an extent	1	Does not support other Tribal objectives or policies

Proposed Mitigation Action	Life Safety Impact	Admin/ Tech Assistance	Project Cost	Other Consider-ations	Total Score	Mean Score	Ranking
Multiple Hazards							
Maintain community emergency preparedness initiatives	46	19	21	20	106	21	1
Review and maintain BLR emergency plans annually or more frequently as needed to maintain current assessments of risks, vulnerabilities, capabilities and actions	50	22	25	24	121	20	2
Maintain support of the neighborhood Buddy System	45	22	24	21	112	18	4
Establish and maintain supplies of multi-casualty incident response resources, including triage tags, forms, ICS position checklists and vests, and patient care supplies	53	18	17	21	109	18	4
Review multi casualty incident response plans annually and conduct or participate in a functional or full scale exercise biennially	44	20	25	19	108	18	4
Maintain utility facilities, plans, and emergency procedures in anticipation of emergencies and disasters; Plan for redundancies and alternatives	51	15	19	20	105	17	5
Develop a BLR multi-casualty plan, or BLR annex to a county or regional plan; train public safety personnel in plan and established multi-casualty response procedures	46	16	23	18	103	17	5
Plan, equip, and supply for a minimum of 21 days of shelter operations, including residents, staff, guests, service animals and vulnerable pets	38	13	13	17	81	16	6
Maintain Shelter Manager training for Tribal Members and staff	43	16	23	16	98	16	6
Maintain provision of emergency kits in facilities and promote personal/household kits in the community	45	18	19	19	101	16	6
Establish and/or maintain mass notification capabilities to include Humboldt County's emergency alert system; promote enrollment among BLR residents and staff; exercise the system annually	49	12	18	18	97	16	6
1. Earthquake							
Provide community and staff awareness of Earthquake Early Warning (EEW) resources including those for smart phones, and immediate actions to be taken when an alert is received. Details are available from the USGS at www.shakealert.org	49	16	25	19	109	18	4
Identify and prioritize homes without foundations and those not secured to their foundations; Seek opportunities to assess and manage this vulnerability	48	16	21	21	106	17	5
Explore training for appropriate staff to identify pre- and post-earthquake hazards, post warnings and/or make notifications	44	18	19	19	100	16	6
Explore automated public safety actions in response to EEW alerts	42	16	22	16	96	16	6

Table 5.2 Mitigation Action Evaluation and Prioritization

Proposed Mitigation Action	Life Safety Impact	Admin/ Tech Assistance	Project Cost	Other Consider-ations	Total Score	Mean Score	Ranking
2. Wildfire							
Maintain community preparedness initiatives such as Firewise and evacuation planning	52	19	23	23	117	19	3
Maintain fire breaks, safety zones and other buffers around BLR structures	55	18	17	24	114	19	3
Equip, train, and drill members of the new Tribal Fire Department in strategies and tactics to protect people, lands, and resources from wildfire	53	18	21	23	115	19	3
Include wildfire and air quality considerations in community preparedness initiatives	48	23	26	22	119	19	3
Maintain joint training and exercise opportunities with neighboring wildland and other fire service agencies	45	17	24	22	108	18	4
Plan and equip Tribal facilities to withstand airborne contaminants in high concentrations and for prolonged periods	49	12	16	21	98	16	6
3. Public Health/Communicable Disease Outbreak							
Include communicable disease risk management and prevention in community preparedness initiatives	50	22	28	27	127	21	1
Maintain readiness to implement recently established training, cleaning, and customer service procedures as necessary for predicted and existing conditions	50	26	27	26	129	21	1
Maintain sufficient personal protective equipment and sanitation supplies to protect Tribal Members, staff, and guests during early stages of a future outbreak	51	23	23	28	125	20	2
Analyze the Tribal government's and community's response to the 2020-2021 COVID-19 pandemic for lessons learned; develop an after action report and corrective action plan to guide future efforts	48	24	28	25	125	20	2
4. Severe Storm							
Maintain analysis of needs for those with access and functional needs during an outage	53	20	25	26	124	20	2
Maintain NOAA's StormReady and Weather-Ready Ambassador® designations for the BLR community	44	23	28	23	118	19	3
Maintain hazardous tree and brush removal from critical lifelines such as power lines and residences	54	18	20	27	119	19	3

Table 5.2 Mitigation Action Evaluation and Prioritization (continued)

Proposed Mitigation Action	Life Safety Impact	Admin/ Tech Assistance	Project Cost	Other Consider-ations	Total Score	Mean Score	Ranking
5. Flood, Including Dam Failure							
Continue work to maintain flood risk analysis data for BLR	53	21	25	21	120	20	2
Maintain participation in R.W. Matthews Dam emergency planning processes with preparedness and response partners	49	24	27	24	124	20	2
Pursue resources to develop a flood plain management plan	48	22	24	22	116	19	3
Assess residential structures for mitigation measures that might apply for low level, low velocity flooding, such as maintaining water runoff and drainage, lot grading, elevating utilities, and anchoring fuel tanks; seek resources to implement mitigation measures	53	19	22	22	116	19	3
6. Influx of Evacuees							
Analyze 2019-2020 events, develop after action reports and after action plans; incorporate into BLR emergency plans as appropriate	49	24	27	24	124	20	2
Train public safety personnel, including reserves, in skills to manage rapid influxes under conditions that generate high stress among visitors	47	19	26	23	115	19	3
Assess physical facilities for vulnerabilities and opportunities to meet surge needs while protecting Tribal assets and guests	44	22	25	22	113	18	4
Develop plan annexes for these events, including but not limited to crowd control, traffic control, managing rationing requirements, and mass communication	49	18	24	21	112	18	4
7. Drought							
Maintain a drought mitigation strategy that considers all possible sources of water to maintain residential, business and agricultural requirements	50	20	27	21	118	19	3
Establish drought specific memoranda of understanding with area water resource providers	43	23	28	21	115	19	3
Maintain preparedness to develop, monitor, and enforce water conservation measures	45	21	27	20	113	18	4
Include drought and related hazards in community preparedness initiatives	44	23	26	19	112	18	4
Pursue resources to develop a flood plain management plan	45	23	24	20	112	18	4

Table 5.2 Mitigation Action Evaluation and Prioritization (continued)

Proposed Mitigation Action	Life Safety Impact	Admin/ Tech Assistance	Project Cost	Other Consider-ations	Total Score	Mean Score	Ranking
8. Sustained Power Outage							
Assess and prioritize needs for generators to maintain essential services; seek opportunities to obtain and maintain generators and install transfer switches in selected structures	55	22	24	25	126	21	1
Assess the residences of elders and those with access and functional needs for installation of solar power and battery systems	53	20	25	27	125	20	2
Manage the electric utility's facilities, plans and procedures to meet local needs during outages on the larger grid	45	22	25	24	116	19	3
9. Criminal or Terrorist Acts							
Maintain staff training; drill and exercise protective actions as practical	48	18	22	20	108	18	4
Include criminal hazards in community outreach initiatives	47	20	24	17	108	18	4
Assess physical facilities for vulnerabilities and establish physical and operational mitigation measures to protect Tribal assets and guests	47	16	20	20	103	17	5
Maintain and enhance the Tribal Police Department as practical, including the reserve force; Include terrorism threats and vulnerabilities in training and exercise strategies	48	16	18	20	102	17	5
10. Hazardous Materials Release							
Collaboratively review and update BLR hazardous materials plans	50	18	22	18	108	18	4
Assess BLR hazardous materials response resources and augment to reflect the hazard and risk	46	20	22	17	105	17	5
Maintain training, drills and exercises to reflect local hazards, threats, and capabilities; pursue joint efforts with neighboring response organizations	44	18	22	18	102	17	5
Maintain household hazardous materials awareness and disposal in community preparedness initiatives	36	22	24	16	98	16	6
Consider establishing agreements or relationships with neighboring response and support agencies	46	14	22	19	101	16	6

Table 5.2 Mitigation Action Evaluation and Prioritization (continued)

Proposed Mitigation Action	Life Safety Impact	Admin/ Tech Assistance	Project Cost	Other Consider-ations	Total Score	Mean Score	Ranking
11. Air or Water Quality Incident							
Maintain internal capabilities to monitor air and water quality and/or relationships with agencies with those capabilities	53	22	24	24	123	20	2
Maintain plans for water and wastewater utility impacts, including redundancies and alternatives	48	16	25	26	115	19	3
Maintain the program issuing personal and family water filters to community members and staff	49	23	23	21	116	19	3
Include sheltering in place as part of facilities' emergency plans and community outreach initiatives; exercise sheltering in place biennially or more frequently	45	20	25	23	113	18	4
Plan and equip Tribal facilities to withstand airborne contaminants in high concentrations and for prolonged periods	48	15	19	22	104	17	5
Develop an annex to emergency plans regarding vulnerability to volcanic ashfall	37	19	26	19	101	16	6
12. Aircraft Crash							
Establish and maintain a working relationship with Humboldt County's airport in McKinleyville to promote joint planning, training and exercises	47	22	27	17	113	18	4
13. Cyber Incident							
Develop a network security operations center for situational awareness to monitor, identify, and prevent unauthorized intrusions or transactions in the systems of Tribal government and enterprises.	49	20	23	33	125	20	2
Develop, maintain and deliver cyber security awareness programs for function sections (IT, IT security staff, other organizational staff, community) and evaluate IT staff knowledge, level identify training and knowledge increase activities to keep team up to date on current threats, metrologies and best practices.	48	24	27	21	120	20	2
Develop and test a cyber-attack Standard Operating Procedure/ plan. Update and implement cyber security policy. Update and implement cyber incident response framework, plan, policy and procedures to respond to any detected incidents	45	18	22	23	108	18	4
Support annual Cybersecurity and Infrastructure Security Agency (CISA) assessment of Tribal government and enterprise systems. Perform external network penetration & vulnerabilities testing, identify risks and vulnerabilities and remediate were possible.	45	21	26	19	111	18	4

Table 5.2 Mitigation Action Evaluation and Prioritization (continued)

Proposed Mitigation Action	Life Safety Impact	Admin/ Tech Assistance	Project Cost	Other Consider-ations	Total Score	Mean Score	Ranking
13. Cyber Incident (continued)							
As necessary, secure subject matter expert support and assessment of cyber-attack hazard and risk for existing and planned systems. Asses network design according to best practices. Where possible implement changes for simplification and security.	49	16	19	21	105	17	5
14. Transportation System/Supply Chain Disruption							
Include transportation emergencies and supply chain disruptions in updates to the Tribal Transportation Plan	56	20	25	25	126	21	1
Assess the need for local storage of essential supplies, considering full operation of enterprises, reduced operation, and minimum requirements to support residents and staff	51	18	26	21	116	19	3
Identify local alternatives where available, and establish agreements and/or relationships to mee needs	48	20	27	21	116	19	3
Develop a plan for prolonged disruption of surface transportation routes to and from BLR and other supply chain interruptions	49	16	22	23	110	18	4
15. Civil Disturbance							
Develop and maintain a plan for civil disturbance and similar events which may not rise to the level of criminal activity, yet are disruptive to the effective operations of Tribal government and enterprises	43	21	27	21	112	18	4
Maintain training for BLR public safety personnel, including reserves, to distinguish non-criminal civil disturbance from criminal acts and respond accordingly	46	21	25	20	112	18	4
Assess physical facilities for vulnerabilities and establish physical and operational mitigation measures to protect Tribal assets and guests	46	20	24	21	111	18	4
16. Land Movement Other Than Earthquake							
Develop an annex for these hazards for BLR emergency plans, including movement on Tribal lands and adjacent areas likely to impact BLR or its operations	44	20	26	18	108	18	4
Maintain awareness of lands at risk and plan development accordingly	40	20	24	16	100	16	6

Table 5.2 Mitigation Action Evaluation and Prioritization (continued)

5.5. Status of 2015 Plan Mitigation Actions

During the lifespan of the 2015 plan the Tribe succeeded in establishing itself as a leader in proactive emergency management and disaster mitigation, both among tribal entities and other jurisdictions. Details on those actions and their status are contained Section 5.5. The overall status of actions contained in the 2015 update are shown below.

Legend Status:
C = Complete CO = Carried Over D = Discarded I = In Progress C* = Complete with ongoing maintenance, updates, review or development

Legend Hazard:

AW = Air/Water Quality	CY = Cyber	HM = Hazmat Release	PH = Public Health
AC = Aircraft Crash	DR = Drought	IN = Influx of Evacuees	SS = Severe Storm
CD = Civil Disturbance	EQ = Earthquake	LM = Land Movement	TR = Transportation or Supply Chain Disruption
CT = Crime/Terrorism	FL = Flood/Dam Failure	PO = Power Outage	WF = Wildfire

	Mitigation Project	Status	Responsible Agent/Resources/Timeline	Mitigation Goal(s)	Hazard(s) Addressed/Remarks
1	Design and build a renewable and self-sustaining microgrid	C*	BLR/TBD/Ongoing maintenance and development	2	CT, EQ, SS, CT *Completed, and proved highly successful during multiple countywide outages*
2	Analyze needs and store biomass fuel for ***3*** Days of Supply (DOS)	D	BLR/BLR/Discarded	2	EQ, LS *Solar/battery microgrid system proved a better measure*
3	Design and build solar micro grid for back-up power	C*	BLR/Grant Awarded for project/	2	EQ, LS *Completed, and proved highly successful during multiple regional outages*
4	Plan and write BLR Family of EM Plans: EOP, Recovery Plan, Disaster Debris Plan, SOP's by tenant agencies, General Plan	I	BLR/with TMHMP update, completion of THIRA and TEOP; funding will be sought to complete all plans needed for mitigation and recovery of BLR/years 1-3	1	All *TMHMP update completed, however delayed due to COVID pandemic; THIRA and Hazardous Materials Plan development under way; Funding for EOP obtained, project to follow.*
5	BLR wide topography maps/data obtained for better analysis for floods?	CO	BLR/TBD/Year 3	2	FL *Currently using FEMA FIRMettes. Funding being pursued to complete.*
6	Obtain hydrology analysis to better guide land use and flood mitigation	CO	BLR/TBD/year 3	2	FL *Carried over, currently using FEMA FIRMettes.*

Table 5.3 Status of 2015 mitigation actions

Legend Status:
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	Mitigation Project	Status	Responsible Agent/Resources/Timeline	Mitigation Goal(s)	Hazard(s) Addressed/Remarks
7	Secure subject matter expert support and conduct an assessment of cyber-attack hazard and risk	C	BLR/TEOP	2	CY *Now performed internally due to CISA requirement*
8	Develop and test a cyber-attack Standard Operating Procedure (SOP)	C*	BLR/ TEOP funds (applied for)/year 2	2	CY *Cyber planning and training just funded*
9	Develop written EM response procedures	I	BLR/TEOP funds/ Ongoing	1	All *This will be a continuous cycle of update, exercise and evaluation. TEOP update funding approved.*
10	Provide earthquake kits in office buildings	C*	BLR/Kits purchased/Ongoing	1	All *Back packs installed 2015-16, monitored, maintained, and updated on an ongoing basis*
11	Review and exercise workplace violence SOP	C*	BLR/HMGP/Ongoing	1	CT *FEMA Run-Hide-Fight training provided to virtually all staff in 2019*
12	Develop and maintain a list of contact information for at- risk Tribal members	C*	BLR/internal/Ongoing	1	All *BLR OES maintains this in coordination with the Tribal Enrollment Officer*
13	Buddy System Documentation/List	C*	BLR/internal/Ongoing	1	All *Completed under a grant project, maintained by BLR OES*

Table 5.3 Status of 2015 mitigation actions (continued)

Legend Status:
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	Mitigation Project	Status	Responsible Agent/Resources/Timeline	Mitigation Goal(s)	Hazard(s) Addressed/Remarks
14	Analyze needs for Special Population back-up power generators	C*	BLR/internal/Ongoing	1	All *Ongoing. Planning under way for Tribal elders and at-risk residents*
15	Create a list of need and list of "on-hand" for personal generators?	C*	BLR/internal/Ongoing	1	All *Maintenance of the list is ongoing*
16	Analyze need for residence back-up power for food safety	C*	BLR/internal/Ongoing	1	All *Evaluating solar backup for tribal housing*
17	Develop and write a drought mitigation strategy that considers all sources of water to maintain residential, business and agricultural requirements	C*	BLR/HMGP/year 2-3	1	DR *A drought annex was developed. Research and updates remain an ongoing project.*
18	Establish and prepare for execution of water control measures	C	BLR/internal/year 2	1	DR, EQ *In progress by BLR EPA, now including historic water rights*
19	Establish a drought specific MOU with water resource providers in the BLR area	C*	BLR/internal/ongoing	1	DR *BLR serves on the Water District board of directors*
20	Consider the design, and construction of a BLR reservoir to establish a passthrough reserve in the event of a water disruption	C*	BLR/HMGP/ongoing	1	CT, DR, HM *Development is under way as part of a Tribal Smart Water project, and plans include a 273,000 gallon water storage tank*

Table 5.3 Status of 2015 mitigation actions (continued)

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	Mitigation Project	Status	Responsible Agent/Resources/Timeline	Mitigation Goal(s)	Hazard(s) Addressed/Remarks
21	Establish the BLR "Firewise" or "Ready, Set, Go" Communities	C*	BLR/U.S. Forest Service/Ongoing	1	All *Completed as part of a wildfire mitigation project and maintained by BLR OES*
22	Develop and implement hazardous tree and brush removal from critical lifelines such as power lines and residences	C*	BLR/internal/annually recurring	2	PO, SS , WF *Initially completed under the Wildfire Mitigation Program, currently maintained by BLR staff*
23	Create Fire breaks or safety zones created around BLR	C*	BLR/internal/annually recurring	1, 2	WF *Initially completed under the Wildfire Mitigation Program, currently maintained by BLR staff*
24	Plan for and establish sheltering supplies for 3 day of supply, based on capacity capability of the tribe's shelters	C*	BLR/TBD/Ongoing	1	EQ, FL, SS, DF, WF *72 hour kits including water filtration provided to all Rancheria housing residents and employees*
25	Conduct Shelter Managers Course for Tribal Members	C*	BLR-ARC/TBD/Ongoing	1 ,5	All *Completed in 2015, repeating in 2021*
26	Coordinate and host shelter operations training courses	C*	BLR-ARC/TBD/Ongoing	1, 4	All *Conducted 2 courses. Maintained by BLR's Resiliency Training & Innovation Center*
27	Review and update the BLR hazardous materials plan in cooperation with stakeholders	I	BLR/TBD/year 1	1	HM, CT *Development of an annex to the Tribal Emergency Operations Plan is in progress.*

Table 5.3 Status of 2015 mitigation actions (continued)

Legend Status:
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Legend Hazard:

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	Mitigation Project	Status	Responsible Agent/Resources/Timeline	Mitigation Goal(s)	Hazard(s) Addressed/Remarks
28	Plan, purchase and maintain hazmat response equipment and supplies	I	BLR-Local Fire HAZMAT/ TBD/years 1-3	1	HM, CT *In progress under BLR Fire Dept.*
29	Develop a SOP for action in the event air quality standards are being exceeded for Tribal members	I	BLR/TBD/year 2	1	AW, HM *Planned as an annex to the forthcoming Tribal EOP; Shelter-in-place training and exercise planned for 2021*
30	Coordinate with the USEPA to provide data regarding air quality to assist in enforcing standards	CO	BLR-EPA/TBD/years 1-2	1	AW USEPA funding cuts delayed this action, so it remains a carry-over action; *in 2020 BLR Environmental Programs installed a PurpleAir monitor to share air quality information*
31	Purchase and operate an air quality monitoring station	C*	BLR-EPA/TBD/2023, ongoing	1	AW *EPA funding has been cut for air quality monitoring on the BLR. Funding is needed to operate the regulatory-grade monitor on tribal land. We are currently using low-cost (non-regulatory) sensors to share information with the community about unhealthy air days during wildfire events.*

Table 5.3 Status of 2015 mitigation actions (continued)

Legend Status:
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Legend Hazard:

AW = Air/Water Quality	CY = Cyber	HM = Hazmat Release	PH = Public Health
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CT = Crime/Terrorism	FL = Flood/Dam Failure	PO = Power Outage	WF = Wildfire

	Mitigation Project	Status	Responsible Agent/Resources/Timeline	Mitigation Goal(s)	Hazard(s) Addressed/Remarks
32	Develop Tribal dam failure actions, procedures, and checklists. Conduct Tribal and community outreach and update meetings regarding planning process and final product	C*	BLR-Local Government/TBD/2022	1, 2	FL *The dam operator (Humboldt Bay Municipal Water District) is required to maintain an Emergency Action Plan. BLR OES will develop and update local procedures based on the most current plans.*
33	Develop Disaster Risk Reduction and General EM classes for Tribal Members (initial and ongoing)	C*	BLR/BGD/Ongoing	1,2,3,4	All *Conducted on an ongoing basis by BLR's Resiliency Training and Innovation Center since 2016*
34	Plan and conduct ICS Courses for Staff and Community: ICS 100, 200, 700, 800 for all, ICS 300, 400 for Staff leaders	C*	BLR/Various/Ongoing	1,2,3,4	All *BLR has become a regional resource for hosting these courses and others. Plans include development of local faculty and course managers.*
35	Conduct community education and awareness campaign for climate change and its possible impacts on BLR and its tribal members, residents and employees	C*	BLR/HMGP/Ongoing	3, 4	AW, DR, FL, IN, LM, PO, PH, SS, WF *BLR's Resiliency Training and Innovation Center delivers these courses on an ongoing basis. Climate change features prominently in the 2021 TMHMP update as a contributing factor in many local hazards.*

Table 5.3 Status of 2015 mitigation actions (continued)

Legend Status: C = Complete CO = Carried Over D = Discarded I = In Progress C* = Complete with ongoing maintenance, updates, review or development					
Legend Hazard: AW = Air/Water Quality CY = Cyber HM = Hazmat Release PH = Public Health AC = Aircraft Crash DR = Drought IN = Influx of Evacuees SS = Severe Storm CD = Civil Disturbance EQ = Earthquake LM = Land Movement TR = Transportation or Supply Chain Disruption CT = Crime/Terrorism FL = Flood/Dam Failure PO = Power Outage WF = Wildfire					
36	Execute community education and awareness campaign for pandemic and its possible impacts on BLR and its tribal members, residents, and employees	C*	BLR/HMGP/Ongoing	3, 4	PH *BLR carried out an aggressive and effective program in response to the 2020-21 COVID pandemic. Lessons learned will be incorporated into this ongoing effort.*
37	Enhance community education and awareness campaign for workplace violence and its possible impacts on BLR and its tribal members, residents, and employees	CO	BLR/CERT/years 1-5	3, 4	CT *Employee training was completed in 2020. Community training was begun, and is on hold in recognition of the COVID pandemic. To be coordinated by CERT.*
38	Execute community education and awareness campaign for hazardous materials releases and their possible impacts on BLR and its tribal members, residents and employees	CO	BLR/HMGP/year 3-4	3, 4	HM *Plans and funding are in place to expand training for employees, Tribal members, and residents. A commodity flow study was conducted in 2020 to guide specific efforts. Training from awareness to specialist levels is planned for 2021.*
39	Conduct an analysis of new, updated and accurate loss potential	CO	BLR/TBD/year 2	2	All *To include new construction Tribal government center, fire station and Toma Educational Campus.*

Table 5.3 Status of 2015 mitigation actions (continued)

5.5.1. Summary of 2015 Mitigation Actions

During the lifespan of the 2015 plan the Tribe succeeded in establishing itself as a leader in proactive emergency management and disaster mitigation, both among tribal entities and other jurisdictions. Details on those actions and their status are contained Section 5.5. The overall status of actions contained in the 2015 update are shown below.

Status	Number	%	Remarks
Completed	27	69%	25 of these continue to be maintained, updated, reviewed or further developed
Carried over	6	15%	Reasons for delays included Federal funding cuts and COVID-19
In progress	5	13%	Some delays occurred in response to COVID-19 response
Discarded	1	3%	This action was discarded in favor of a more effective alternative
Total	39	100%	

Table 5.4 Summary status of 2015 mitigation actions

5.6 Tribal Capability Assessment

Requirement 201.7(c)(3)(iv): *[The mitigation strategy shall include a] discussion of the Indian 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, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; and a discussion of tribal funding capabilities for hazard mitigation projects.*

Pre-and Post-Disaster Hazard Management Capabilities

This capability assessment provides an inventory and analysis of the community's capacity to address the threats associated with identified hazards. The assessment considers existing policies, programs, resources and practices that positively or negatively affect the community's vulnerability to hazards or specific threats.

Staff and Technical Capacity. The BLR has the following staff and technical capabilities

- Emergency manager
- A police chief and supervisor
- A fire chief
- Economic development director
- Information technology director and a staff of 6
- A professional trained in construction practices related to buildings and/or infrastructure
- A planner with an understanding of natural and human caused disasters
- Staff with education or expertise to assess the community's vulnerability to hazards Personnel skilled in GIS
- An emergency manager
- A grant writer and project administrator
- An environmental protection professional
- A cultural affairs specialist
- Communications director

- Training coordinator
- Energy director
- Sustainability director
- Electric utility director

The following worksheet was used to assess the Tribe's planning and regulatory, administrative and technical, financial, and education and outreach capabilities.

5.6.1. PLANNING AND REGULATORY

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Indicate which of the following items your Tribe has in place and provide a brief description.

PLANS	YES/ NO YEAR	QUESTION	EXPLAIN:
COMPREHENSIVE/MASTER PLAN	No	Is safety explicitly included in the plan's growth and development policies?	
CAPITAL IMPROVEMENTS PLAN	No	Are mitigation related structure and infrastructure projects included in the plan?	
ECONOMIC DEVELOPMENT PLAN	Yes 1987, 1992	Are there plans for economic development in high hazard areas and are there mitigation strategies to implement it?	Yes, with strategies in place
EMERGENCY OPERATIONS PLAN	Yes 2004	Are evacuation routes in high hazard areas?	No, evacuation routes are not in high hazard areas
TRANSPORTATION PLAN	Yes 1997, 2011	Are major transportation routes in high hazard areas?	Yes. State Route 299 and U.S. 101 are essential transportation corridors relied upon, but not on Tribal lands
HOUSING PLAN	Yes 2013	Is any housing in high hazard areas? Are any units planned for high hazard areas?	Yes. About 15% of the housing units are in a high wildfire hazard area. 100% of housing is in a floodplain.
OTHER PLANS		Are there any particular cultural practices or beliefs that relate or translate into actions for development or non-development in high hazard areas?	No

LAND USE PLANNING AND ORDINANCES OR PRACTICES	YES/ NO	QUESTION	YES/ NO	EXPLAIN:
ZONING ORDINANCE OR PRACTICES	Yes	Are there any laws (e.g., not building in the flood plain, crop rotation, etc.) that preclude building in areas that are hazardous, and do you have the staff to enforce them?	Yes	Ordinance 88-02, Section 5, states, "All development of buildings is to be done in consideration of the FEMA flood plain. All buildings must be constructed one foot above the FEMA flood plain.
SUBDIVISION ORDINANCE OR PRACTICES	N/A	Does the ordinance include considerations for reducing hazard impacts?		
BUILDING CODES	Yes	Does the building code include considerations for reducing hazard impacts?	Yes	The tribe has adopted State of California, and County of Humboldt Building Codes by Tribal Resolution 14-20. This includes: Uniform Building Code, National Electric Code, National Fire Protection Code, and International Building Code, all as modified by the State of California
NATURAL HAZARD SPECIFIC ORDINANCE OI PRACTICES (STORMWATER, STEEP SLOPES, WILDFIRE)	Yes	Are there laws to discourage development in high hazard and environmentally sensitive areas?	Yes	Ordinance 89-02, Section V., to govern lands within the exterior boundaries of BLR provides information regarding the FEMA Flood Zones and the Rancheria Lands and encourages builders to research flood plain at BLR prior to construction. Tribal Environmental Programs completes an Environmental Assessment for all development on the Rancheria.
ACQUISITION OF LAND FOR OPEN SPACE & PUBLIC RECREATION USES	Yes	Is there a funding source and policy in place for preservation of open spaces in high hazard areas?	Yes	The Hula Pavilion and Sports Park is planned for construction in 2023 with hazard resilience features.
MAINTENANCE PROGRAMS TO REDUCE RISK, E.G., TREE TRIMMING, CLEARING DRAINAGE SYSTEMS	Yes	Do these programs receive consistent funding?	Yes	These programs utilize tribal and grant funding to complete work needed to maintain the safety and preserve life on the Rancheria.
OTHER				

5.6.2. ADMINISTRATIVE AND TECHNICAL

Identify whether your Tribe has the following administrative and technical positions. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

ADMINISTRATIVE RESOURCE	YES/ NO	DESCRIBE CAPABILITY	DOES COORDINATION NEED TO BE IMPROVED? YES/NO	NOTES
TRIBAL COUNCIL/ GOVERNING BODY	Yes	Governing body of the Rancheria. Duties: govern all people, resources, land and water. Initiate laws.	No	
TRIBAL CHIEF EXECUTIVE (EX: CHIEF, CHAIRPERSON, GOVERNOR, PRESIDENT)	Yes	Presides over and has one vote at all Tribal Business Council (TBC) Meetings. Upon approval of TBC appoints all non-elected officials and employees of tribal government.	No	
MITIGATION PLANNING COMMITTEE	Yes	Meets to discuss mitigation issues and resolutions. Meets quarterly.	No	
BUSINESS COMMITTEES	Yes	The Tribal Business Council guides business planning and resilience programs and projects. Meets monthly.	No	
MUTUAL AID AGREEMENTS	No	Memorandums of understanding are in place with the U.S. Coast Guard and California Highway Patrol	No	Additional agreements are desired.

STAFF RESOURCE	IS THIS A PERMANENT POSITION? YES/NO	IS STAFFING ADEQUATE TO ENFORCE REGULATIONS? YES/NO	IS THIS STAFF TRAINED ON HAZARDS AND MITIGATION? YES/NO	IS ADDITIONAL STAFF (OUTSIDE RESOURCES) TO IMPLEMENT ACTIONS? YES/NO
CODE INSPECTOR	Yes	Yes for fire only	Yes	Yes
ENVIRONMENTAL/ NATURAL RESOURCES SPECIALIST	Yes	Yes, operates on grant funding	No, more work to be done here	
EMERGENCY MANAGER	Yes	Yes, operates on grant funding	Yes, multiple trainings attended for this purpose	Sometimes
COMMUNITY PLANNER	Yes	Yes	Yes	No
HOUSING SPECIALIST	Yes	Yes	Yes	No
ENGINEER	No			
HISTORIAN/CULTURAL ADVISOR	Yes	Yes	Yes	No
FINANCIAL OR GRANTS SPECIALIST	Yes, two positions	Yes	Yes, managers are	No
ADMINISTRATIVE STAFF PERSON	Yes, Tribal Administrator	Yes	Yes	No
OTHER (BIOLOGIST, PUBLIC HEALTH SPECIALIST)	Yes 1 Health Officer & 1 PH Specialist	Yes	Yes	Yes

TECHNICAL RESOURCE	YES/NO	QUESTION	YES/NO	NOTES
WARNING SYSTEMS/ SERVICES (REVERSE 911, OUTDOOR WARNING SIGNALS)	Yes	Is the level of technical capability and training of your staff adequate?	Yes	One Call® mass notification + WebEOC® with notification capability
HAZARD DATA AND INFORMATION	Yes/no	Is your staff trained to do hazard mitigation or do they need more training?	Yes/no	Staff is partially trained, but needs more training
GRANT WRITING	Yes	Is the level of technical writing capability of your staff adequate?	Yes	OES Department is a total grant funded department
GEOGRAPHIC INFORMATION SYSTEMS ANALYSIS	Yes	Is your staff trained in Geographic Information Systems mapping?	Yes	EPA Assistant is trained in GIS
OTHER		What technical assistance is needed for your Tribe to implement actions?		

5.6.3. FINANCIAL

Identify whether your Tribe has access to or is eligible to use the following funding resources for hazard mitigation.

FUNDING RESOURCE	ACCESS OR ELIGIBILITY?	NOTES
CAPITAL IMPROVEMENTS PROJECT FUNDING	No	
GAMING REVENUE, ENTERPRISE REVENUES	No	
FEES FOR WATER, SEWER, GAS, OR ELECTRIC SERVICES	No	
FEES FROM FESTIVALS, CAMPSITES, AND RECREATIONAL AREAS	No	
PERMITS AND OTHER FEES	No	
FEDERAL FUNDING (BIA, HOUSING AND URBAN DEVELOPMENT)	Yes	Grant funding
CONTRACT SERVICES	Yes	Grant projects
OTHER — What sources of revenue does the Tribe have? How does the Tribe envision making its matches or cost-share in its Federal grant funding (e.g. in-kind or cash match or a combination)?	Yes	In-kind matching using Tribal general funds as necessary

5.6.4. EDUCATION AND OUTREACH

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

PROGRAM/ORGANIZATION	YES/NO	QUESTION	NOTES
GATHERINGS, FESTIVALS, CELEBRATIONS AND/OR MEETINGS	Yes	What have been some shortcomings or issues with outreach efforts? How do you plan to resolve them?	Since 2015 the Tribe has established police and fire departments, each with outreach and education missions. Outreach has been practiced at gatherings of opportunity within and outside of the Rancheria
NATURAL DISASTER OR SAFETY- RELATED SCHOOL PROGRAMS	Yes	Is there a gap in your outreach efforts? If yes, what steps do you intend taking to address this?	No, the tribe provides fire safety, Halloween safety and fire extinguisher training annually with the local elementary school and pre-school students
FIRE SAFETY PROGRAMS	No	Is there a gap in your outreach efforts? If yes, what steps do you intend taking to address this?	Each resident on the rancheria is provided a fire extinguisher, smoke detector and C02 detector in their homes. Each elder on the tribe's food program is provided a fire extinguisher, both programs are provided the opportunity to refill their extinguisher annually at no cost to them. The tribe covers the costs of checkups and re-fills of extinguishers.
OTHER PROGRAMS	Yes	Are there any new or additional outreach efforts that may be considered by your Tribe?	Tribal OES, Fire, Law Enforcement, Environmental and Tribal Court all conduct outreach and educational activities.

5.7 Pre-and Post-Disaster Hazard Management Laws, Regulations, Policies, and Programs

The BLR has, uses and enforces the following legal and regulatory capabilities at the local level. These standards, as in all communities, establish baselines for safety and quality control. By using these legal and regulatory capabilities, BLR is in better position to reduce hazards, and the effects of hazards. The BLR adherence to the below legal and regulatory tools have resulted in safer and a more hazard resistant Tribal community:

- Regulatory tools, such as resolutions and codes
- Building codes
- Zoning ordinances
- Subdivision regulations, such as rental agreements
- Special purpose ordinances, including floodplain protection
- Site plan reviews
- A capital improvement plan
- An economic development plan
- An emergency response plan

While the tribe attempts to ensure any future development is outside of hazard prone areas, the small Tribal footprint limits those efforts. The above laws, regulations, and policies have served the Tribe well in new developments as by adhering to them we can still build more resilient capacity. As

examples, the new Tribal Government and Justice Center and fire station are designed and constructed to be resistant to earthquake, wildfire, flood, and other hazards identified in mitigation planning.

The BLR does not have in place the following legal and regulatory capabilities:

- A BLR General Plan
- A growth management ordinance
- A post-disaster recovery ordinance
- Real estate disclosure requirements

5.8 Changes Due to, or Since, Last Plan Approval

Since approval of the 2015 plan the Tribe has implemented a great many new initiatives, developed its local preparedness, response, and mitigation capabilities, and established itself as a model for other tribal and local emergency programs.

The changes are detailed throughout this update.

5.9 Tribal Funding Capabilities for Hazard Mitigation

The BLR has the following fiscal tools which are accessible or for which they are eligible for funding the Tribe's Mitigation Projects:

- Community development block grants (CDBGs)
- Authority to levy taxes for special purposes
- Ability to incur debt through general obligation bonds
- Ability to incur debt through special tax and revenue bonds
- Ability to incur debt through private activity bonds
- Ability to withhold spending in hazard-prone areas
- Impact fees for homebuyers or developers for new homes/developments

Tribal funding has been used to supplement other sources for capital projects with hazard mitigation benefits, e.g.:

- The Tribal Government and Justice Center
- The BLR fire station
- The solar microgrid
- The SmartWater grid

A variety of community programs with mitigation benefits have received Tribal funds, including:

- Annual residential fire extinguisher service and certification
- Residential smoke and carbon monoxide detector installation and annual service
- Training initiatives for Tribal members, staff, and neighboring responders

BLR does not currently have the ability to assess fees for water, sewer, gas, or electric service.

5.10 Tribal Funding Sources

Requirement 201.7(c)(3)(v): *[The mitigation strategy shall include an] identification of current and potential sources of Federal, tribal, or private funding to implement mitigation activities.*

5.10.1. Previous Hazard Mitigation Funding Sources

Apart from FEMA grants identified in Section 5.3.2, hazard mitigation programs have been funded by grants and other measures including:

- US Fish and Wildlife Service Tribal Wildlife Grant Program
- Natural Resources Conservation Service
- U.S. Bureau of Reclamation
- California Energy Commission Electric Program Investment Charge (EPIC)
- California Department of Water Resources Water Storage
- Community Development Block Grants (CDBGs)
- Authority to levy taxes and fees for special purposes
- Ability to incur debt through general obligation bonds
- Ability to incur debt through special tax and revenue bonds
- Ability to incur debt through private activity bonds
- Ability to withhold spending in hazard-prone areas

A sampling of hazard mitigation projects funded from non-FEMA sources includes:

- Creating floodways during casino construction
- Raising business enterprises and some tribal homes above predicted flood levels
- Retrofitting the hotel for earthquake safety
- Conducting wildfire fuels reduction
- Providing smoke and carbon monoxide detectors to all tribal housing
- Servicing and certifying fire extinguishers for all Rancheria residents annually
- Constructing the new Tribal Government and Justice Center with robust safety and security measures
- Paying OES employees for time volunteered for emergency services activities
- Paying police and fire department staff salaries, benefits, equipment and training

5.10.2. Current Hazard Mitigation Funding Sources

The BLR has the following additional fiscal tools which could be accessible, or for which they are eligible:

- Demonstrated skill in obtaining federal, state, and other grants and successfully administering resulting projects
- Authority to levy taxes and fees for special purposes

5.10.3. Potential Hazard Mitigation Funding Sources

The BLR has the following potential fiscal tools which may be pursued for future funding sources:

- Future capital improvements project funding

- Various competitive grant programs from FEMA, BIA and others to be determined; such as Tribal Emergency Management Performance Grant (EMPG) and Community Development Grants
- FEMA's Hazard Mitigation Assistance programs: PreDisaster Mitigation (PDM), Flood Mitigation Assistance (FMA) if joining the NFIP, and the Hazard Mitigation Grant Program (HMGP) if a Federal Disaster declaration is made within the Tribal lands and/or State of California.
- Non-FEMA and non-emergency funding sources that reflect the Tribe's innovative strategies for self sufficiency including electric util

6.0 – PLAN MAINTENANCE PROCESS

6.1 Monitoring, Evaluating and Updating the Plan

Requirement 201.7(c)(4)(i): *[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan.*

The BLR Office of Emergency Services (OES) Director shall be the lead in plan maintenance, including monitoring, evaluating and updating. The process includes, but is not limited to:

- Convening the planning group or key members on a semi-annual basis to review the plan's progress. During this meeting the plan's progress can be validated or modified based on results.
- Compiling an annual progress report providing to the Tribal Business Council the progress of the TMHMP mitigation strategy. These annual reports shall include:
    - Mitigation objectives
    - The status of each mitigation action, e.g. completed, under way, revised, or other
    - How mitigation actions have been achieved
    - Challenges in implementing actions
    - Goals and objectives for the next reporting period, and
    - A timeline for achieving remaining actions
- This report will be made available to the public, and input sought for updates
- The annual report will be a tool for the Tribal Business Council to make changes as necessary to reflect changing conditions and priorities or enhance the mitigation strategy.
- The TMHMP annual report may be used by the Tribal Business Council to seek, request, and provide (based on availability) funding to support the mitigation strategy.
- The director will manage grant application and project administration for related projects, including seeking funding to continue the process to update the TMHMP and maintain mitigation actions.
- The Grants & Contracts Manager shall complete an annual report on the availability of funding opportunities for TMHMP activities.
- The Rancheria Business Council shall initiate a plan review and possible update in the event of any of these:
    - The occurrence of a disaster, emergency, or other event on Rancheria property that demonstrates a need
    - The occurrence of a disaster in a neighboring community, within the county, or elsewhere with significant effects in or near the Rancheria
    - Changes in pertinent Tribal or Federal laws and statutes
    - Significant new development or re-development within the Rancheria; or
    - Five years pass without an update since approval of the TMHMP from FEMA.

6.2 Administering and Monitoring Progress of Mitigation Activities

Requirement 201.7(c)(4)(ii): *[The plan maintenance process shall include a] system for monitoring implementation of mitigation measures and project closeouts.*

Requirement 201.7(c)(4)(v): *[The plan maintenance process shall include a] system for reviewing progress on achieving goals as well as activities and projects identified in the mitigation strategy.*

The BLR planning group reviewed the old plan for successes and challenges concerning the monitoring of mitigation activities and how that related to the accomplishment of goals. Based on the previous plan's performance, the next section reflects the best practices carried forward as well as new techniques for enhanced success.

6.2.1 Monitoring Mitigation Measures and Project Closeouts

The OES Director is the focal point for mitigation measures and project tracking and closeout. The director will establish a measure and project timeline with milestones once funding for a project is secured. This process as well as a measure or project closeout will be presented to the planning group at each quarterly meeting and included in the annual report to the Business Council.

Responsibility for each mitigation action will be assigned by the OES Director according to each hazard's and action's nature and the expertise and capabilities needed for successful implementation. These have historically included, and are expected to continue to include these departments:

- BLR OES staff, volunteers, and consultants
- BLR Tribal Police
- BLR Fire
- BLR Information Technology
- BLR Communications
- BLR Economic Development
- BLR Environmental Programs
- BLR Public Works
- BLR Transportation

In addition, collaboration with Tribal enterprises, neighboring jurisdictions, and other cooperators is expected to continue. While outside organizations will not bear responsibility for implementation and administration, their participation has been a feature of these projects for many years.

Closeout of each grant-funded project will follow the guidance provided by the funding agency and program. Closeout procedures typically include:

- Completion of a closeout checklist
- Final progress reporting
- Final accounting reporting
- Equipment disposition reporting
- Program evaluation

For mitigation projects without specific closeout requirements, it is recommended that closeout include any of the above reports pertinent to the project, and:

- A maintenance plan for any projects, programs, or activities established under the project
- Lessons learned through the program, similar in purpose to an After Action Report
- An assessment of the project's success and future impacts

6.2.2 Mitigation Strategy and Goals Review Process

The BLR strategy and goals review process will consist of three functions:

- An annual review and analysis of the accomplishment of strategy and goals will be conducted by the OES Director. The result of this review and analysis will be briefed to the BLR planning group and Business Council. This review will also invite suggestions to add actions based on emerging threats and incident experience.
- The BLR planning group will use the results of each review and analysis to propose budget line items and actions to address the next year's Tribal mitigation efforts and their strategic implementation.
- The BLR TMHMP goals, objectives and mitigation actions will be updated to reflect progress based on the annual review and analysis.

6.2.3 Changes to Previous Plan's Mitigation Activities Tracking

This TMHMP will provide a much more hands on approach to the mitigation activities tracking process than prior plans. Key to this function is the OES Director's role, and the emphasis on continued member and stakeholder participation. In addition, regular briefings to the public will ensure projects do not lose sight of the public's desires and concerns.

The only discarded action related to a three day biomass fuel storage reserve. This action was deemed unnecessary after establishment of BLR's solar microgrid.

6.3 Incorporation into Existing Planning Mechanisms

Requirement 201.7(c)(4)(iii)*: [The plan maintenance process shall include a] process by which the Indian Tribal government incorporates the requirements of the mitigation plan into other planning mechanisms such as reservation master plans or capital improvement plans, when appropriate.*

Since implementation of BLR's 2015 Hazard Mitigation Plan, the Tribe has expanded the Office of Emergency Services, created Tribal police and fire departments, implemented its electric Microgrid, constructed an Emergency Operations Center, and completed other initiatives to increase the community's resilience, including hazard mitigation. These developments have increased the number and qualifications of indigenous specialists and resulted in a renewed emphasis on developing and updating a comprehensive collection of emergency plans.

Reflected in recent and emerging projects, this internal planning capacity creates an opportunity to take advantage of a common planning group and other resources to keep planning efforts coherent across departments and disciplines. Plans currently under development and update include:

- Updated Tribal Emergency Operations Plan (TEOP)
- New hazardous materials annex to the TEOP
- New evacuation and Shelter-in-Place plan
- New cybersecurity plan
- New emergency management training strategy

Efforts include inclusion of individual enterprise emergency plans into the Tribe's planning strategy, including evacuation, mass notification, crisis communication, and emergency response.

6.3.1 Identification and Integration of Mitigation Strategy with Other Tribal Planning Mechanisms

The TMHMP has identified the need for a mitigation plan update and creation of other plans in order to support the BLR Disaster Risk Reduction and Emergency Management efforts. Each plan will be considered in the context of all other plans to ensure nesting and coordinated disaster management cycle.

6.4 Continued Member and Stakeholder Involvement Strategy

Based on the previous plan's performance and suggestions from stakeholders the following actions will be taken to ensure a higher level of success in member and stakeholder involvement.

The OES Director and planning group will meet each quarter and provide an annual report at each year's end. The members and Stakeholders will be invited to all quarterly TMHMP meetings in order to foster the spirit and act of continued partnership. The OES Director will hold a member/stakeholder funding specific meeting prior to the annual report to the business council. This meeting will improve synergies of project funding.

Requirement 201.7(c)(4)(iv): *[The plan maintenance process shall include a] discussion on how the Indian Tribal government will continue public participation in the plan maintenance process.*

Once the TMHMP has been adopted by the Rancheria Business Council and approved by FEMA, the Rancheria shall make a copy of the TMHMP report available to the public and advertise this availability via tribal website.

Appendix A: Blue Lake Rancheria Family of Plans

Purpose: This list is intended as one tool in the Blue Lake Rancheria's initiative to integrate its emergency plans and other plans with elements that may be used in an emergency or a disaster. The Tribe is committed to developing its plans to be consistent and compatible within its government and enterprises.

Use: Planning efforts for each plan should consider the relevance of these plans in the development and maintenance of others. The BLR Office of Emergency Services may assist in identifying plans that should be considered and how they may best be integrated.

Plan Title:	**Blue Lake Rancheria Tribal Emergency Operations Plan**
Date:	2017
Responsible Department:	Emergency Services
Relevance:	Defines the scope of activities necessary for the Blue Lake Rancheria) to successfully prepare for and respond to disasters. The TEOP should be flexible enough to use in all emergencies. The TEOP pre-designates emergency management EOC Staff Representatives.

Plan Title:	**Blue Lake Rancheria Tribal Multi Hazard Mitigation Plan**
Date:	2021
Responsible Department:	Emergency Services
Relevance:	Provides an understanding of local hazards, their potential impacts on the Tribe's people, lands, and resources, and measures in place to reduce the probabilities and impacts of those hazards in emergencies.

Plan Title:	**Blue Lake Rancheria Transportation Plan**
Date:	2011
Responsible Department:	Transportation
Relevance:	Transportation of personnel, equipment, supplies, and other goods may be essential to successful emergency response and recovery actions. The Tribe's own resources may be used as directed by Tribal leadership and should be prepared for that role.

Plan Title:	**Blue Lake Rancheria Energy Plan**
Date:	
Responsible Department:	Electric Utility
Relevance:	The Tribe's own electricity generation, storage, and distribution system is a valuable resource in the self-sufficiency of the tribe during outages of commercial power and provides life-saving capabilities to evacuees from neighboring communities.

Plan Title:	**NAHASDA Housing Program Policies and Procedures**
Date:	2013
Responsible Department:	Housing
Relevance:	Establishes procedures for the internal operations of the Tribal Housing/Blue Lake Rancheria Housing Programs through the Native American Housing and Self Determination Act.

Plan Title:	**Blue Lake Rancheria Spill Response Plan**
Date:	May 2008
Responsible Department:	PlayStation 777 store management; BLR Fire
Relevance:	Provides response procedures for hazardous materials spills at the Tribe's largest hazardous materials storage and dispensing facility.

Plan Title:	**Blue Lake Casino Security Operations Plan (Confidential)**
Date:	2014
Responsible Department:	Gaming Commission
Relevance:	Provides policies and procedures for staff in circumstances of danger to guests and employees

Plan Title:	**Blue Lake Rancheria Multi-Year Training & Exercise Plan 2020-2022**
Date:	2020
Responsible Department:	Emergency Services
Relevance:	Facilitates resilience, provides strategy and reduces or eliminates risks to identified local hazards

Plan Title:	**Blue Lake Casino Emergency Action Plan**
Date:	2017
Responsible Department:	Gaming Commission
Relevance:	Provides procedures for actions in different circumstances of danger to guests, employees and resources

Plan Title:	**Threat and Hazard Identification and Risk Assessment (THIRA)**
Date:	2021
Responsible Department:	Blue Lake Rancheria Fire and Emergency Services
Relevance:	Identifies local hazards and threats and their impacts to core capabilities

Plan Title:	**Blue Lake Rancheria Fire Management Plan**
Date:	2017
Responsible Department:	Blue Lake Rancheria Fire and Emergency Services
Relevance:	Identifies hazardous fuels and safety zones; provides eradication plans and procedures for mitigation consistent with best practices

Plan Title:	**R.W. Matthews Dam Failure Mad River Valley Response Plan**
Date:	2015
Responsible Department:	BLR Emergency Services
Relevance:	Establishes emergency procedures in case of failure of the dam impounding Ruth Lake upstream from the Rancheria

Plan Title:	**Office of Emergency Communications Governance Profile**
Date:	2017
Responsible Department:	BLR Emergency Services
Relevance:	Provides a comprehensive profile of emergency communications capabilities, activities, relationships, challenges, and opportunities for improvement

Plan Title:	**Blue Lake Rancheria Shelter Operations Plan**
Date:	2016
Responsible Department:	BLR Emergency Services
Relevance:	An annex to the Tribal Emergency Operations Plan to guide mass sheltering operations, including evacuees from other jurisdictions

Plan Title:	**Blue Lake Rancheria Economic Development Plan**
Date:	1992
Responsible Department:	Economic Development
Relevance:	Provides a rational strategy and plan for implementing economic development projects of BLR

Appendix B:
REGION IX TRIBAL HAZARD MITIGATION PLAN REVIEW TOOL

The *Tribal Mitigation Plan Review Tool* records how the tribal hazard mitigation plan meets the regulations in 44 CFR §§ 201.7 and 201.5 (if applicable) and offers FEMA plan reviewers an opportunity to provide feedback to the tribal government.

- **Section 1**: The Regulation Checklist documents FEMA's evaluation of whether the plan has addressed all requirements. If plan requirements are not met, FEMA uses each Required Revisions section to indicate necessary changes.
- **Section 2**: The Strengths and Opportunities for Improvement summary identifies plan's strengths as well as areas for improvement as part of the next plan update.
- **Section 3**: The Hazard Identification and Risk Assessment Matrix is an optional tool for plan reviewers to identify if all components of Element B are met.

Tribal Jurisdiction: Blue Lake Rancheria	**Title of Plan:** Tribal Multi-Hazard Mitigation Plan	**Date of Plan:** April 16, 2021
Tribal Point of Contact: Anita Huff		**Address:** PO Box 428 Blue Lake, CA 95525
Title: Director		
Agency: Blue Lake Rancheria Office of Emergency Services		
Phone Number: 707-668-5101		**E-Mail:** AHuff@bluelakerancheria-nsn.gov

State Reviewer (if applicable): Not applicable.	**Title:**	**Date:**
Date Received at State Agency		
Date Sent to FEMA		

FEMA Reviewer: JoAnn Scordino Xing Liu	**Title:** Community Planner Senior Community Planner	**Date:** May 6, 2021
Date Plan Received at FEMA	April 30, 2021	
Date Plan Not Approved		
Date Plan Approvable Pending Adoption	June 11, 2021 (Standard Plan)	
Date Plan Approved		

SECTION 1:
REGULATION CHECKLIST

		Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING PROCESS				
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process? [44 CFR § 201.7(c)(1)]	a. Does the plan document how the plan was prepared, including the schedule or timeframe and the activities that made up the plan's development?	Section 2	X	
	b. Does the plan document who was involved on the planning team, including each person's position or title and department/agency?	Section 2	X	
A2. Does the plan document an opportunity for public comment during the drafting stage and prior to plan approval, including a description of how the tribal government defined "public"? [44 CFR § 201.7(c)(1)(i)]	a. Does the plan describe how the tribal government defined "public?"	2.1.3 Pg. 28	X	
	b. Does the plan describe how the public was given the opportunity to be involved in the planning process?	Throughout Section 2	X	
	c. Does the plan describe how public feedback was incorporated into the plan?	Throughout Section 2	X	
A3. Does the plan document, as appropriate, an opportunity for neighboring communities, tribal and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? [44 CFR § 201.7(c)(1)(ii)]	a. Does the plan identify all tribal members/citizens, and partners who were given an opportunity to be involved in the planning process?	Throughout Section 2	X	
	b. Does the plan identify how tribal members/citizens and partners were invited to participate in the process?	2.1.3	X	
A4. Does the plan describe the review and incorporation of existing plans, studies, and reports? [44 CFR § 201.7(c)(1)(iii)]	a. Does the plan describe *what* existing plans, studies, and reports were reviewed?	2.2.1	X	
	b. Does the plan document *how* relevant information was incorporated into the mitigation plan?	2.2.1	X	
A5. Does the plan include a discussion on how the planning process was integrated to the extent possible with other ongoing tribal planning efforts as well as	a. Does the plan describe how the tribal government integrated the current planning process and/or findings with other ongoing tribal planning efforts?	2.2.2	X	

		Location in Plan (section and/or page number)	Met	Not Met
other FEMA programs and initiatives? [44 CFR § 201.7(c)(1)(iv)]	b. Does the plan describe how the tribal government integrated the current planning process with other FEMA programs and initiatives?	2.2.3	X	
A6. Does the plan include a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within the plan update cycle)? [44 CFR § 201.7(c)(4)(i)]	a. Does the plan identify how, when, and by whom the plan will be *monitored* (how will implementation be tracked) over time?	6.1	X	
	b. Does the plan identify how, when, and by whom the plan will be *evaluated* (assessing the effectiveness of the plan at achieving stated purpose and goals) over time?	6.2	X	
	c. Does the plan identify how, when, and by whom the plan will be *updated* during the 5-year cycle?	6.1, 6.2	X	
A7. Does the plan include a discussion of how the tribal government will continue public participation in the plan maintenance process? [44 CFR § 201.7(c)(4)(iv)]		6.1	X	
ELEMENT A: REQUIRED REVISIONS				
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT				
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the tribal planning area? [44 CFR § 201.7(c)(2)(i)]	a. Does the plan include a description of the tribal planning area?	Throughout Section 3	X	
	b. Does the plan include a description of the natural hazards that can affect the tribal planning area?	Throughout Section 4	X	
	c. Does the plan provide the rationale for the omission of any natural hazards that are commonly recognized to affect the tribal planning area?	4.1.3 Pg. 101	X	
	d. Does the plan include a description of the *type* of all natural hazards that can affect each tribal planning area?	Throughout Section 4	X	

		Location in Plan (section and/or page number)	Met	Not Met
	e. Does the plan include a description of the *location* for all natural hazards that can affect each tribal planning area?	Throughout Section 4	X	
	f. Does the plan include a description of the *extent* for all natural hazards that can affect each tribal planning area?	Throughout Section 4	X	
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? [44 CFR § 201.7(c)(2)(i)]	a. Does the plan include information on *previous occurrences* of hazard events for each tribal planning area?	4.2.1	X	
	b. Does the plan include information on the *probability* of future hazard events for each tribal planning area? Probability must include considerations of future conditions, including the effects of long-term changes in weather patterns on identified hazards.	Summarized on 4.2.4 Scored for each hazard in 4.1.2 Climate change 4.1.1	X	
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 § 201.7(c)(2)(ii)]	a. Is there a description of each hazard's *impacts* on each tribal planning area (what happens to structures, infrastructure, people, environment, cultural sites, etc.)?	Throughout Section 4	X	
	b. Is there a description of each identified hazard's overall *vulnerability* (structures, systems, populations, or other community assets defined by the tribal government that are identified as being susceptible to damage and loss from hazard events) for each tribal planning area?	4.3	X	
ELEMENT B: REQUIRED REVISIONS				
ELEMENT C. MITIGATION STRATEGY				
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	a. Does the plan describe the tribal government's *existing* capabilities to mitigate hazards in the tribal planning area, including pre-disaster and post-disaster hazard management policies and programs?	Section 3.5	X	

		Location in Plan (section and/or page number)	Met	Not Met
and regulations related to hazard mitigation as well as to development in hazard-prone areas? [44 CFR §§ 201.7(c)(3) and 201.7(c)(3)(iv)]	b. Does the plan include an evaluation of the tribal laws, regulations, policies, programs, and resources related to hazard mitigation and development in hazard-prone areas?	3.5.7	X	
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? [44 CFR §§ 201.7(c)(3)(iv) and 201.7(c)(3)(v)]	a. Does the plan describe the tribal government's *existing* funding sources for hazard mitigation actions and/or projects?	5.9 + 10	X	
	b. Is there a general discussion of how the tribal government has used non-FEMA (tribal, private or other federal) funds for hazard mitigation projects?	5-10	X	
	c. Is there a general discussion of how the tribal government has used FEMA mitigation funding, including HMGP, PDM, FMA, PA (C-G), and FMAG?	5.5 5.10.3 Pg. 140	X	
	d. Does the plan identify *potential* sources of funding to implement mitigation actions and/or projects?	5.10.3	X	
C3. Does the Mitigation Strategy include goals to reduce or avoid long-term vulnerabilities to the identified hazards? [44 CFR § 201.7(c)(3)(i)]		5.1	X	
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with emphasis on new and existing buildings and infrastructure? [44 CFR § 201.7(c)(3)(ii)]	a. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects to reduce the impacts from each identified hazard?	5.2.1 5.4	X	
	b. Do the identified mitigation actions and projects have an emphasis on new and existing buildings and infrastructure?	5.4 EQ#2 Wildfire Flood Land movement	X	
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by the tribal government? [44 CFR § 201.7(c)(3)(iii)]	a. Does the plan explain how the mitigation actions will be prioritized?	5.4	X	
	b. Does the plan identify the position, office, department, or agency responsible for implementing and administering each action?	6.2	X	

		Location in Plan (section and/or page number)	Met	Not Met
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? [44 CFR § 201.7(c)(4)(iii)]	a. Does the plan identify other planning mechanisms where hazard mitigation information and/or actions may be incorporated?	6.3 Appendix A	X	
	b. Does the plan describe the process to integrate the data, information, and hazard mitigation goals and actions into other planning mechanisms?	6.3 Appendix A	X	
C7. Does the plan describe a system for reviewing progress on achieving goals as well as activities and projects identified in the mitigation strategy, including monitoring implementation of mitigation measures and project closeouts? [44 CFR §§ 201.7(c)(4)(ii) and 201.7(c)(4)(v)]	a. Does the system for tracking the implementation of mitigation activities and projects identified in the mitigation strategy include a schedule?	6.2	X	
	b. Does the system noted above identify the tribal department or tribal office responsible for coordination (or non-tribal entity or agency, if the tribe allows)?	6.2.1	X	
	c. Does the system noted above describe the role of the agencies/offices identified in the mitigation strategy?	6.2.1, 6.2.2	X	
	d. Does the system noted above include project closeout procedures?	6.2.1	X	
ELEMENT C: REQUIRED REVISIONS				
ELEMENT D. PLAN UPDATES				
D1. Was the plan revised to reflect changes in development? [44 CFR § 201.7(d)(3)]	a. Does the plan describe changes in development that have occurred in hazard prone areas since the last plan was approved?	Throughout Sections 3.0 and 4.0	X	
D2. Was the plan revised to reflect progress in tribal mitigation efforts? [44 CFR §§ 201.7(d)(3) and 201.7(c)(4)(iii)]	a. Does the plan describe the status of each mitigation action and/or project identified in the previous plan?	5.5	X	
	b. For those actions not completed, does the plan provide a narrative describing the status (for example, a description of why the action is no longer relevant)?	5.5	X	

		Location in Plan (section and/or page number)	Met	Not Met
	c. Does the updated plan describe how the tribal government incorporated the previous mitigation plan into other planning mechanisms, as applicable?	2.2.1	X	
D3. Was the plan revised to reflect changes in priorities? [44 CFR §201.7(d)(3)]		4.2.2	X	
ELEMENT D: REQUIRED REVISIONS				
ELEMENT E. ASSURANCES AND PLAN ADOPTION				
E1. Does the plan include assurances that the tribal government 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, and will amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes? [44 CFR § 201.7(c)(6)]		1.2	X	
E2. Does the plan include documentation that it has been formally adopted by the governing body of the tribal government requesting approval? [44 CFR § 201.7(c)(5)]		1.2.1		X
ELEMENT E: REQUIRED REVISIONS E.2 – Once you receive the Approvable Pending Adoption (APA) notice from FEMA, have your Tribal Council sign a resolution adopting your 2021 Hazard Mitigation Plan. Then email the signed resolution to FEMA-R9-Mitigation-Planning@fema.dhs.gov and FEMA will issue an approval notice.				

PAUSE…

If the tribal jurisdiction is seeking an enhanced planning status, continue providing information for the requirements in Elements F-I. If an enhanced status is *not* being sought, skip ahead to the Strengths and Opportunities for Improvement section and do not fill out location in plan or met/not met columns.

Is the tribal jurisdiction seeking an enhanced planning status?

Yes	No
✓	

Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)		**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ENHANCED ELEMENT F. STANDARD PLAN REQUIREMENTS				
F1. Does the enhanced plan include all elements of the standard tribal mitigation plan? [44 CFR §§ 201.3(e)(3), 201.5(b), and 201.7]		Throughout		
ENHANCED ELEMENT F: REQUIRED REVISIONS				
ENHANCED ELEMENT G. INTEGRATED PLANNING				
G1. Does the enhanced plan demonstrate integration to the extent practicable with other tribal and/or regional planning initiatives and FEMA mitigation programs and initiatives? [44 CFR §§ 201.3(e)(3) and 201.5(b)(1)]	a. Does the enhanced plan demonstrate integration with other tribal and/or regional planning initiatives (and tribal organizations)? At a minimum, the following sectors must be included: • Emergency Management • Economic Development • Land Use Development • Housing • Health and Social Services • Infrastructure • Natural and Cultural Resources	3.6 2.1.2		

Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)		**Location in Plan** (section and/or page number)	**Met**	**Not Met**
	b. Does the enhanced plan illustrate integration of FEMA mitigation programs and initiatives (including, if applicable, but not limited to: HMGP, PDM, FMA, NFIP, and Risk MAP, as well as other FEMA programs that advance mitigation, for example, THIRA and PA C-G?	5.3.2		
ENHANCED ELEMENT G: REQUIRED REVISIONS				
ENHANCED ELEMENT H. TRIBAL MITIGATION CAPABILITIES				
H1. Does the tribal government demonstrate commitment to a comprehensive mitigation program? [44 CFR §§ 201.3(e)(3) and 201.5(b)(4)]	a. Does the enhanced plan illustrate targeted risk reduction for each of the identified hazards in the tribal planning area?	5.2.1		
	b. Does the enhanced plan illustrate a mitigation program that is inclusive of various agencies and sectors with mitigation capabilities and resources?	2.1.2 3.5.8		
	c. Does the enhanced plan demonstrate a mitigation program that is coordinated to increase resilience from the adverse impacts of future hazard events in the tribal planning area?	Throughout, with special attention to Climate Crisis planning		
H2. Does the enhanced plan document capability to implement mitigation actions? [44 CFR §§ 201.3(e)(3), 201.5(b)(2)(i), 201.5(b)(2)(ii), and 201.5(b)(2)(iv)]	a. Does the enhanced plan describe the system to rank the mitigation measures according to established eligibility criteria, including a process to prioritize between funding programs and proposals that address different or multiple hazards?	Add detail		

Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)		**Location in Plan** (section and/or page number)	**Met**	**Not Met**
	b. Does the enhanced plan describe how the tribal government will assess the effectiveness of mitigation actions, including the role of departments involved, the timeline, and the use of the results to inform the mitigation strategy?	6.1		
H3. Is the tribal government using existing mitigation programs to achieve mitigation goals? [44 CFR §§ 201.3(e)(3), 201.5(a) and 201.5(b)(3)]	a. Does the enhanced plan document how the tribal government has made full use of the funding available through the FEMA assistance programs (for example, PA C-G, HMGP, PDM, and FMA)?	5.3.2		
	b. Does the enhanced plan document how the tribal government uses existing programs to achieve its mitigation goals?	5.10		
ENHANCED ELEMENT H: REQUIRED REVISIONS				
ENHANCED ELEMENT I. HMA GRANTS MANAGEMENT				
I-1. With regard to HMA, is the tribal government maintaining the capability to meet application timeframes and submitting complete project applications? [44 CFR §§ 201.3(e)(3), 201.5(b)(2)(iii)(A)]	a. Are all applications and amendments submitted by the end of each program's respective application period?	Add narrative and examples		
	b. Are all applications entered into FEMA's electronic data systems (such as NEMIS and/or eGrants)?	Document		
	c. Is an Eligibility and Completeness Checklist prepared for all applications?	Document		

Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)		**Location in Plan** (section and/or page number)	**Met**	**Not Met**
	d. Are all applications determined to be complete by FEMA within 90 days of submittal or selection for further review? (Required environmental and historic preservation reviews and consultations are not included in the 90-day review timeframe calculation.)	Document		
I-2. With regard to HMA, is the tribal government maintaining the c-apability to prepare and submit accurate environmental reviews and benefit-cost analyses? [44 CFR §§ 201.3(e)(3) and 201.5(b)(2)(iii)(B)]		Document		
I-3. With regard to HMA, is the tribal government maintaining the capability to submit complete and accurate quarterly progress and financial reports on time? [44 CFR §§ 201.3(e)(3) and 201.5(b)(2)(iii)(C)]	a. Have all progress reports been completed and submitted on time?	Document		
	b. Have all federal financial reports (FFR), Standard Form (SF) SF-425 been submitted on time?	Document		
	c. Has the tribal government consistently complied with the Standards for Financial and Program Management requirements described in 2 CFR §§ 200.300 to 200.309?	Document		
I-4. With regard to HMA, is the tribal government maintaining the capability to complete HMA projects within established performance periods, including financial reconciliation? [44 CFR §§ 201.3(e)(3) and 201.5(b)(2)(iii)(D)]	a. Is all work as part of HMA sub awards completed by the end of Period of Performance?	Document		
	b. There are no major findings on the last single audit obtained by the tribal government related to HMA programs. For tribal governments without HMA grants, FEMA will review other federal grants.	Document		
	c. Are all grant close-out activities, including financial reconciliation, completed within 90 days from the end of the performance period?	Document		

Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)		**Location in Plan** (section and/or page number)	**Met**	**Not Met**
	d. Have actual expenditures been documented and are they consistent with SF-424A or SF-424C (Application for Federal Assistance and Budget Information)?	Document		
ENHANCED ELEMENT I: REQUIRED REVISIONS				

SECTION 2:
STREGNTHS AND OPPORTUNITIES FOR IMPROVEMENT

INSTRUCTIONS: The purpose of the Strengths and Opportunities for Improvement section is for FEMA to provide more comprehensive feedback on the tribal mitigation plan to help the tribal government advance mitigation planning. The intended audience is the tribal staff responsible for the mitigation plan update. FEMA will address the following topics:

1. Plan strengths, including specific sections in the plan that are above and beyond the minimum requirements; and
2. Suggestions for future improvements.

Results from this section are *not* required for plan approval.

Element A: Planning Process

Strengths:

1) Very useful to list planning team members, not only by their agency or title, but also by hazards and subject area expertise.
2) In this section you clearly demonstrated how the Blue Lake Rancheria tribe values collaboration with other tribes and government entities in the surrounding areas to share resources and planning activities.
3) Though you included a number of references to non-mitigation programs and plans, you did so with a great balance of understanding and stating the value of mitigation.
4) Wonderful to see how many other tribes in the area you included in your stakeholder outreach – a win-win opportunity for BLR and others!
5) Interviewing tribal elders for their experiences in this arena is so vitally precious to record their direct experiences to your tribe's natural environment, changing climate, and history!

Opportunities for Improvement:

1) Though not required, it is useful for the purposes of the tribe to have a list of key participants by name, agency, and title/role. For the next plan iteration, if will be helpful for the planning team to know who to contact or who filled the role(s) previously.
2) Keep up the habit of good documentation of all planning meetings and activities for your next update.

Element B: Hazard Identification and Risk Assessment

Strengths:

1) It was a smart move in this update to have climate change be an overarching impact for all the hazards vs in the 2015 plan where it was profiled as a standalone hazard. You really showed how it impacts the whole tribal area and every type of hazard.
2) You made the extra effort to profile human made disasters/hazards that impact the tribal lands and people, so that this plan is tailored as a working road map for the Blue Lake Rancheria.
3) Very good review of the vulnerabilities to each hazard profiled.
4) You provided a significant amount of current disaster and hazard data from the 2015 to the 2021 plan, showing a real amount of information gathering and thought went into this update!

Opportunities for Improvement:

1) In listing hazards in the high or medium ranking, make sure to have a clear distinction of what hazards you are actually profiling. Example, leave seiche off the list unless you intend to fully profile it and meet each element.

Element C: Mitigation Strategy

Strengths:

1) To have marked 69% of your 2016 mitigation actions as completed is a significant accomplishment and one to be celebrated!
2) Your prioritization of mitigation actions was very thorough and well thought through to allow for real actions to transpire in your 5-year implementation phase.
3) For the leadership taking the reins on the current plan implementation, you gave clear descriptions and easy to follow steps for Project Close-Out Procedures.

Opportunities for Improvement:
1) Include more mitigation driven measures vs. preparedness/response in your mitigation actions, with an emphasis on improving new and existing buildings and structures.

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

Strengths:

1) It is crystal clear that this plan was fully reviewed and authentically updated from the 2015 version.
2) You provided a very thorough and detailed table of all the 2015 mitigation actions with their current status. And in Section 5.5.1 a very impressive summary with 69% of actions accomplished and completed!

Opportunities for Improvement:

1) Keep tracking and documenting your progress throughout this new 5-year implementation phase for the sake of your next update and for your tribal leads to have a good rein on the process and progress being made.

SECTION 3:
HAZARD IDENTIFICATION AND RISK ASSESSMENT MATRIX (OPTIONAL TOOL)

INSTRUCTIONS: This matrix can be used by the plan reviewer to help identify if all of the components of Element B have been met. List natural hazards (meteorological, geological, environmental) that are identified in the plan in the column labeled "Hazard" and put a "Y" or "N" for each component of Element B.

HAZARD IDENTIFICATION AND RISK ASSESSMENT MATRIX								
Hazard	**Requirement Met? (Y/N)**							
	Type	**Location**	**Extent**	**Previous Occurrences**	**Probability**	**Impacts**	**Vulnerability**	**Mitigation Action**
Earthquakes (High)	71	71	74/128	75	75/106	75/107/112	107/112	135
Wildfires (Moderate)	75	75	69	78	75/106	76/108/113	108/113	135
Pandemic (High)	78	78	79/128	79	78/106	79/106/117	79/106/117	136
Severe Storms, Winds (High)	80	80	80	81	80/106	107/119	107/119	136
Flood (Moderate)	82	82	82/128	82	82/106	108/115	108/115	136
Dam	84	84	84/128	84	82/106	84/115	84/115	136
Drought (High)	86	122	87	86	106	107/122	107/122	136
Land Movement (Low)	99	99	128	100	106	110/123	110/123	138