



Executive Summary

This Plumas County 2020 Local Hazard Mitigation Plan (LHMP) Update serves to update the 2014 Federal Emergency Management Agency (FEMA) approved Plumas County LHMP. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Plumas County prepared this LHMP Update to the FEMA approved 2014 Plumas County LHMP in order to make the County and its residents less vulnerable to future hazard events. This LHMP Update demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This LHMP Update was also developed, among other things, to ensure Plumas' continued eligibility for certain federal disaster assistance: including the FEMA Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA).

This Plumas County 2020 LHMP Update is single jurisdiction plan that geographically covers the unincorporated area within Plumas County's jurisdictional boundaries (i.e., the Plumas County Planning Area).

Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of natural disasters, because additional expenses to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards.

LHMP Plan Development Process

Hazard mitigation planning is the process through which: hazards that threaten communities are identified; likely impacts determined; mitigation goals set; and appropriate mitigation strategies determined, prioritized, and implemented. This LHMP Update documents the hazard mitigation planning process and identifies relevant hazards and vulnerabilities and strategies the County will use to decrease vulnerability and increase resiliency and sustainability in the community.

This LHMP Update was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002 (44 CFR §201.6) and finalized on October 31, 2007. The County followed a planning process prescribed by FEMA as detailed in Table ES-1.

Table ES-1 Local Hazard Mitigation Planning Process

DMA Process	Modified Community Rating System (CRS) Process
1) Organize Resources	
201.6(c)(1)	1) Organize the Planning Effort
201.6(b)(1)	2) Involve the Public
201.6(b)(2) and (3)	3) Coordinate with Other Departments and Agencies
2) Assess Risks	
201.6(c)(2)(i)	4) Identify the Hazards
201.6(c)(2)(ii)	5) Assess the Risks
3) Develop the Mitigation Plan	
201.6(c)(3)(i)	6) Set Goals
201.6(c)(3)(ii)	7) Review Possible Activities
201.6(c)(3)(iii)	8) Draft an Action Plan
4) Implement the Plan and Monitor Progress	
201.6(c)(5)	9) Adopt the Plan
201.6(c)(4)	10) Implement, Evaluate, and Revise the Plan

Plumas County’s planning process began with the organizational phase to establish the Hazard Mitigation Planning Committee (HMPC). The HMPC is comprised of key County representatives and other local and regional stakeholders to involve the public and to coordinate with other departments and agencies. A detailed risk assessment was then conducted by Plumas County followed by the development of a focused mitigation strategy. Once approved by the California Office of Emergency Services (Cal OES) and FEMA, this LHMP Update will be adopted and implemented by the County over the next five years.

Risk Assessment

The HMPC conducted a risk assessment that identified and profiled hazards that pose a risk to the County, assessed the vulnerability of the Planning Area to these hazards, and examined the existing capabilities to mitigate the hazards.

The Plumas County Planning Area is vulnerable to numerous hazards that are identified, profiled, and analyzed in this LHMP Update. Floods, drought, dam failure, wildfires, and severe weather events are among the hazards that can have a significant impact on the County. Table ES-2 details the hazards identified for this Plumas County LHMP Update.

Table ES-2 Plumas County Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Avalanche	Limited	Highly Likely	Negligible	Low	Medium
Climate Change	Extensive	Likely	Limited	Medium	–
Dam Failure	Extensive	Unlikely	Critical	High	Medium
Drought & Water shortage	Extensive	Likely	Limited	Medium	High
Earthquake	Extensive	Occasional	Critical	Medium	Low
Floods: 1%/0.2% annual chance	Significant	Occasional/ Unlikely	Critical	High	Medium
Floods: Localized Stormwater	Significant	Highly Likely	Negligible	Medium	Medium
Landslide, Mudslide, and Debris Flow	Significant	Likely	Negligible	Medium	Medium
Levee Failure	Limited	Unlikely	Limited	Medium	Medium
Pandemic	Extensive	Likely	Critical	High	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Negligible	Medium	High
Severe Weather: Heavy Rains and Storms	Extensive	Highly Likely	Limited	Medium	Medium
Severe Weather: High Winds and Tornadoes	Extensive	Highly Likely	Limited	Medium	Low
Severe Weather: Winter Storms and Freeze	Extensive	Highly Likely	Negligible	Medium	Medium
Tree Mortality	Significant	Likely	Limited	Medium	High
Volcano	Extensive	Unlikely	Catastrophic	Low	Low
Wildfire	Extensive	Highly Likely	Catastrophic	High	High
Geographic Extent		Magnitude/Severity			
Limited: Less than 10% of planning area		Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths			
Significant: 10-50% of planning area		Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability			
Extensive: 50-100% of planning area		Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability			
Likelihood of Future Occurrences		Significance			
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.		Low: minimal potential impact			
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.		Medium: moderate potential impact			
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.		High: widespread potential impact			
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.		Climate Change Influence			
		Low: minimal potential impact			
		Medium: moderate potential impact			
		High: widespread potential impact			

Mitigation Strategy

Based on the results of the risk assessment, the HMPC developed a mitigation strategy for reducing the County's risk and vulnerability to hazards. The resulting mitigation strategy for the Plumas County Planning Area is comprised of LHMP goals and objectives and a mitigation action plan which includes a series of mitigation action projects and implementation measures. Based on the risk assessment, the HMPC identified goals and objectives for reducing the Plumas County Planning Area's vulnerability to hazards. The goals and objectives of this multi-hazard mitigation plan are:

Goal #1: Minimize loss of life and injuries and protect property and the environment from natural hazards.

- Minimize loss from priority natural hazards to include wildfire, flood, earthquake, dam failure, drought, landslides, and severe weather hazards
- Minimize impact to existing and future development
- Minimize economic and natural resource impact
- Promote resiliency strategies
- Support mitigation planning and implementation in all County departments and operations

Goal #2: Reduce losses and provide protection for critical facilities, infrastructure, and services from hazard impacts

- Implement critical facility upgrades and mitigation measures to ensure reliability of services
- Update and maintain a GIS database of critical facilities to include: Essential Services, At-Risk Populations, Hazardous Materials Facilities

Goal #3: Minimize the loss of agricultural and natural resource productivity (foundation of rural economy) from natural hazards

- Support education and training of private land managers on hazard mitigation and disaster preparedness
- Promote local research, education, and technical assistance on sustainable agriculture and forestry practices
- Foster agricultural and natural resource resilience to natural hazards through implementation of best management practices and restoration activities
- Provide training, technical assistance, outreach and education to private landowners on tree mortality, identification, management, and prevention strategies

Goal #4: Increase community awareness, education, preparedness, and self-reliance to natural hazards

- Enhance public and stakeholder outreach, education, and preparedness programs to include all hazards of concern
- Increase public and stakeholder knowledge about the risk and vulnerability to identified hazards and how to be more self-reliant in mitigating risks from natural hazards
- Provide public and stakeholder education and outreach specific to evacuation routes, various available emergency communication modes, and roles and responsibilities.

Goal #5: Increase communities' ability to mitigate hazards and be prepared for, respond to, and recover from a disaster event in Plumas County

- Improve community capabilities to mitigate hazards and reduce losses
- Enhance community capabilities by improved coordination of local, state, and federal resources
- Increase capabilities to provide mitigation opportunities and assistance to Plumas County communities
- Increase the capacity to effectively respond to and recover from natural disaster events
- Enhance emergency communication capabilities (e.g., cell phones, radios, sirens, reverse 911, multi-media, etc.)
- Increase capabilities for continuity of government
- Improve community's ability to be competitive/successful with grant funding opportunities from application development to project delivery

Goal #6: Minimize life safety issues, property loss, environmental damages, and economic impacts associated with wildfires, the #1 natural hazard of concern in Plumas County

- Reduce the wildfire risk and vulnerability
- Update, maintain, and implement Community Wildfire Protection Plans
- Develop a Countywide fuels management implementation strategy
- Coordinate comprehensive fire protection strategies among all federal, state, and local agencies and across all property boundaries to implement a fire-adapted community concept approach at broader county-wide geographic and policy scales.
- Increase community education, outreach, and awareness of wildfire mitigation strategies, including those to be undertaken by private property owners
- Continue to seek establishment of Firewise USA sites (communities)
- Promote and develop a tree mortality action plan for monitoring, prevention and mitigation activities
- Promote and enhance fire-fighting capabilities (e.g., access roads, water supply, etc.)
- Improve community infrastructure for wildfire preparedness and response including locating safety zones, augmenting community water supplies, and reducing fire hazard along transportation and power infrastructure.
- Enhance the county wildfire hazard codes, including enforcement capabilities, within areas of high wildfire risk
- Continue land use planning efforts to ensure increased fire safety in new developments
- Develop and implement outreach, education, and technical assistance to encourage “home hardening” and retrofitting of older residences and structures to increase community resilience to wildfire.

Goal #7: Minimize the effects of climate change on natural hazards in Plumas County

- Develop a Climate Action Plan for Plumas County
- Consider and integrate climate change information and issues in future General Plan updates

Actions to support these goals are shown on Table ES-3.

Table ES-3 Plumas County Planning Area Mitigation Actions

Action Title	New Action/ 2014 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	Mitigation Type
Multi-Hazard Actions					
Action 1. Integrate Local Hazard Mitigation Plan into Public Health & Safety Element of General Plan	New action	X	X		Prevention
Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness	New action	X	X	X	Public Information
Action 3. Continue Bridge Replacement Program using Federal Funding Source for Evacuation and Emergency Services Access	New action	X	X	X	Structural Projects Emergency Services
Action 4. Companion Animal/Livestock/Horse/Equipment Trailer	New action	X	X		Emergency Services
Action 5. Plumas County General Plan Public Health & Safety Element update to incorporate Senate Bill (SB) 379 requirements	New action	X	X		Prevention
Action 6. Continue Telephone Emergency Notification System (TENS) Capability Enhancements Countywide	New action	X	X		Emergency Services
Action 7. Evacuation Planning, Mapping, and Exercising, to Include Considerations for Shelters, Refuge Areas, Safety Zones, Evacuation Signage, etc.	New action	X	X		Emergency Services
Action 8. Evaluate Coverage and Expansion for Broadband Services. Advance Grants and Projects Accordingly	New action	X	X		Emergency Services
Action 9. Harden Cell Tower Sites. Increase Cell Service Coverage by Increasing the Number of Cell Towers. Increase the Number of Repeater Sites. Install Backup Generators in Case of Power Failure.	New action	X	X		Property Protection Structural Projects Emergency Services
Action 10. Identify Critical Facilities Requiring Backup Generators	New action	X	X		Property Protection Structural Projects Emergency Services

Action Title	New Action/ 2014 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	Mitigation Type
Action 11. Prepare Emergency Food Access Plan as a Complement to the Plumas County EOP Annex B: Mass Care & Shelter	New action	X	X		Emergency Services
Action 12. Explore establishing a Community Emergency Response Team (CERT)	New action	X	X		Emergency Services
Action 13. Ingress/Egress Road Projects to Widen and Improve Roads for Evacuation and Emergency Services Access	2014 action	X	X		Property Protection Emergency Services
Action 14. PRC 4290 – Plumas County Code Title 9, Chapter 8. Street Address System. Promote and continue to implement compliant street/address reflective signage for public and private roads and structures	New action	X	X		Property Protection Public Information Emergency Services
Action 15. Designation of minor County roads and forest service roads to be used as alternate routes around road closures during wildfire and other hazard events. Plumas and Lassen National Forests have funding for new road connections to form alternate routes.	New Action	X	X		Prevention Emergency Services
Climate Change, Drought and Water Shortage Actions					
Action 16. Develop a Climate Action Plan	New action	X	X	X	Prevention
Action 17. Water Shortage Preparedness and Contingency Planning Pilot Project	New action	X	X		Prevention
Action 18. Water Supply Infrastructure Improvements	New action	X	X		Property Protection Structural Projects
Dam Failure, Flood, Localized Flood, Levee Failure, Landslide, Mudslide, and Debris Flow, and Severe Weather Actions					
Action 19. Countywide Stormwater Drainage and Grading Ordinance	New action	X	X	X	Prevention
Action 20. Develop a Countywide Drainage Master Plan	New action	X	X	X	Prevention
Action 21. FEMA Mapping Update	New action	X	X	X	Prevention
Action 22. Evaluate Options to Repair and Maintain Levee Crown for Emergency Access Vehicles (Gates, Crown Repair, Vegetation Maintenance, etc.)	New action	X	X	X	Structural Projects Property Protection Emergency Services Natural Resource Protection

Action Title	New Action/ 2014 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	Mitigation Type
Action 23. Ongoing Implementation of Stream Clearing and Maintenance Programs	New action	X	X	X	Property Protection Natural Resource Protection
Action 24. Plumas Eureka CSD stream bank flood mitigation	New action	X	X	X	Property Protection Structural Projects Natural Resource Protection
Action 25. Evaluate and Implement Projects to Reduce Flooding in Plumas Eureka CSD	New action	X	X	X	Property Protection Structural Projects Natural Resource Protection
Action 26. Plumas Eureka CSD Sewer Plant Flood Mitigation	New action	X	X	X	Property Protection Structural Projects Natural Resource Protection
Action 27. Evaluate Options for Obtaining 100-year Level of Certification for the Diversion Dam (East and West Chester Levees)	New action	X	X	X	Property Protection Structural Projects Natural Resource Protection
Action 28. Review and Update, as Needed, Title 8 (Building Regulations), Chapter 17 (Flood) of the Plumas County Code re: Floodplain Ordinance and Applicable Title 9 (Planning and Zoning) Sections	New action	X	X	X	Prevention
Action 29. Identify and Implement Bank Stabilization Projects	2014 Action	X	X	X	Property Protection Structural Projects Natural Resource Protection
Action 30. Identify and Implement Projects to Address Areas of Landslides Affecting Roadway and Railroad	New action	X	X		Property Protection Structural Projects Natural Resource Protection
Action 31. Evaluate and Implement Wolf Creek Channel Stabilization Projects through Greenville and Indian Valley Areas	New action	X	X	X	Property Protection Structural Projects Natural Resource Protection
Earthquake Actions					
Action 32. Conduct a Seismic Risk Evaluation of Critical Facilities and Public Buildings; Prioritize and Implement Seismic Retrofits: PECSD Water Storage Tank Replacement	New action	X	X		Property Protection Structural Projects

Action Title	New Action/ 2014 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	Mitigation Type
Action 33. Seismic Risk Evaluations to Prioritize and Implement Seismic Retrofits	New action	X	X		Property Protection Structural Projects
Pandemic Actions					
Action 34. Update and Refine Pandemic Plan	New action	X	X		Prevention
Wildfire, Drought and Water Shortage, and Tree Mortality Actions					
Action 35. Plumas County Agriculture, Forestry, and Natural Resources Resilience	New action	X	X		Prevention Natural Resource Protection
Action 36. Invasive Species Control and Eradication	New action	X	X		Prevention Natural Resource Protection
Action 37. Continue and Promote Defensible space (PRC 4291) Projects Including Assistance Efforts for Senior and Disabled Residents	New action	X	X		Property Protection
Action 38. Establish Additional Firewise USA Sites (communities) and Promote Existing Ones	New action	X	X		Prevention Public Information Property Protection
Action 39. Continue to Evaluate and Track Available Funding Sources for Wildfire Mitigation Projects	New action	X	X		Prevention
Action 40. Develop a Program to Promote and/or Incentivize Home Hardening Retrofitting including: Roofs, Vents, Siding, Windows, etc.	New action	X	X		Prevention Property Protection Structural Projects
Action 41. Identify and Implement Priority Wildfire Risk Reduction Projects from the Plumas County CWPP to Enhance Forest Health Including Detection, Prevention, and Mitigation of Tree Mortality	New action	X	X		Prevention Property Protection Structural Projects Natural Resource Protection
Action 42. Plumas County General Plan Public Health & Safety Element update to address state law requirements for land classified as State Responsibility Areas (SRAs) and within Very High Fire Hazard Severity Zones (VHFHSZs)	New action	X	X		Prevention
Action 43. Local Adoption of State Responsibility Area Fire Safe Regulations	New action	X	X		Prevention

Action Title	New Action/ 2014 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	Mitigation Type
Action 44. Improve Funding and Response Capabilities of Local Fire Protection Districts and Expand Districts in Areas not Covered	New action	X	X		Prevention Property Protection Natural Resource Protection
Action 45. Review and Update, as Needed, Plumas County Code to Address Defensible Space and Vegetation Management	New Action	X	X		Prevention Property Protection Natural Resource Protection



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Abbreviations and Acronyms

This abbreviations and acronym list contains all the acronyms used in this Plan Update. In each Chapter of this Plan Update, the first instance of each of these acronyms is spelled out in full and then the acronym defined for the rest of the Chapter.

Acronym	Definition
AB	Assembly Bill
APG	Adaptation Planning Guide
APN	Assessor Parcel Numbers
AQI	Air Quality Index
BAM	Best Available Map
BCEGS	Building Code Effectiveness Grading Schedule
BFE	Base Flood Elevation
BLM	Bureau of Land Management
BRACE	Building Resilience Against Climate Effects
CAC	Community Assistance Contact
CalArp	California Accidental Release Response Plan
CA DWR	California Department of Water Resources
Cal OES	California Office of Emergency Services
CAS	Climate Adaptation Strategy - 2014
CAV	Community Assistance Visit
CCHPR	Climate Change and Health Profile Report
CCSM3	Community Climate System Model Version 3
CDAA	California Disaster Assistance Act
CDBG	Community Development Block Grant
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CGS	California Geological Survey
CNRA	California Natural Resource Agency
CRS	Community Rating System
CRV	Contents Replacement Values
CVP	Central Valley Project
CWPP	Community Wildfire Protection Plan
DAC	Disadvantaged Community Status
DFIRM	Digital Flood Insurance Rate Map
DMA	Disaster Mitigation Act

Acronym	Definition
DSOD	Division of Safety of Dams
EF	Enhanced Fujita
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
ESA	Endangered Species Act
F	Fujita
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zones
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance
FRA	Federal Responsibility Area
FRAP	Fire and Resource Assessment Program
GFDL	Geophysical Fluid Dynamics Laboratory
GHG	Greenhouse Gas
GIS	Geographic Information Systems
HFRA	Healthy Forest Restoration Act
HMGP	Hazard Mitigation Grant Program
HMPC	Hazard Mitigation Planning Committee
IBC	International Building Code
ICC	Increased Cost of Compliance
IPCC	Intergovernmental Panel on Climate Change
IRC	International Residential Code
IRWM	Integrated Regional Water Management
LOMA	Letter of Map Amendment
LOMR	Letter of Map Revision
LHMP	Local Hazard Mitigation Plan
LRA	Local Responsibility Area
MAF	Million Acre-Feet
MHDP	Multi-Hazards Demonstration Project
MHI	Median Household Income
MMI	Modified Mercalli Intensity
MPH	Miles Per Hour
NCDC	National Climactic Data Center
NDMC	National Drought Mitigation Center
NEPA	National Environmental Policy
NFIP	National Flood Insurance Program

Acronym	Definition
NFP	National Fire Plan
NIDIS	National Integrated Drought Information System
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NWS	National Weather Service
OES	Plumas County Office of Emergency Services
OHP	Office of Historic Preservation
PCIRC	Plumas Crisis Intervention & Resource Center
PDM	Pre-Disaster Mitigation
PG&E	Pacific Gas and Electric
PM	Particulate Matter
PNAS	Proceedings of the National Academy of Sciences
PRC	Public Resource Code
PSPS	Public Safety Power Shutdown
RCP	Representative Concentration Pathways
RL	Repetitive Loss
SAC-SJ	Sacramento-San Joaquin
SB	Senate Bill
SBA	Small Business Administration
SDAC	Severely Disadvantaged Community
SFHA	Special Flood Hazard Area
SGMA	Sustainable Groundwater Management Act
SRA	State Responsibility Area
SRL	Severe Repetitive Loss
SWP	State Water Project
UBC	Uniform Building Code
UCERF	Uniform California Earthquake Rupture Forecast
UHI	Urban Heat Island
URM	Unreinforced masonry
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WHO	World Health Organization
WRCC	Western Regional Climate Center

Acronym	Definition
WUI	Wildland Urban Interface