2026

Mono County and Town of Mammoth Lakes

Multi-Jurisdictional Local Hazard Mitigation Plan



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Executive Summary



Executive Summary

Hazard mitigation is any sustained action to reduce or eliminate the long-term risk to human life and property from hazards. Hazard mitigation plans help reduce the cycle of disaster damage, reconstruction, and repetitive damage by identifying effective mitigation measures for communities. This document is the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP or the plan) for Mono County (the County), the Town of Mammoth Lakes, California, (the Town) and the participating special districts, the Bridgeport Public Utility District, Hilton Creek Community Services District, June Lake Public Utility District, Mammoth Community Water District, Mammoth Lakes Fire Protection District, Mono City Fire Protection District, Southern Mono Healthcare District, and Wheeler Crest Community Services District. Hazard mitigation plans expire every five years. This MJHMP is an update from the 2019 adopted MJHMP. Through this initiative, the plan participants express their commitment to reduce the multiple hazard impacts affecting the County and the Town (the planning area).

Plan Purpose

Different types of hazards cause different impacts, occur in various locations, and have varying degrees of severity. However, all have the potential to severely harm human health and safety, private and public property, ecosystems, and services. Like many communities, the planning area could face substantial damage, injury or loss of life, interruptions to critical services, and other major challenges. The County is also uniquely situated between the crest of the Sierra Nevada and the California/Nevada border. It's rural nature and potential for isolation due to hazard events only intensifies the vital need to enhance plan participant and community resilience.

This plan took an all-hazards approach, assessing both natural and human-made hazards that could affect the planning area. The plan participants selected to profile the following 16 hazards in this plan update:

- Avalanche
- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake and Seismic Hazards
- Energy Shortages and Energy Resilience
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Hazardous Materials
- Landslides
- Severe Wind
- Severe Winter Weather and Snow
- Volcano
- Wildfire
- Wildlife Collisions

This plan develops mitigation actions to strengthen community resilience, which helps ensure coordinated and consistent hazard mitigation activities across the County and the Town. The benefit of this process (and the plan) is developing a more unified strategy and increased coordination with federal, state, and local land-owning agencies. The County, Town, and participating special districts have developed this plan

with the support of IEM International, Inc., to be consistent with current standards and regulations established by the Federal Emergency Management Agency (FEMA) and California Governor's Office of Emergency Services (Cal OES). The mitigation measures included are grounded in best practices and available resources including the risk assessment.

Authority

Federal

The federal Robert T. Stafford Disaster Relief and Emergency Act (the Stafford Act), as amended by the Disaster Mitigation Act of 2000 (DMA 2000) and supported by various pieces of regulation, directs hazard mitigation planning activities such as this plan. The Stafford Act requires state, local, and tribal governments that wish to be eligible for federal hazard mitigation grant funds to submit a hazard mitigation plan that outlines the processes for identifying the natural and man-made hazards, risks, and vulnerabilities of the jurisdiction (United States Code [USC] Title 42, Section 5156[a]). FEMA has promulgated the Code of Federal Regulations (CFR) Title 44, Part 201 to carry out the hazard mitigation planning requirements in the Stafford Act. These regulations direct the planning process, plan content, and FEMA approval for hazard mitigation plans.

This MJHMP complies with the Stafford Act and DMA 2000 and the appropriate sections of Title 44 of the CFR, including Parts 201, 206, and 322.

State

California passed Assembly Bill (AB) 2140 in 2006, enacting California Government Code Sections 8685.9 and 65302.6. These sections concern federal requirements mandating that jurisdictions have a valid hazard mitigation plan to be eligible for specific grants. Specifically, Section 8685.9 limits the state of California to paying no more than 75% of disaster relief funds not covered by FEMA to a local community unless the affected community (1) has a valid hazard mitigation plan that is consistent with DMA 2000 and (2) has adopted the hazard mitigation plan as part of its general plan. If this is the case, the state may pay for more than 75% of the disaster relief funds not covered by FEMA. Section 65302.6 authorizes local communities to adopt hazard mitigation plans as part of their safety element or a comparable section of their general plan.

This MJHMP includes information required by relevant sections of the California Government Code as well as a specific annex for each plan participant.

Plan Schedule

The plan was updated between November 2024 and November 2025, before being submitted for state and federal review. During this time, the plan participants were actively involved in the planning process, including attending risk assessment and mitigation strategy meetings, focused stakeholder meetings on

priority hazards, mitigation strategy workshops, and jurisdiction-specific meetings with the hired consultant, IEM International, Inc.

Plan Use and Organization

The MJHMP objectives include the following:

- Establish and foster a basis for coordination and collaboration among County, Town, and special district agencies; other public organizations; private organizations; utilities; companies; and other key stakeholders.
- Increase community awareness and empowerment to implement mitigation.
- Meet the requirements of federal assistance grant programs, including FEMA's Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) funding.
- Coordinate hazard mitigation planning activities between the plan participant in concert with wildfire planning, land use planning, and emergency operation activities.
- Reduce the risk of loss and damage from hazard events, especially repetitive loss and damage.

The MJHMP is made up of the following sections:

- Section 1 – Executive Summary: The executive summary describes the background and purpose of this plan, its goals and priorities, and the planning process used to develop it.
- Section 2 – Community Profile: This section provides the history, physical setting, land use, and demographics of the planning area.
- Section 3 – Risk Assessment: A risk assessment is a process that identifies, analyzes, and prioritizes potential hazards affecting a specific area or population. It involves recognizing natural and human-made hazards, assessing their likelihood and potential consequences, and examining the vulnerability of populations and critical infrastructure, especially the socially vulnerable. The assessment estimates possible impacts, like property damage, loss of life, and economic effects, and prioritizes risks to guide emergency planning and resource allocation for enhanced community safety and resilience.
- Section 4 – Capabilities Assessment: This section provides an overview of existing capabilities to minimize vulnerabilities to hazard events as well as potential funding sources.
- Section 5 – Mitigation Strategy: This section describes the process for developing mitigation measures to reduce the risks from hazards facing the planning area.
- Section 6—Plan Maintenance: This section describes the process for implementing, monitoring, and evaluating the MJHMP and opportunities for continued public involvement.
- Annexes: These participant-specific annexes cover the more specific planning process, risk assessment, capability assessment, and mitigation strategy details for each plan participant.
- Appendices: The appendices provide additional documentation of meetings, public outreach, mitigation actions considered, a sample adoption resolution letter, and plan maintenance.

Plan Priorities

Changes in priorities for this plan update process included completing the plan on an expedited timeframe, incorporating special districts as plan participants for the first time, and focusing on developing actionable mitigation actions and strategies, including incorporating lessons learned from recent winter storm events. These priorities are reflected in the approach to the hazard mitigation plan that emphasized the mitigation strategy and plan participant engagement within a short timeframe. The plan participants sought to reduce the administrative burden of excessive meetings by holding more focused and targeted meetings.

Further, there was an active and ongoing consideration of the scale of the planning area and how to incorporate both County and Town participants, including in the public outreach. Therefore, planning meetings were held in Mammoth Lakes, Bridgeport, and virtually. A regional approach was taken for public outreach based on the County's Regional Planning Advisory Committees (RPAC). This mix of in-person and virtual engagement opportunities across the County planning area enabled more active participation. The plan was also publicized virtually through an ArcGIS StoryMap that will be available to the public throughout the five-year lifecycle of the plan.

The plan participants also incorporated the latest 2023 FEMA guidelines at the time of the plan update. Significant changes were noted since the prior plan update and incorporated into this plan update approach. Recent hazard events, including the 2022–2023 winter storms and global COVID-19 pandemic, were evaluated. The plan participants decided to expand the prior plan to include the new hazards of energy shortages and energy resilience as well as epidemics/pandemics. This approach reflects the emerging risk of epidemics/pandemics to the area as well as long-term concerns surrounding energy.

Mitigation Goals

The plan participants created goals as part of the plan development process. There are 8 general goals for this plan:

- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- GOAL 2. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- GOAL 3. Prepare for changing climate conditions in Mono County.
- GOAL 4. Maintain adequate emergency response capabilities, including an integrated multi-agency approach to emergency response.
- GOAL 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole community approach to response, recovery, and mitigation.

- GOAL 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- GOAL 7. Study and implement mitigation actions to address potential impacts of compounding hazards such as flood following wildfire.
- GOAL 8. Utilize the mitigation planning process as a call to action demonstrating plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Plan Adoption

Once the plan is reviewed by the state and FEMA, each plan participant will adopt the updated MJMHP. Adopting the plan enables the plan participants to meet the eligibility requirements for hazard mitigation grants that require an approved hazard mitigation plan, such as FEMA's Hazard Mitigation Grant Program (HMGP).

Following FEMA's plan approval, each plan participant will adopt this updated MJHMP. The County will adopt the MJHMP through a resolution of the Board of Supervisors, while the Town will adopt it through a resolution of the Town Council. This plan will go into effect for each individual plan participant upon adoption by the respective organization.

Section 1:
Planning Process



Planning Process

An effective plan update process helps ensure that the revised plan comprises the best available data at the time of the plan development and reflects current local capabilities, values, priorities, and an overarching approach to reducing the loss of life, property, and livelihoods from hazards. Through a collaborative and engaging plan update process, the County, the Town, and the participating special districts (i.e., the "plan participants") helped evaluate hazard risk, develop participant-specific annexes, and identify, assess, and prioritize mitigation actions to reduce the risks of future hazard events and ensure the planning area is a safe place to live, work, and recreate.

The 2026 plan was developed in accordance with the regulations outlined in the Disaster Mitigation Act of 2000 (DMA 2000), Title 44 of the Code of Federal Regulations (44 CFR), and the FEMA 2023 Local Mitigation Planning Policy Guide. During the course of the plan update, FEMA released a new version of the Local Mitigation Planning Policy Guide; therefore, this plan was designed to meet the 2026 guidance in addition to the 2023 guidance. In both versions, FEMA requires participants to document how the plan was updated, including who was involved and how they were provided the opportunity to participate. This section provides a high-level overview of who, what, when, where, and how plan participants, stakeholders, and the public were involved in the plan update.

Additional information can be found in each plan participant-specific annex, as well as Appendix A: Meeting Documentation.

Grant Funding

This planning effort was funded by a FEMA Hazard Mitigation Assistance grant (Hazard Mitigation Grant Program for DR 4482 in fiscal year 2020). The Mono County Community Development Department was the applicant agent for the grant. The grant funded the selected consultant for this plan update, IEM, Inc. (IEM). IEM was responsible for facilitating meetings, collecting data from the plan participants, stakeholders, and the public, conducting loss estimates, and compiling the draft plan.

Plan Update Approach

This plan is the result of continuous engagement and support from many County and Town departments, special districts, stakeholder agencies, residents, businesses, and the general public. The process reflects FEMA's recommended approach to the plan update:

- Determine the planning area, process, and resources.
- Build the Planning Team.
- Create an outreach strategy, including stakeholders and the public.
- Conduct a risk assessment including jurisdiction-specific vulnerabilities.

- Review community mitigation capabilities.
- Review the mitigation strategy based on updated risk assessment.
- Create a plan maintenance process to keep the plan current.
- Review and adopt the plan.
- Create a safe and resilient community by implementing the plan.

Planning Process Methodology

Updating a Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) requires coordination among agencies, other stakeholders, and the general public. A practical and ongoing hazard mitigation planning process is crucial to ensuring that all relevant parties can meaningfully participate, and that the mitigation program meets the needs of the whole community. It is also important to ensure that the plan is updated in a timely manner.

IEM, in consultation with the Core Planning Team, developed a planning schedule with specific milestones and activities (see Table 1). To enable active participation by partners across the County, most meetings were hybrid or had a virtual option, with in-person locations spread out between the unincorporated community of Bridgeport and the Town (see Figure 1).

Table 1: Plan Development Chronology and Milestones

Task	Date	Description
Project kickoff: September 2024		
Administrative Kickoff Meeting	September 24, 2024	The plan officially began with a meeting between the Core Planning Team and IEM project managers to discuss plan update expectations, priorities, and project milestones.
October Core Planning Team Monthly Meeting	October 8, 2024	The Core Planning Team met to discuss the upcoming team meetings and public outreach.
Regional Planning Advisory Committee (RPAC) Presentation Practice Session	October 29, 2024	IEM met with the County Community Development Department staff to review the upcoming public presentation materials, including confirming how public feedback will be collected and incorporated into the plan.
Stakeholder and public outreach and engagement begins: November 2024		
Public Health – Public Outreach Meeting	November 4, 2024	The IEM team met with the County Public Health to learn about successes and lessons learned from conducting public outreach, including outreach to vulnerable

Task	Date	Description
		populations in the planning area, as well as their available data, such as data on Access and Functional Needs populations.
Mammoth Lakes Stakeholder Meeting #1 – Risk Assessment	November 6, 2024	All plan participants and stakeholders were invited to attend two hybrid meetings on the risk assessment. At this meeting, participants reviewed the hazards of concern and completed an interactive exercise on how the community could be impacted.
Bridgeport Stakeholder Meeting #1 – Risk Assessment	November 6, 2024	All plan participants and stakeholders were invited to attend two hybrid meetings on the risk assessment. At this meeting, participants reviewed the hazards of concern and completed an interactive exercise on how the community could be impacted.
November Core Planning Team Monthly Meeting	November 8, 2024	The Core Planning Team met to discuss the status of public outreach and finalize the list of hazards based on feedback at the Risk Assessment meetings. Participants discussed the inclusion of tribes and identified tribal stakeholders.
Bridgeport Stakeholder Meeting #2 – Mitigation Strategy	December 9, 2024	All plan participants and stakeholders were invited to attend two hybrid meetings on the mitigation strategy. These meetings focused on evaluating the mitigation goals and reviewing the requirements for mitigation actions. Additionally, attendees brainstormed action ideas, including specific actions per community lifeline.
Mammoth Lakes Stakeholder Meeting #2 – Mitigation Strategy	December 11, 2024	All plan participants and stakeholders were invited to attend two hybrid meetings on the mitigation strategy. These meetings focused on evaluating the mitigation goals and reviewing the requirements for mitigation actions. Additionally, attendees brainstormed action ideas, including specific actions per community lifeline.
December Core Planning Team Meeting	December 13, 2024	The Core Planning Team discussed the ongoing public outreach, updated plan goals, and the addition of mitigation

Task	Date	Description
		strategy workshops and focused stakeholder meetings.
January Core Planning Team Meeting	January 17, 2025	The Core Planning Team reviewed the expectations for upcoming Focused Stakeholder Meetings as well as draft maps and data source questions.
Epidemic/Pandemic – Focused Stakeholder Meeting	January 24, 2025	Pandemic stakeholders, including public health staff, convened virtually to discuss the impacts and lessons learned from the global COVID-19 pandemic as well as smaller-scale outbreaks that impact the planning area.
Severe Winter Weather and Snow – Focused Stakeholder Meeting	January 24, 2025	Severe winter weather and snow stakeholders—including response personnel, public works, water systems, and energy lifelines, as well as researchers—met virtually to discuss this hazard, particularly the 2022–2023 winter storms and the findings from the associated after-action report.
Earthquake/Seismic/Volcano – Focused Stakeholder Meeting	January 24, 2025	Earthquake, seismic, and volcano stakeholders—including researchers, public works, and representatives of community lifelines—met to discuss these hazards, including specific structural vulnerabilities, compounding hazards, and ongoing efforts to prepare for "the big one."
Dam Failure – Focused Stakeholder Meeting	January 24, 2025	Dam failure stakeholders, including the state dam safety agency and HHPD dam owners, were invited to attend the dam failure stakeholder meeting and discussed High Hazard Potential Dams (HHPDs) in the planning area, including specific mitigation action recommendations, as well as the potential unknowns associated with dam failure flooding in the Town.
Energy Shortages and Energy Resilience – Focused Stakeholder Meeting	January 24, 2025	Energy shortages and energy resilience stakeholders, including utility districts and electricity and propane providers, met to discuss risk and mitigation recommendations, including for unique situations in the planning area.

Task	Date	Description
February Core Planning Team Monthly Meeting	February 14, 2025	The Core Planning Team reviewed the ongoing public outreach and participant engagement. Additionally, attendees discussed the Community Wildfire Protection Plan, evacuation map, and StoryMap.
Mammoth Lakes Mitigation Strategy Workshop	February 20, 2025	Plan participants met in person to consider a comprehensive range of mitigation actions, including specific recommendations incorporating stakeholder and public input. Participants completed worksheets identifying what actions should be included in the plan.
Bridgeport Mitigation Strategy Workshop	February 21, 2025	Plan participants met in person to consider a comprehensive range of mitigation actions, including specific recommendations incorporating stakeholder and public input. However, participation was limited, so participants focused primarily on questions regarding specific action types, such as avalanche.
March Core Planning Team Monthly Meeting	March 14, 2025	Core Planning Team members met to discuss outreach and engagement with the plan participants as well as the upcoming plan maintenance sections and StoryMap website for the draft hazard mitigation plan.
Wildfire – Focused Stakeholder Meeting	April 3, 2025	Wildfire stakeholders, including fire departments personnel and agencies and nonprofit organizations involved in wildfire mitigation, met to discuss potential vulnerability and impacts of this hazard as well as ongoing or recommended mitigation activities.
April Core Planning Team Monthly Meeting	April 11, 2025	The Core Planning Team and the Town Fire Protection District (MLFPD) discussed the Community Wildfire Protection Plan (CWPP) annexation into the MJHMP and set the schedule for the draft plan review.
Stakeholder and public surveys conclude; plan participants complete required forms: May 2025		
May Core Planning Team Monthly Meeting	May 5, 2025	The team met to discuss planning process progress and review the mitigation strategies, including timeline and drafts.

Task	Date	Description
June Core Planning Team Monthly Meeting	June 13, 2025	The team met to discuss planning process progress and review the mitigation strategies, including specific mitigation actions for the County and the Town.
July Core Planning Team Monthly Meeting	July 16, 2025	The team met to discuss planning process progress and review the mitigation strategies, including specific mitigation actions for the County and the Town.
Special District Workshop #2	July 17, 2025	Mitigation strategy planning workshop with Special Districts to review mitigation strategies, including specific mitigation actions.
Hazard Mitigation Plan Annex Workshop	July 18, 2025	Annex Plan Workshop was conducted to help participants finalize their plans with one-on-one support.
Hazard Mitigation Plan Annex Workshop #2	August 22, 2025	Annex Plan Workshop was conducted to help participants finalize their plans with one-on-one support.
Mitigation Plan Review Discussion with the Town and the County	September 8, 2025	Reviewed the mitigation strategies, including specific mitigation actions for the County and the Town.
September Core Planning Team Monthly Meeting	September 12, 2025	The team met to discuss planning process progress and review the mitigation strategies, including specific mitigation actions for the County and the Town.
October Core Planning Team Monthly Meeting	October 10, 2025	The team met to discuss planning process progress and review outstanding questions and comments on the draft hazard mitigation plan.
Public draft plan review compiled; public plan review begins: November 2025		
RPAC Public Meetings	June–July 2025; November 2025	The draft plan is intended to be presented at additional RPAC meetings.
State/FEMA draft plan compiled, submitted for review: December 2025		
Once the draft plan reaches "Approvable-Pending-Adoption" status from FEMA, the participants will adopt the plan.		



Figure 1: Mammoth Lakes Stakeholder Meeting #2 – Mitigation Strategy

Defining the Planning Area

The planning area is defined as the unincorporated County, the incorporated Town, and special purpose districts within the geographical boundary of the County. All planning partners, or plan participants, to this plan have jurisdictional authority within this planning area and are therefore eligible to adopt the completed hazard mitigation plan.

Organizing Resources

Hazard mitigation planning includes the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information (44 CFR, Section 201.6(b)(3)). This is an opportunity to incorporate the best available data at the time of the plan update into the draft plan. Incorporating existing resources into the plan also ensures alignment with ongoing state and local initiatives, such as California's initiatives to profile. References are included throughout the plan. Additionally, the following key resources helped inform the plan update:

- 2023 California State Hazard Mitigation Plan (SHMP)
- California's Fourth Climate Change Assessment: Sierra Nevada Region Report
- Cal-Adapt
- CAL FIRE Fire Hazard Severity Zones
- California Building Code
- National Centers for Environmental Information (NCEI) Storm Events Database
- National Weather Service (NWS) extent and hazard definitions
- FEMA's Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS)

- FEMA National Flood Insurance Program (NFIP) repetitive loss and severe repetitive loss data
- National Inventory of Dams (NID)
- California Department of Water Resources Division of Safety of Dams Dam Condition Assessment
- Mono County Community Wildfire Protection Plan
- Mono County and Town GIS data
- Town of Mammoth Lakes Winter Storm 2022-2023 After Action Report
- Mammoth Lakes Bioenergy Pre-development Project
- Whitebark Biomass Development Activities Report 2022
- Southern California Edison Annual Electricity Reliability Report 2023
- Eastern Sierra Climate & Communities Resilience Project – Needs Assessment 2022
- Local general plans, floodplain management ordinances, capital improvement plans, and other local planning and regulatory resources

Where data deficiencies existed, they were noted. The Core Planning Team also reviewed FEMA's National Risk Index (NRI) for the hazards to profile; however, this resource was used minimally due to concerns over the accuracy of the data. For example, although the NRI states that the planning area has a very low risk of Strong Wind, this is one of the hazards of most concern to the survey respondents and plan participants. Local perspectives and knowledge helped clarify national datasets and inform a participant-driven approach to the plan update.

Plan Changes/Changes in Priorities

The plan update process provides the opportunity to evaluate changes in priorities since the last plan update and identify current opportunities to advance the planning process itself. One priority for this update was incorporating new federal guidelines, including additional requirements for public and stakeholder outreach, jurisdiction-specific vulnerabilities, community lifelines, and expanded mitigation capabilities and NFIP assessments. The plan was therefore revised to reflect the federal changes to the hazard mitigation planning program as outlined in FEMA's Local Mitigation Planning Policy Guide, which went into effect on April 19, 2023.

During the plan update process, this guidance changed. The new guidance became effective on April 11, 2025. Changes are acknowledged where applicable, but because the plan was almost completely drafted at the time, the plan participants elected to retain some information, particularly in regard to federal programs, which may or may not be applicable any longer. As federal programs change over the five-year life cycle of the plan, readers are encouraged to explore what resources may be available at the time in order to determine the applicable grant program for their projects and current grant program guidance.

Additional changes to this plan include the following:

- Incorporating special districts for the first time. Previously, special districts were not required to participate nor adopt their own annex. This time, they were invited to participate. Some elected to fully participate and develop their own annex, while some are noted as stakeholders who may have attended meetings or provided information but are not intended to be reviewed as participating jurisdictions. Since they did not participate in the last plan update, there are no changes in priorities since the last plan for special districts.
- Both the Town and the County wanted to ensure that the mitigation actions were more actionable and effective. The plan participants rewrote the mitigation goals to be more specific and updated the actions in accordance with new guidance, data, and mitigation action ideas.
- The Town prioritized the inclusion of the 22/23 Winter Storms After-Action Report, including lessons learned from the impacts of the storms and actions to address issues identified.
- The Town and the County, along with the other plan participants, wanted to expand the list of hazards to include Epidemic/Pandemic and Energy Shortages and Energy Resilience. While mentioned briefly in the prior plan, elevating these concerns to the level of a full hazard profile ensures they receive sufficient consideration and at least one mitigation action per plan participant.
- In accordance with California Governor's Office of Emergency Services (Cal OES) recommendations, climate change was also not profiled as a separate hazard but incorporated into each hazard profile, and Cal Adapt data was incorporated.
- New Hazus loss estimates utilizing updates to the Hazus software and building stock data, as well as local input, were used to create a Level 2 advanced analysis.
- Notable differences from the prior plan update planning process also included the workshop-style approach to some meetings, inclusion of the community lifelines, and the inclusion of focused stakeholder meetings, which provided the space to share local input on specific hazards of concern.
- A new plan maintenance approach, including the development of an ArcGIS StoryMap version of the website and new plan monitoring and evaluation tools.

Building the Planning Team

The Planning Team consists of representatives from the plan participants who participated or were invited to participate in the plan update. Stakeholders are actively involved in hazard mitigation in the planning area, and many actively participated and provided invaluable input to this process. Their contributions are noted later in the Stakeholder Engagement section.

CORE PLANNING TEAM

The plan update was overseen by a Core Planning Team composed of representatives from the County, the Town, and IEM. This team was responsible for reviewing the plan status, establishing meeting topics, schedules, and deadlines, ensuring whole-community access to the plan update process, and reviewing and approving the plan for submission to Cal OES and FEMA for review. The team met monthly throughout the plan update starting in October 2024. Table 2 lists the Core Planning Team members.

Table 2: Core Planning Team Members

Name	Title	Agency/Jurisdiction
Kelly Karl	Planning Analyst	Mono County Community Development Department
Wendy Sugimura	Community Development Director	Mono County Community Development Department
Chris Mokracek	Director	Mono County Emergency Management
Pam Kobylarz	Assistant to the Town Manager	Town of Mammoth Lakes
Haislip Hayes	Public Works Director/Town Engineer	Town of Mammoth Lakes
Casey Garnett	Deputy Project Manager/Lead Planner	IEM, Inc

PLANNING TEAM

In keeping with FEMA recommendations, the plan participants created a Multi-Jurisdictional Hazard Mitigation Planning Team (the Planning Team) composed of representatives from both jurisdictions and participating special districts. The team included representatives from agencies, departments, and local organizations, as detailed in Table 3.

Table 3: The Planning Team

Name	Title	Agency/Jurisdiction
Kelly Karl	Planning Analyst	Mono County Community Development Department
Wendy Sugimura	Community Development Director	Mono County Community Development Department
Chris Mokracek	Director	Mono County Emergency Management
Sandra Moberly	County Administrative Officer	Mono County
Wendilyn Grasseschi	Wildfire Mitigation Coordinator	Mono County
Rob Patterson	Town Manager	Town of Mammoth Lakes
Pam Kobylarz	Assistant to the Town Manager	Town of Mammoth Lakes
Haislip Hayes	Public Works Director/Town Engineer	Town of Mammoth Lakes
Richard Nalder	Fire Chief	Antelope Valley Fire Protection District
Mike Curti	Assistant Fire Chief	Antelope Valley Fire Protection District

Name	Title	Agency/Jurisdiction
Nick Way	Fire Chief	Bridgeport Fire Department
Lorinda Beatty	Board Secretary/Finance Officer	Hilton Creek Community Services District
William Czeschin	Plant Operator II	Hilton Creek Community Services District
Keith Hafner	Chief Plant Operator	Hilton Creek Community Services District
Todd Kidwell	General Manager	June Lake Public Utility District
Scott McGuire	Chief	Long Valley Fire Protection District
Michael Draper	Principal Administrative Analyst	Mammoth Community Water District
Gerard Oliveira	Appointed Member	Mammoth Lakes Community Service District
Ales Tomaier	Fire Chief	Mammoth Lakes Fire Protection District
Mike McCarthy	Division Chief	Mammoth Lakes Fire Protection District
John Warneke	Fire Commissioner; Defensible Space Inspector; Volunteer Firefighter	Mono City Fire Protection District
Charles Tucker	Chairman of the Board	Wheeler Crest Community Services District
Dave Doonan	Fire Chief	White Mountain Fire Protection District
Jarret Phillips	Chairman	White Mountain Fire Protection District
Karyn Spears	Assistant Public Works Director	Mono County
John Pelichowski	Deputy	Mono County Sheriff's Office and Bridgeport Fire Department
Eric Bucklin	IT Systems Administrator	Mono County
Rob Makoske	Department of Public Works Project Manager	Mono County
Bill Sauser	Council Member	Town of Mammoth Lakes
Dylan Whitmore	Probation Department Manager	Mono County
Paul McFarland	District 3 Supervisor	Mono County
Ingrid Braun	Sheriff-Coroner	Mono County

Name	Title	Agency/Jurisdiction
Jason Heilman	Sergeant	Town of Mammoth Lakes Police Department
Clint Dohmen	Undersheriff	Mono County Sheriff's Office
Nolan Bobroff	Community and Economic Development Director	Town of Mammoth Lakes
Christina Ackerman	Assistant to the Chief/Public Information Officer	Town of Mammoth Lakes Police Department
Stuart Brown	Public Information Officer	Town of Mammoth Lakes Parks and Recreation
Dan Casabian	Police Chief	Town of Mammoth Lakes
Anna Sahl	GIS Analyst	Mono County
Bri Chappell-McGovern	Public Health Emergency Preparedness and Response Manager	Mono County
Bryan Bullock	Chief	Mono County Emergency Medical Services
Casey O'Neill	Manager of Fiscal Services	Mammoth Unified School District
Eric Miller	GIS Specialist	Mono County
Jimmy Lee	Quality Assurance Coordinator	Mono County Behavioral Health
Kalen Dodd	Engineer	Mono County
Lester Perpall	Executive Officer	Mono County Superior Court
Lisa Bernard	Account Manager	Mono County
Liz Grans	Economic Development Director	Mono County
Michael Vanderhurst	Chair	Mammoth Lakes Planning Commission
Mike Martinez	IT Director	Town of Mammoth Lakes
Milan Salva	Business Operations Manager – IT Department	Mono County
Sarah Moore	GIS Specialist	Mono County
Brent Calloway	Community Development Analyst	Mono County
John Peters	District 4 Supervisor	Mono County
Amanda Carlson	Economic Development Coordinator	Mono County
Jami Jerrett	IT Specialist	Mono County
Jessica Halterman	Executive Administrator	Walker River Irrigation District

Name	Title	Agency/Jurisdiction
Krista Cooper	Adult Services Manager	Mono County
Marcella Rose	Outdoor Recreation Manager	Mono County
Penny Galvin	EMS Billing Fiscal Administrator	Mono County
Brent Truax	Council Member	Town of Mammoth Lakes
Betsy Truax	Vice President of Community Engagement	Town of Mammoth Lakes
Lynda Salcido	District 5 Supervisor	Mono County
Sierra Waugh	Deputy Airport Manager	Town of Mammoth Lakes
Tyrone Grandstrand	Housing Opportunities Manager	Mono County
Olya Egorov	Planning Analyst	Mono County
Brianna Brown	Board Member	Bridgeport Public Utility District (PUD)

PLAN PARTICIPATION

Documenting how the plan participants updated the plan is an important component of the plan update process. Each participant was responsible for evaluating their hazards of concern, mitigation capabilities, and mitigation opportunities. In addition, the IEM team facilitated meetings with the Planning Team and stakeholders and gave presentations on hazard mitigation, available funding sources, and mitigation strategies. IEM also created how-to videos to provide support to each jurisdiction in completing the forms associated with this project, hosted on a dedicated SharePoint site, and provided individual support as needed. Table 4 illustrates the levels of involvement by the plan participants.

Table 4: Summary of Participation

Jurisdiction/Special District	Meetings Attended	Forms Completed
Mono County	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Stakeholder Focused Group Meetings: 1/24/2025 and 4/3/2025 • Mitigation Strategy Meetings: 12/9/2024, 12/11/2024, and 2/20/2025	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Town of Mammoth Lakes	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Stakeholder Focused Group Meetings: 1/24/2025 and 4/3/2025	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form

Jurisdiction/Special District	Meetings Attended	Forms Completed
	• Mitigation Strategy Meetings: 12/9/2024, 12/11/2024, and 2/20/2025	
Bridgeport Public Utility District	• Mitigation Strategy Meetings: 12/06/2024	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Hilton Creek Community Services District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
June Lake Public Utility District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Mitigation Strategy Meetings: 12/9, 2024, 12/11/2024, and 2/20/2025 • Meeting with Consultant: 4/25/2025	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Mammoth Community Water District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Stakeholder Focused Group Meeting: 1/24/2025, 4/3/2025 • Mitigation Strategy Meetings: 12/9/2024, 12/11/2024, and 2/20/2025 • Meeting with Consultant: 2/20/2021	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Mammoth Lakes Fire Protection District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Stakeholder Focused Group Meeting: 1/24/2025, 4/3/2025 • Mitigation Strategy Meetings: 12/9/2024, 12/11/2024, and 2/20/2025 • Meeting with Consultant: 2/4/2025	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Mono City Fire Protection District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024	• Planning Process Form • Risk Assessment Form • Capability Assessment Form

Jurisdiction/Special District	Meetings Attended	Forms Completed
	• Stakeholder Focused Group Meeting: 1/24/2025, 4/3/2025 • Mitigation Strategy Meetings: 12/9/2024, 12/11/2024, and 2/20/2025 • Meeting with Consultant: 4/4/2025	• NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Wheeler Crest Community Services District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Meeting with Consultant: 2/26/2025	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form
Southern Mono Healthcare District	• Risk Assessment/Capabilities Assessment Meeting: 11/6/2024 • Stakeholder Focused Group Meeting: 4/3/2025 • Mitigation Strategy Meetings: 12/9/2024, 12/11/2024, and 2/20/2025 • Meeting with Consultant: 5/27/2025	• Planning Process Form • Risk Assessment Form • Capability Assessment Form • NFIP Capability Assessment Form • Mitigation Actions Status Update • Mitigation Strategy Form

Stakeholder Engagement

One of the first steps of the planning process was to identify and invite key agencies and stakeholders to participate in the plan update. Stakeholders are those entities that are impacted by, research, or otherwise manage disasters in the planning area. Stakeholders have an important role in reducing risk. The actions they take can help support mitigation actions selected by the plan participants and help prepare the planning area for future hazard events. According to FEMA's Local Mitigation Planning Policy Guide, stakeholders were categorized in the following ways:

1. **Local and regional agencies involved in hazard mitigation activities.**

   Examples include public works, emergency management, local floodplain administration, and Geographic Information Systems (GIS) departments.

2. **Agencies that have the authority to regulate development.**

   Examples include zoning, planning, community, and economic development departments, building officials, planning commissions, and other elected officials.

3. **Neighboring communities.**

   Examples include adjacent local governments, including special districts, such as those affected by similar hazard events or may share a mitigation action or project that crosses boundaries. Neighboring communities may be partners in hazard mitigation and response activities or where critical assets, such as dams, are located.

4. **Representatives of businesses, academia, and other private organizations.**

   Examples include private utilities or major employers that sustain community lifelines.

5. **Representatives of nonprofit organizations, including community-based organizations**.

   Examples include housing, healthcare, and social service agencies.[1]

For this plan update, each jurisdiction was asked to identify internal and external stakeholders who could support the plan update. The IEM team also assisted in identifying a list of stakeholders, including those representing underserved communities and vulnerable populations. These stakeholders were given multiple opportunities to participate through group meetings, focused stakeholder meetings, a stakeholder survey, phone calls, and reviewing the draft plan. All stakeholders were contacted by email and provided the opportunities for input mentioned. A list of stakeholders provided with the opportunity to participate is included in Table 5. The stakeholder types from the foregoing list have been adapted to preserve space and improve clarity.

Table 5: Stakeholders Given the Opportunity to Participate

Jurisdiction/Agency/Organization	Stakeholder Type
Alpine County Community Development/ Building Safety, Planning, Public Works	Neighboring communities
Alpine County Watershed Group	Neighboring communities
Alpine County Wildfire Project Coordinator	Neighboring communities
AmeriGas	Representatives of businesses, academia, and other private organizations
Antelope Valley Lions Club	Representatives of nonprofit organizations, including community-based organizations
Antelope Valley Senior Center/Meals on Wheels	Representatives of nonprofit organizations, including community-based organizations
Antelope Valley Women's Club	Representatives of nonprofit organizations, including community-based organizations
Big Pine Paiute Tribe of the Owens Valley	Neighboring communities
Bishop Amateur Radio Club	Representatives of businesses, academia, and other private organizations

[1] FEMA, "Local Mitigation Planning Policy Guide." https://www.fema.gov/sites/default/files/documents/fema_hmd_local-mitigation-planning-policy-guide_2025.pdf

Jurisdiction/Agency/Organization	Stakeholder Type
Bishop Care Center	Representatives of nonprofit organizations, including community-based organizations
Bishop Chamber of Commerce	Representatives of businesses, academia, and other private organizations
Bishop Paiute Tribe	Neighboring communities
Bridgeport Chamber of Commerce	Representatives of businesses, academia, and other private organizations
Bridgeport Paiute Indian Colony	Neighboring communities
Bryant Airport	Representatives of businesses, academia, and other private organizations
Bureau of Land Management	Agencies that have the authority to regulate development
CAL FIRE	Agencies that have the authority to regulate development
California Department of Fish and Wildlife	Agencies that have the authority to regulate development
California Department of Forestry	Agencies that have the authority to regulate development
California Department of Social Services	Representatives of nonprofit organizations, including community-based organizations
California Department of Transportation (Caltrans)	Agencies that have the authority to regulate development
California Highway Patrol	Local and regional agencies involved in hazard mitigation activities
California Governor's Office of Emergency Services (Cal OES)	Local and regional agencies involved in hazard mitigation activities
Cedarville Rancheria of Northern Paiute Indians	Neighboring communities
Cerro Coso Community College	Representatives of businesses, academia, and other private organizations
Citizens Emergency Response Team of Mono County (CERT)	Local and regional agencies involved in hazard mitigation activities
Community Service Solutions	Representatives of nonprofit organizations, including community-based organizations
County of Inyo Mono Veteran's Services	Representatives of nonprofit organizations, including community-based organizations
Disable Sports Eastern Sierra	Representatives of nonprofit organizations, including community-based organizations

Jurisdiction/Agency/Organization	Stakeholder Type
Disabled Sports Eastern Sierra	Representatives of nonprofit organizations, including community-based organizations
Eastern Sierra Area Agency on Aging	Representatives of nonprofit organizations, including community-based organizations
Eastern Sierra Avalanche Control	Local and regional agencies involved in hazard mitigation activities
Eastern Sierra Community Housing	Representatives of nonprofit organizations, including community-based organizations
Eastern Sierra Interpretive Association	Representatives of businesses, academia, and other private organizations
Eastern Sierra Land Trust	Agencies that have the authority to regulate development
Eastern Sierra Transit	Representatives of businesses, academia, and other private organizations
Eastern Sierra Transit Authority	Agencies that have the authority to regulate development
Eastern Sierra Unified School District	Representatives of businesses, academia, and other private organizations
Fire Safe Council	Representatives of businesses, academia, and other private organizations
First 5 Mono	Representatives of nonprofit organizations, including community-based organizations
Fort Bidwell Indian Community of Paiute	Neighboring communities
Fort Independence Indian Community of Paiutes	Neighboring communities
Fresno County Administrative Office	Neighboring communities
Fresno County Public Works and Planning Department	Neighboring communities
Friends of the Inyo	Representatives of businesses, academia, and other private organizations
Genasys	Local and regional agencies involved in hazard mitigation activities
Great Basin Unified Air Pollution Control District	Agencies that have the authority to regulate development
Great Basin Unified Air Pollution Control District	Agencies that have the authority to regulate development
High Sierra Energy Foundation	Representatives of nonprofit organizations, including community-based organizations
Inyo County Administrator's Office	Neighboring communities

Jurisdiction/Agency/Organization	Stakeholder Type
Inyo County Board of Supervisors/District 1	Neighboring communities
Inyo County Board of Supervisors/District 2	Neighboring communities
Inyo County Board of Supervisors/District 3	Neighboring communities
Inyo County Board of Supervisors/District 4	Neighboring communities
Inyo County Board of Supervisors/District 5	Neighboring communities
Inyo County Emergency Management Agency	Neighboring communities
Inyo County Public Works	Neighboring communities
Inyo Mono Advocates for Community Action/ IMACA	Representatives of nonprofit organizations, including community-based organizations
June Lake Loop Chamber of Commerce	Representatives of businesses, academia, and other private organizations
June Meadows Chalet	Representatives of businesses, academia, and other private organizations
Kern Council of Governments	Neighboring communities
Kern Regional Center	Neighboring communities
KMMT and KRHV Radio Station	Representatives of businesses, academia, and other private organizations
Lee Vining Chamber of Commerce	Representatives of businesses, academia, and other private organizations
Liberty Utilities	Representatives of businesses, academia, and other private organizations
Lone Pine Paiute-Shoshone Tribe	Neighboring communities
Los Angeles Department of Water and Power (dam owners)	Representatives of businesses, academia, and other private organizations
Mammoth Community Foundation	Representatives of businesses, academia, and other private organizations
Mammoth Geothermal Complex (Ormat)	Representatives of businesses, academia, and other private organizations
Mammoth Lakes Chamber of Commerce	Representatives of businesses, academia, and other private organizations
Mammoth Lakes Police Department	Local and regional agencies involved in hazard mitigation activities
Mammoth Lakes Recreation	Representatives of businesses, academia, and other private organizations
Mammoth Lakes Tourism	Representatives of businesses, academia, and other private organizations
Mammoth Lakes Trails & Public Access Foundation	Representatives of businesses, academia, and other private organizations

Jurisdiction/Agency/Organization	Stakeholder Type
Mammoth Mountain Community Foundation	Representatives of businesses, academia, and other private organizations
Mammoth Mountain Ski Area	Representatives of businesses, academia, and other private organizations
Mammoth Ranger District Center	Representatives of businesses, academia, and other private organizations
Mammoth Unified School District	Representatives of businesses, academia, and other private organizations
Mariposa County Administrative Office	Neighboring communities
Mono Basin Scenic Area Visitor Center	Representatives of businesses, academia, and other private organizations
Mono County Airport Land Use Commission	Agencies that have the authority to regulate development
Mono County Airway Medical	Representatives of businesses, academia, and other private organizations
Mono County American Red Cross	Representatives of nonprofit organizations, including community-based organizations
Mono County Behavioral Health	Representatives of nonprofit organizations, including community-based organizations
Mono County Board of Supervisors	Agencies that have the authority to regulate development
Mono County Collaborative Planning Team	Agencies that have the authority to regulate development
Mono County Economic Development	Agencies that have the authority to regulate development
Mono County EMS	Local and regional agencies involved in hazard mitigation activities
Mono County Environmental Health	Local and regional agencies involved in hazard mitigation activities
Mono County Housing Program	Representatives of nonprofit organizations, including community-based organizations
Mono County IT Department	Local and regional agencies involved in hazard mitigation activities
Mono County Land Development Technical Advisory Committee	Agencies that have the authority to regulate development
Mono County Local Agency Formation Commission	Agencies that have the authority to regulate development
Mono County Long Valley Hydrologic Advisory Committee	Agencies that have the authority to regulate development

Jurisdiction/Agency/Organization	Stakeholder Type
Mono County Planning Commission	Agencies that have the authority to regulate development
Mono County Public Health	Local and regional agencies involved in hazard mitigation activities
Mono County Public Works - Sustainable Recreation	Local and regional agencies involved in hazard mitigation activities
Mono County Public Works Department	Local and regional agencies involved in hazard mitigation activities
Mono County Sheriff Office	Local and regional agencies involved in hazard mitigation activities
Mono County Social Services	Representatives of nonprofit organizations, including community-based organizations
Mono County Tri-Valley Groundwater Management District	Agencies that have the authority to regulate development
Mono Lake Kutzadika Tribe	Neighboring communities
National Park Service	Agencies that have the authority to regulate development
National Weather Service	Agencies that have the authority to regulate development
North Fork Rancheria of Mono Indians	Neighboring communities
North Fork Rancheria of Mono Indians	Neighboring communities
Northern Inyo Hospital	Representatives of nonprofit organizations, including community-based organizations
Northern Mono Chamber of Commerce of Commerce	Representatives of businesses, academia, and other private organizations
Regional Planning Advisory Committees	Agencies that have the authority to regulate development
Riverside County Sheriff	Local and regional agencies involved in hazard mitigation activities
Riverside Department of Healthcare Medical Services	Representatives of nonprofit organizations, including community-based organizations
Round Valley Joint Elementary School District	Representatives of businesses, academia, and other private organizations
San Bernardino Sheriff's Department	Local and regional agencies involved in hazard mitigation activities
Sierra Business Council	Representatives of businesses, academia, and other private organizations
Sierra Lifeflight	Representatives of businesses, academia, and other private organizations

Jurisdiction/Agency/Organization	Stakeholder Type
Southern California Edison	Representatives of businesses, academia, and other private organizations
Susanville Indian Rancheria	Neighboring communities
TEAM Engineering and Management, Inc.	Representatives of businesses, academia, and other private organizations
The Salvation Army	Representatives of nonprofit organizations, including community-based organizations
Toiyabe Indian Health Clinic	Representatives of nonprofit organizations, including community-based organizations
Mammoth Yosemite Airport	Representatives of businesses, academia, and other private organizations
Town of Mammoth Lakes Community and Economic Development	Agencies that have the authority to regulate development
Town of Mammoth Lakes Office of Outdoor Recreation	Agencies that have the authority to regulate development
Town of Mammoth Lakes Public Works	Local and regional agencies involved in hazard mitigation activities
Town of Mammoth Lakes Town Council	Agencies that have the authority to regulate development
Tuolumne County Office of Emergency Services	Neighboring communities
US Forest Service (Humboldt-Toiyabe National Forest)	Agencies that have the authority to regulate development
US Forest Service (Inyo National Forest)	Agencies that have the authority to regulate development
United States Marine Corps Mountain Warfare Training Center	Neighboring communities
United Way of Central Eastern California	Representatives of nonprofit organizations, including community-based organizations
US Geological Survey	Agencies that have the authority to regulate development
Utu Utu Gwaitu Tribe of the Benton Paiute Reservation	Neighboring communities
Valentine Eastern Sierra Reserves	Representatives of businesses, academia, and other private organizations
Valley Friendship Women's Christian Fellowship Group	Representatives of nonprofit organizations, including community-based organizations
Walker River Irrigation District	Representatives of businesses, academia, and other private organizations

Jurisdiction/Agency/Organization	Stakeholder Type
Walker River Reservation	Neighboring communities
Whitebark Institute	Representatives of nonprofit organizations, including community-based organizations
Wild Iris Family Services Women's Support Group	Representatives of nonprofit organizations, including community-based organizations
Wuksachi Indian Tribe/Eshom Valley Band	Neighboring communities
Yosemite Area Regional Transportation System	Representatives of businesses, academia, and other private organizations

While a multitude of stakeholders were given the opportunity to participate, not all were able to. The stakeholders listed in Table 6 participated directly in the plan by attending meetings, completing the digital public survey, and/or reviewing the draft plan. This stakeholder outreach was considered a success because of the broad range of stakeholders that participated and their active engagement and participation in the planning process.

Table 6: Stakeholder Plan Update Participants

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Kyle Muir	District General Manager	Amerigas	Representatives of businesses, academia, and other private organizations
Linda Monreal	Board Secretary	Birchim Community Services District	Agencies that have the authority to regulate development
Brianna Brown	Board Member	Bridgeport Public Utility District (PUD)	Agencies that have the authority to regulate development
Jody Newton	Plan Reviewer	Cal OES Local Mitigation Planning Unit	Local and regional agencies involved in hazard mitigation activities
Constantin Raether	Program Manager	Cal OES Local Mitigation Planning Unit	Local and regional agencies involved in hazard mitigation activities
Rick Franz	Associate Transportation Planner	Caltrans	Local and regional agencies involved in hazard mitigation activities
Lauren Breitenbach	Climate Adaptation And Resilience Specialist	Caltrans	Local and regional agencies involved in hazard mitigation activities

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Beau Romero	Contracts and Emergency Operations Analyst	Caltrans	Local and regional agencies involved in hazard mitigation activities
Joshua Lundquist	Maintenance Area Superintendent	Caltrans	Local and regional agencies involved in hazard mitigation activities
Bryan Winzenread	Deputy District 9 director of Maintenance and Operations	Caltrans	Local and regional agencies involved in hazard mitigation activities
Rebecca Carr Wong	Superintendent	Devils Postpile National Monument, National Park Service	Neighboring communities
Clancy Nelson	Lead Avalanche Forecaster	Eastern Sierra Avalanche Center	Local and regional agencies involved in hazard mitigation activities
Brian Ognisty	Operations Supervisor - Mammoth	Eastern Sierra Transit Authority	Representatives of businesses, academia, and other private organizations
Jess Blackwell	Program Manager	High Sierra Energy Foundation	Representatives of nonprofit organizations, including community-based organizations
Pam Close Bold	Executive Director	High Sierra Energy Foundation	Representatives of nonprofit organizations, including community-based organizations
Lisa Cox	Public Affairs Officer	Inyo National Forest – US Forest Service	Neighboring communities
Christina Nuno	Emergency Services Coordinator	Inyo-Mono CDSS	Local and regional agencies involved in hazard mitigation activities
Margie DeRose	Geologist	Mammoth Geothermal Complex (Ormat)	Representatives of businesses, academia, and other private organizations
Elizabeth Weeks-Comeau	Emergency Preparedness Coordinator	Mammoth Hospital	Local and regional agencies involved in hazard mitigation activities
Staci Brock	Infection Prevention Coordinator	Mammoth Hospital	Local and regional agencies involved in hazard mitigation activities

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Gerard Oliveira	Board Member	Mammoth Lakes Community Services District	Agencies that have the authority to regulate development
Kim Anaclerio	Executive Director	Mammoth Lakes Recreation	Representatives of businesses, academia, and other private organizations
John Urdi	President and CEO	Mammoth Lakes Tourism	Representatives of businesses, academia, and other private organizations
Chris Buckley	Mountain Operations Manager	Mammoth Mountain Ski Association	Representatives of businesses, academia, and other private organizations
Julie Brown	Vice President of Operations	Mammoth Resorts	Representatives of businesses, academia, and other private organizations
Michelle Hayes	Manager, Government Relations and Environmental Affairs	Mammoth Resorts	Representatives of businesses, academia, and other private organizations
Walt Wehsener	Director of Facilities	Mammoth Resorts	Representatives of businesses, academia, and other private organizations
Tom Hodges	Vice President of Development	Mammoth Resorts	Representatives of businesses, academia, and other private organizations
Nick Holt	Staff Engineer	Mammoth Community Water District (MCWD)	Local and regional agencies involved in hazard mitigation activities
Michael Draper	Principal Administrative Analyst	MCWD	Local and regional agencies involved in hazard mitigation activities
David Carlson	Associate Engineer	MCWD	Local and regional agencies involved in hazard mitigation activities
Tyrone Grandstrand	Housing Opportunities Manager	Mono County	Local and regional agencies involved in hazard mitigation activities
Mike Martinez	Information Technology (IT) Director	Mono County	Local and regional agencies involved in hazard mitigation activities
Kalen Dodd	Engineer	Mono County	Local and regional agencies involved in hazard mitigation activities

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Egorov Olya	Planning Analyst	Mono County	Agencies that have the authority to regulate development
Karen Spears	Assistant Director of Public Works	Mono County	Local and regional agencies involved in hazard mitigation activities
John Peters	Supervisor District 4	Mono County	Agencies that have the authority to regulate development
Bri Chappell-McGovern	Public Health Emergency Preparedness and Response Manager	Mono County	Local and regional agencies involved in hazard mitigation activities
Chris Mokracek	Emergency Management	Mono County	Local and regional agencies involved in hazard mitigation activities
Ingrid Braun	Sheriff-Coroner	Mono County	Local and regional agencies involved in hazard mitigation activities
Lynda Salcido	District Supervisor	Mono County	Agencies that have the authority to regulate development
Emily Janoff	Epidemiologist	Mono County	Local and regional agencies involved in hazard mitigation activities
Paul Roten	Public Works Director	Mono County	Local and regional agencies involved in hazard mitigation activities
Wendi Grasseschi	Wildfire Mitigation Coordinator	Mono County Office of Emergency Services	Local and regional agencies involved in hazard mitigation activities
Christina Ackerman	Executive Associate to the Chief	Mono County Police Department	Local and regional agencies involved in hazard mitigation activities
Clint Dohmen	Undersheriff	Mono County Sheriff's Office	Local and regional agencies involved in hazard mitigation activities
Milan Salva	Business Operations Manager	Mono County, IT Department	Local and regional agencies involved in hazard mitigation activities

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Robert Di Paolo	Chair	Mono Basin Fire Safe Council	Local and regional agencies involved in hazard mitigation activities
Magnolia Barra	Sierra Jobs First Project Coordinator	Sierra Business Council	Representatives of businesses, academia, and other private organizations
Matthew Paruolo	Government Relations Manager	Southern California Edison	Representatives of businesses, academia, and other private organizations
Matthew Woodhall	Executive Administrator	Southern California Edison	Representatives of businesses, academia, and other private organizations
Steve Mace	Director of Operations	Eastern Sierra Avalanche Center (ESAC)	Local and regional agencies involved in hazard mitigation activities
Brent Truax	Council Member	Town of Mammoth Lakes	Agencies that have the authority to regulate development
Nolen Bobroff	CED Director	Town of Mammoth Lakes	Local and regional agencies involved in hazard mitigation activities
Dan Casabian	Police Chief	Town of Mammoth Lakes	Local and regional agencies involved in hazard mitigation activities
Betsy Truax	Vice President of Community Engagement	Town of Mammoth Lakes	Local and regional agencies involved in hazard mitigation activities
Bill Sauser	Council Member	Town of Mammoth Lakes	Agencies that have the authority to regulate development
Sierra Waugh	Deputy Airport Manager	Town of Mammoth Lakes	Representatives of businesses, academia, and other private organizations
Amy Callanan	Engineering Manager	Town of Mammoth Lakes	Local and regional agencies involved in hazard mitigation activities
Soibian Spring	Manager	Mammoth Yosemite Airport	Representatives of businesses, academia, and other private organizations
Stuart Wilkinson	Technician	U.S Geological Services	Local and regional agencies involved in hazard mitigation activities

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Chad Marquette	Emergency Coordinator	United States Marine Corps Mountain Warfare Training Center	Neighboring communities
Stephanie Heller	Inyo National Forest District Ranger	US Forest Service	Local and regional agencies involved in hazard mitigation activities
Jason Wingard	Inyo National Forest Fire Management Officer	US Forest Service	Local and regional agencies involved in hazard mitigation activities
Janelle Walker	Program Manager	US Forest Service R5 Mountain Resorts	Local and regional agencies involved in hazard mitigation activities
Jessica Ball	Hazards and Communication Specialist	USGS California Volcano Observatory	Local and regional agencies involved in hazard mitigation activities
Jennifer Lewicki	Acting Scientist in Charge	USGS California Volcano Observatory	Local and regional agencies involved in hazard mitigation activities
Phillip Dawson	Scientist-In-Charge	USGS California Volcano Observatory	Local and regional agencies involved in hazard mitigation activities
Jessica Halterman	Executive Administrator	Walker River Irrigation District	Local and regional agencies involved in hazard mitigation activities
Bert Bryan	General Manager	Walker River Irrigation District (WRID)	Representatives of businesses, academia, and other private organizations
Janet Hatfield	Resilience Program Director	Whitebark Institute	Local and regional agencies involved in hazard mitigation activities
Laura Beardsley	Executive Director	Whitebark Institute	Representatives of businesses, academia, and other private organizations
John Pelichowski	Deputy	Mono County Sheriff's Office and Bridgeport Fire Department	Local and regional agencies involved in hazard mitigation activities
Jeanne Bunting	Project Manager	IEM, Inc.	Planning consultant
Kate Smith	Planner II/GIS	IEM, Inc.	Planning consultant
Joey Harris	Planner II/GIS	IEM, Inc.	Planning consultant
Myrna Chase	Planner II	IEM, Inc.	Planning consultant

Name	Title	Agency/Jurisdiction	Type of Stakeholder
Sabrina Lunsford	Planner I	IEM, Inc.	Planning consultant

HIGH HAZARD POTENTIAL DAM CONSIDERATIONS

An optional component of the FEMA local hazard mitigation planning process is Element G: High Hazard Potential Dams. Jurisdictions and organizations seeking to apply to FEMA's High Hazard Potential Dams (HHPD) Rehabilitation Grant Program must have an adopted local hazard mitigation plan that includes all dam risk. This plan was designed to meet this requirement. Special consideration was paid to dam owners and the state dam safety agency when identifying which stakeholders to include.

Table 7 provides a list of the dam failure stakeholders invited to participate in the planning process. Stakeholders marked with an asterisk (*) represent owners of HHPDs.

Table 7: Dam Failure Stakeholders Invited to Participate in the Plan Update

Name	Involvement
City of Los Angeles Department of Water and Power	Dam owner*
Southern California Edison	Dam owner*
Walker River Irrigation District	Dam owner*
US Forest Service	Dam owner*
CA Department of Water Resources, Division of Safety of Dams	State dam safety agency
Cal OES	Emergency management

*HHPD dam owner.

In addition to the regular stakeholder meetings, the Planning Team hosted a Focused Stakeholder Meeting specifically on dam failure. This meeting provided an opportunity for dam failure stakeholders to share their concerns about the hazards profiled and the actions they would recommend as well as for plan participants to ask questions directly to the local subject matter experts.

Information provided by the dam failure stakeholders included a discussion centered on the potential risks of dam failure and flooding in the Town. Concerns were raised regarding the flow of water down Mammoth Creek, which divides parts of the Town and threatens critical infrastructure. In the event of a dam failure, the water flow could obstruct evacuation routes, potentially trapping residents, particularly in areas near the creek such as Old Mammoth Road, Waterford, and Valentine Reserve. The necessity of understanding water flow depth, intensity, and evacuation strategies was emphasized, because such a scenario, though unlikely, could have devastating consequences. The engineering department is urged to consider higher-capacity drainage systems for stormwater management, capable of handling potential dam break events.

Further, the reliability of FEMA flood maps was in question, especially concerning dam break scenarios, as these maps do not typically account for such failures. The need for updated, more accurate models was

acknowledged, and potential collaboration with agencies like the US Army Corps of Engineers was suggested. Discussions also touched on the Town's water supply, where surface water from Lake Mary typically meets most of the community's needs, though groundwater is also a viable alternative, as demonstrated during past drought periods. The group recognizes the importance of planning and data collection to better prepare for low-probability but high-consequence flood events.

In addition to the stakeholder meeting and recommendations from dam failure stakeholders, High Hazard Potential Dam Emergency Action Plans (EAPs) were compiled and evaluated for crucial information regarding each dam's specific risk scenarios and response strategies. Further information can be found in the Dam Failure hazard profile.

STAKEHOLDER SURVEY

Stakeholders were also given the opportunity to participate in the plan update through a specific stakeholder survey. Unlike the public survey, the stakeholder survey solicited input on data and organizational information regarding ongoing mitigation efforts and mitigation action recommendations. Nineteen responses were received. Of those, 75% worked in Mono County or the Town, while 16% worked in a neighboring County and 9% worked outside of the planning area or neighboring counties. A range of stakeholder types were reached, as shown in Figure 2. Most stakeholders were at least somewhat familiar (11) or very familiar (6) with hazard mitigation. Therefore, their recommendations were incorporated into the Mitigation Action Ideas document and Mitigation Strategy Workshops as well as the Risk Assessment where applicable.

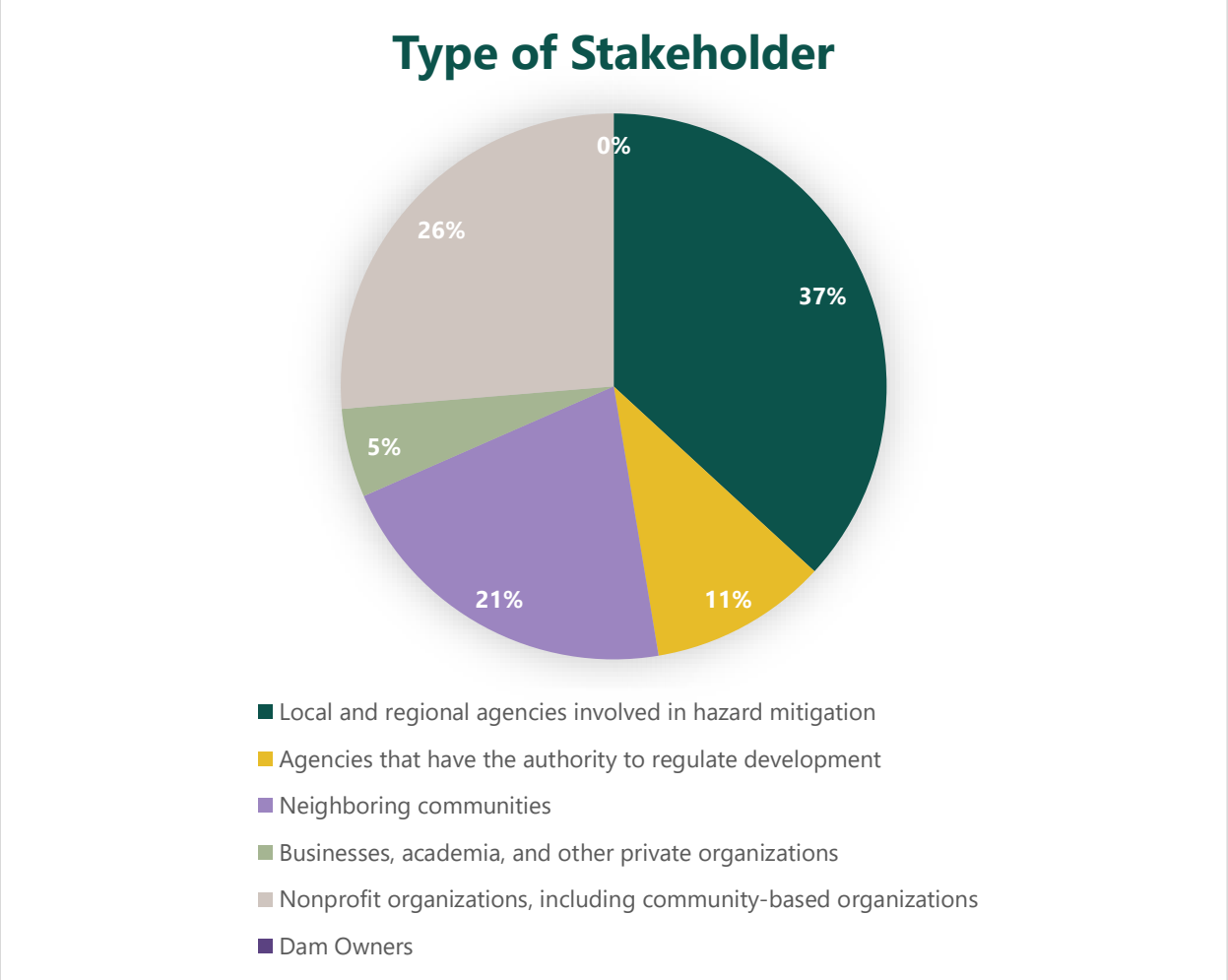


Figure 2: Stakeholder Types

The stakeholders expressed similar concerns to the public regarding the hazards of concern to the planning area. The hazard of highest concern was wildfire, followed by severe winter weather and snow, severe wind, avalanche, and earthquake and seismic hazards. Hazards of least concern included dam failure and extreme heat. Table 8 provides more detailed information on the stakeholder hazard rankings.

Table 8: Stakeholder Hazards of Concern

Hazard	Very Concerned	Somewhat Concerned	Neutral	Somewhat Unconcerned	Very Unconcerned
Avalanche	50%	33.3%	5.6%	5.6%	5.6%
Dam Failure	11.1%	38.9%	16.7%	11.1%	22.2%
Disease and Pest Management	11.1%	44.4%	22.2%	16.7%	5.6%
Drought	41.2%	35.3%	11.8%	11.8%	-
Earthquake	38.9%	50%	11.1%	-	-

Hazard	Very Concerned	Somewhat Concerned	Neutral	Somewhat Unconcerned	Very Unconcerned
Energy Shortages and Energy Resiliency	38.9%	38.9%	16.7%	5.6%	-
Epidemic/Pandemic	11.1%	50%	22.2%	11.1%	5.6%
Extreme Heat	5.6%	50%	22.2%	11.1%	11.1%
Flood	27.8%	50%	-	22.2%	-
Hazardous Materials	16.7%	38.9%	33.3%	5.6%	5.6%
Landslides	16.7%	38.9%	16.7%	22.2%	5.6%
Severe Wind	66.7%	27.8%	5.6%	-	-
Severe Winter Storms	47.1%	47.1%	5.9%	-	-
Volcano	11.1%	38.9%	33.3%	11.1%	5.6%
Wildfire	83.3%	11.1%	5.6%	-	-
Wildlife Collision	16.7%	61.1%	22.2%	-	-

Stakeholders were surveyed on the assets and populations at risk in the planning area. In general, the populations that stakeholders felt were most vulnerable included the elderly (age 65 or older), people living with a disability, tourists, and people living without stable housing (see Figure 3). These concerns were brought up during the stakeholder meetings as well.

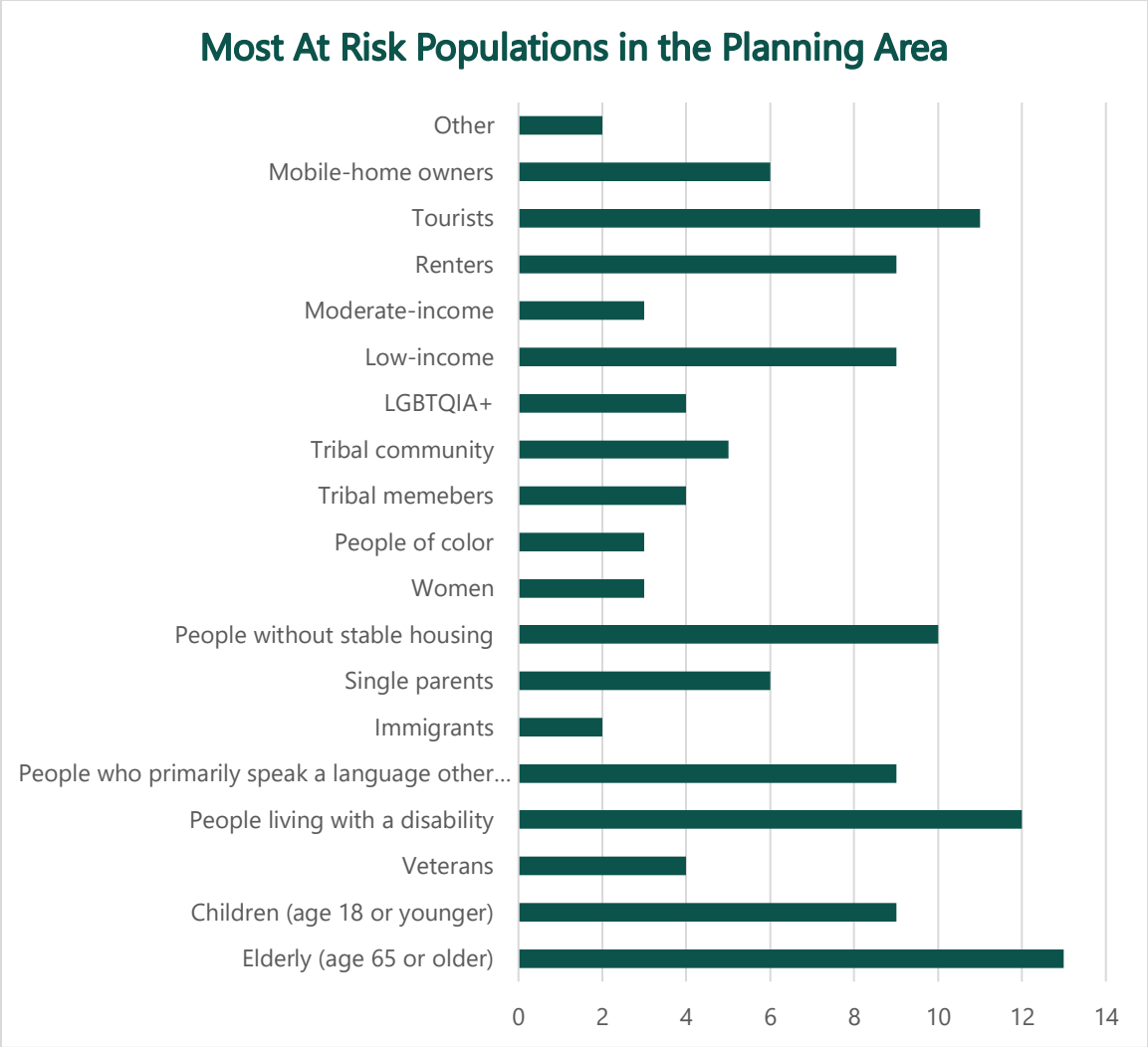


Figure 3: Most At-Risk Populations in the Planning Area

Stakeholders were also asked about what ways of engaging the public within the planning area have worked for their organization. Stakeholders suggested public meetings, surveys (both digital and in-person), social media, and websites were effective methods. They recommend one-on-one and face-to-face meetings where possible. Free food or coffee was highlighted as incentives for participation. The recommendations provided appeared to be in alignment with the public outreach strategy developed as a part of this plan update.

In addition to the foregoing questions, stakeholders were asked the following:

- What existing plans, studies, reports, and technical information are you aware of that would best describe the risks to the planning area or identify mitigation actions?
- What at-risk areas (including structures, infrastructures, and natural areas) or people in the planning area would you like to see protected from future disasters? Be specific, if known.

- What types of mitigation projects would your organization support for the plan participants to complete?
- What steps has your organization taken to reduce risk to your assets (buildings, roads, natural areas, etc.) and the planning area?
- Are you currently working on any mitigation project within the planning area or interested in collaborating with the plan participants on any project?

Responses to these questions are reflected in the Risk Assessment, Mitigation Strategy, and Appendix B: Sample Mitigation Action Ideas.

Public Outreach

Digital Survey

The County and the Town prepared a public outreach and engagement process to allow community members to learn about the plan and contribute to its development. The Planning Team drafted and shared a public survey in English and Spanish via flyers with a QR code to access the link to the survey. Each participating jurisdiction reviewed and shared these surveys on multiple occasions and in different formats. The survey asked the public about their hazards of concern, assessed their understanding of the assets at risk, and solicited information on what areas or community assets are more vulnerable. The survey also engaged the public on what they are doing in terms of mitigation, what mitigation actions they would support the community undertaking, and any specific suggestions for mitigation actions.

The link to the public survey was widely distributed throughout the County using social media platforms available to all jurisdictions, sharing flyers via a direct mailer, posting flyers in public common areas throughout the community, discussing the survey at public meetings, and sharing flyers via multiple distribution lists. This multi-modal approach to distributing the survey was intended to connect with the whole community, including vulnerable populations like the elderly, low-income individuals, non-English speakers, youth, and tribal communities. When asked whether they were familiar with hazard mitigation, 46% stated they were very familiar or somewhat familiar with hazard mitigation.

Approximately 154 people responded to the survey. The key outcomes of the survey are discussed below, and a more detailed summary of the survey and its findings, including specific assets of concern to the public, is included in Appendix B.

Survey respondent demographics are documented in Figure 4. Understanding who responded helps evaluate whether the survey was effective in reaching the whole community. Respondents were mixed on where they lived with the majority coming from the County.

Survey responses were analyzed and informed discussions among the participating jurisdictions, particularly when crafting the risk assessment and mitigation strategy sections of the plan. For the risk assessment, respondents shared specific building, populations, and areas that were most at risk to

hazards. These details were included in the base plan risk assessment or the specific jurisdictional annex they referred. In particular, public comments helped inform the description of historical events and local concerns, such as on page 231. Respondents also shared the types of community priorities and actions they most wanted to see included in the plan. When developing the mitigation strategy sections participating jurisdictions used the public feedback to create mitigation goals and actions that address the public's concerns.

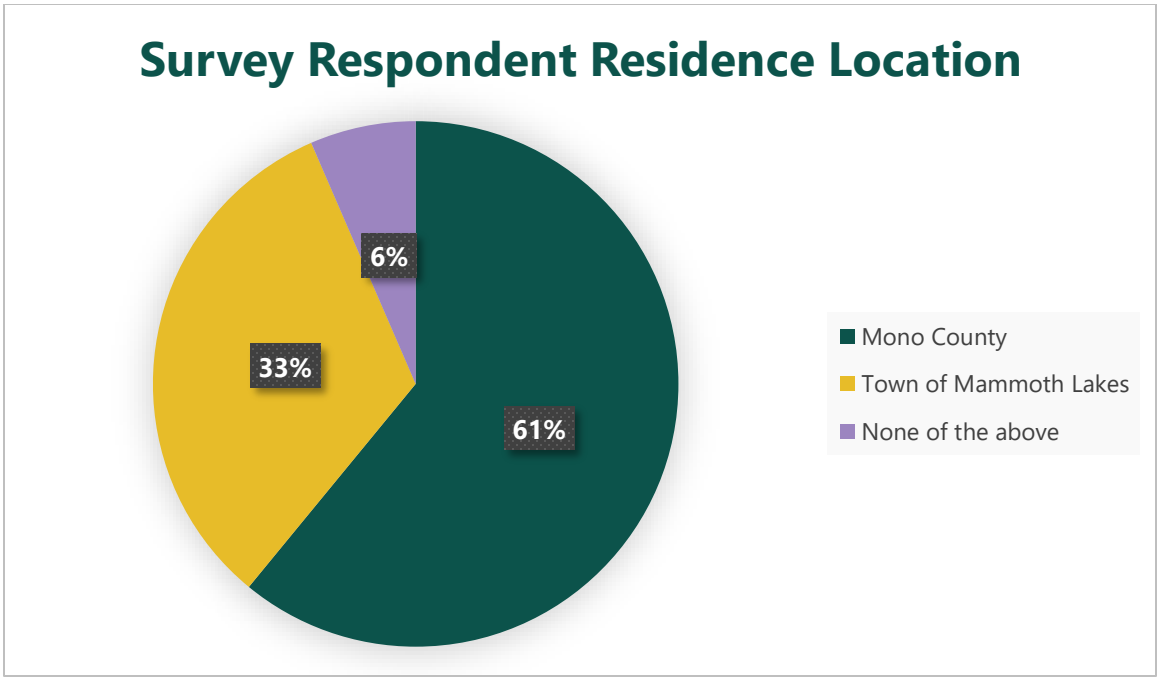


Figure 4: Survey Respondent Residence Location

Respondents came from a variety of backgrounds, including socially vulnerable populations (see Table 9). According to FEMA's Guides to Expanding Mitigation: Making the Connection to Equity, in order to advance mitigation measures that reflect the needs of the whole community, it's important to evaluate and incorporate the perspectives of the most vulnerable who may require additional outreach or assistance during disaster response and recovery. Survey respondents were asked to select which, if any, of the following statements applied to them, and multiple choices were an option.

Table 9: Public Survey Demographics

Survey Questions	# of Respondents
I am age 65 or older.	58
I am age 18 or younger.	4
I am a veteran.	11
I have a disability.	12
I primarily speak a language other than English at home.	2
I am an immigrant.	3

Survey Questions	# of Respondents
I am a single parent.	3
I do not have stable housing.	5
I am a woman.	63
I am a person of color.	5
I am a member of a tribe.	5
I identify as LGBTQIA+.	4
I represent a socially vulnerable or underserved population.	9
My income is less than $52,350 for a one-person household.	13
My household income is less than $59,800 for a two-person household.	6
My household income is less than $67,300 for a three-person household.	1
My household income is less than $74,800 for a four-person household.	1
My household income is less than $80,750 for a five-person household.	0
I identify with one or more of these groups but prefer not to specify.	12
None of the above.	28

Most survey respondents were very familiar (24%) or at least somewhat familiar (53%) with the concept of hazard mitigation. Hazards of highest concern included wildfire (91.3% Very Concerned), severe winter storms and snow (52.3% Very Concerned), and severe wind (52.3% Very Concerned). Hazards of least concern were dam failure, flood, and landslide.

Survey respondents were asked about their own ability to address risk, including how they receive information on their own hazards and whether their insurance covers natural hazards. In general, as most people are familiar with hazard mitigation, they also felt they understood how to reduce their own risk (see Figure 5). However, some felt they needed additional information or did not know how to mitigate their risk, indicating there is still a need for public education and awareness activities.

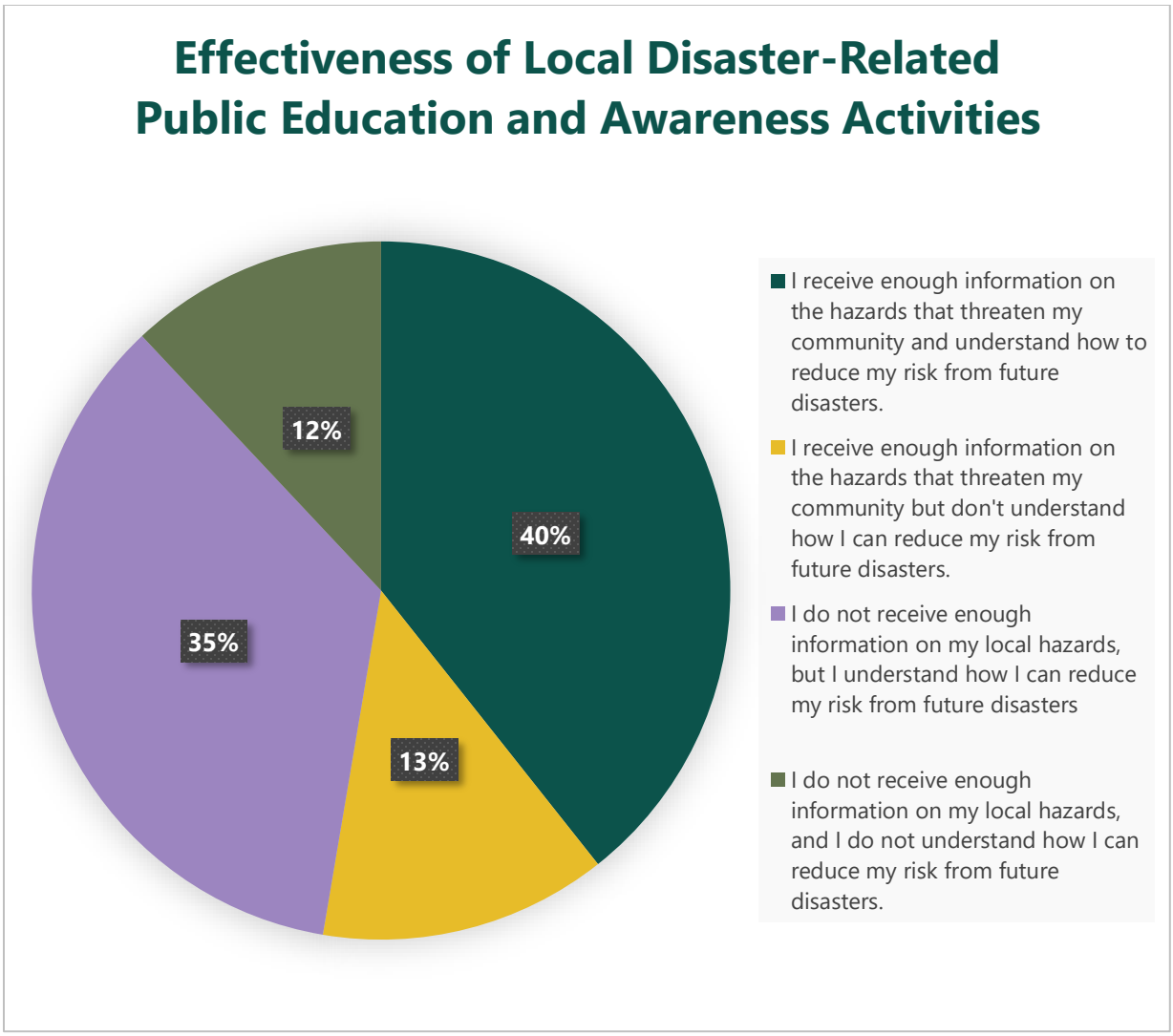


Figure 5: Effectiveness of Local Disaster-Related Public Education and Awareness Activities

Respondents were asked what methods they prefer to receive information on hazards that could impact their community and steps to reduce their risk. The top responses were for word of mouth including group meetings, social media, and via newspapers. Additional responses by percentage are shown in Table 10.

Table 10: Local Hazard and Mitigation Public Information Sources

Information Source	Respondents (#)
Newspapers	66
Television	19
Radio	35
Schools	5
Public workshops/meetings	61

Information Source	Respondents (#)
Community groups, community members, word of mouth	90
Direct mail	40
Magazines	6
Social media (Facebook, etc.)	82
Digital advertising (pop-up ads)	9
Outdoor advertisements (billboards)	16
Text messages	54
Other	27

As shown in Table 11, several respondents listed several types of insurance coverage, and many reported having no insurance coverage.

Table 11: Respondent Types of Hazard Insurance Coverage

Types of Hazard Insurance	Respondents with Insurance Type (#)
California Fair Plan	25
Earthquake	56
Fire	108
Flood	21
Windstorm	25
Landslide	5
Renter's	4

Respondents were then asked more specific questions on vulnerabilities and mitigation measures they would support the plan participants in taking. Almost all options had very strong or strong support, demonstrating the public's interest and support for reducing hazard risk (see Table 12).

Table 12: Public Survey Rating of Community Priorities for Reducing Risk from Future Disasters

Potential Priority	Very Important	Somewhat Important	Neutral	Somewhat Not Important	Not Important
Protecting private property	54.7%	35.3%	8%	2%	-
Protecting transportation networks, hospitals, and communication infrastructure	82.2%	15.8%	2%	-	-

Potential Priority	Very Important	Somewhat Important	Neutral	Somewhat Not Important	Not Important
Preventing development in hazard areas (e.g., not allowing construction in floodplains)	53.3%	31.6%	11.2%	2%	2%
Improving and preserving natural features such as streams and wetlands	65.8%	24.3%	8.6%	1.3%	-
Incorporating natural features into the built environment to promote sustainability, adaptation, and resilience (e.g., slowing forests to regrow, improving air and water quality, controlling stormwater)	64.5%	23%	10.%	2%	-
Strengthening emergency services (police, fire, ambulance)	65.1%	25.7%	7.9%	0.7%	0.7%

Additionally, respondents were strongly supportive of implementing a comprehensive range of mitigation actions to address known hazards (see Table 13).

Table 13: Public Support for Mitigation Activities

Mitigation Action	Very Supportive	Somewhat Supportive	Neutral	Somewhat Opposed	Very Opposed
Retrofitting or relocating critical facilities in high-risk areas	46.7%	40.8%	11.8%	0.7%	-
Equipping critical facilities with emergency power sources	76.5%	20.3%	3.3%	-	-
Funding studies to understand risk and develop mitigation recommendations	32.9%	35.5%	19.1%	10.5%	2%
Creating and maintaining defensible space around structures and	73.9%	21.6%	3.3%	0.7%	0.7%

Mitigation Action	Very Supportive	Somewhat Supportive	Neutral	Somewhat Opposed	Very Opposed
infrastructure to reduce wildfire risk					
Developing community groups to support vulnerable populations before, during, and after a disaster event	57.5%	32%	8.5%	1.3%	0.7%
Implementing nature-based solutions like rain gardens, open space programs, and stream restoration	51.7%	27.8%	16.6%	4%	-
Adopting and enforcing current building codes	46.7%	32.9%	15.8%	2.6%	2%
Adopting and enforcing more stringent building codes (such as requiring additional elevation of properties in high-risk flood zones)	32.7%	32.7%	24.2%	7.8%	2.6%
Adopting higher regulatory standards for new development within unstable slope areas	46.1%	31.6%	17.1%	3.9%	1.3%
Incorporating drought-tolerant plants into public landscaping	54.2%	24.2%	19%	2.6%	-
Upgrading culverts and stormwater management systems	53.9%	37.5%	8.6%	-	-
Developing and enforcing water conservation measures during drought conditions	49.3%	28.3%	13.8%	7.2%	1.3%
Holding public education/outreach events on mitigation	46.4%	35.1%	17.2%	0.7%	0.7%
Providing the public with more technical information on how to reduce risk	56.9%	29.4%	11.8%	2%	-

Regional Planning Advisory Committee Meetings

A concentrated effort was made to engage the public across the Countywide planning area. As part of the planning process, the following advisory meetings were conducted with the County RPACs for input and feedback throughout the plan development process:

- Antelope Valley – 11/7/2024
- Benton/Hammil - Inactive (Email List Utilized)
- Bridgeport Valley – 11/15/2024
- Chalfant – Inactive (Email List Utilized)
- June Lake Citizens Advisory Committee – 11/6/2024
- Long Valley – 1/16/2025
- Mono Basin – 11/13/2024
- Paradise - Inactive (Email List Utilized)
- Wheeler Crest - Inactive (Email List Utilized)

RPAC meetings occur on a regular monthly schedule or as needed, are open to the public, and both agendas and meeting notes are posted on their respective websites. They have successfully been used to engage the public on prior planning initiatives; therefore, the plan participants and stakeholders identified these meetings as a key opportunity to discuss the plan update process. These meetings were conducted alongside the four Planning Team meetings listed above. RPAC members and the public at these meetings were given short presentations on the process, and risk and vulnerability assessment results. The members then provided comments on risk and vulnerability they had experienced in their jurisdictions and potential mitigation actions that could be included in the plan. Those comments were reviewed by IEM and the planning committee and included in corresponding risk assessment and mitigation strategy sections including Appendix C: Sample Mitigation Action Ideas. A second round of RPAC meetings was held once the plan was out for draft public review.

Four of the RPACs disbanded (Paradise, Wheeler Crest, Chalfant, and Benton/Hammil). To cover these areas, the Mono County Supervisor shared the survey via email (including to Swall Meadows, Paradise, and the Tri-Valley areas), and the Planning Commissioner shared the survey via Nextdoor.

Draft Plan Review

The public was invited to review the draft plan over the course of 30 days between November 7 and December 7. This opportunity was advertised via the County's website and social media pages. The plan received 10 comments, which were reviewed and incorporated into the appropriate sections of the base plan and annexes. These comments included suggestions for specific mitigation actions to be included in the plan and detailed information that was included into hazard profiles. Based on the comments, updates

were added to the County Annex, the Town Annex, hazard profile section of the base plan, and Mammoth Community Water District Annex.



Section 2:
Community Profile

Community Profile

Physical Setting

Mono County, California, is situated on the eastern slope of the Sierra Nevada, just south of Lake Tahoe. It is part of North America's Basin and Range Province, a region marked by a series of parallel mountain ranges and arid valleys. The County spans a narrow strip of land 108 miles long and averaging 38 miles in width, bordered by the Sierra crest to the west and the Nevada state line to the east. Covering 3,132 square miles, the County is home to several notable mountain ranges, including the Sierra Nevada, and it also contains the largest and oldest natural lake entirely within California, Mono Lake. Along with Mono Lake, the County boasts many water sources, including the Walker River, Mammoth Creek, Hot Creek, the Owens River, and hundreds of streams that flow into Mono and Crowley Lakes. The mountain ranges typically run from north to south along the County's western side, descending sharply into valleys, basins, and the flatter expanses known as the Great Basin. This topography leads to a rain shadow effect where the cool air pushed up by the Sierra Nevada drops large amounts of precipitation on mountain communities, but once past the mountains, the air warms and dissipates. This dynamic leads to arid conditions for lower elevation communities in the County. The unique topography of the Sierra Nevada on the County's western border also leads to singular weather patterns that impact specific communities. Most notably, the Mammoth Pass funnels major storms through the Sierra Nevada to the Town and surrounding area. This phenomenon leads to more snowfall and severe winter storms for Mammoth Lakes than other towns in the County.

The following vicinity map illustrates the geographic layout, key highways, and jurisdictional boundaries of the County and the Town in eastern California.

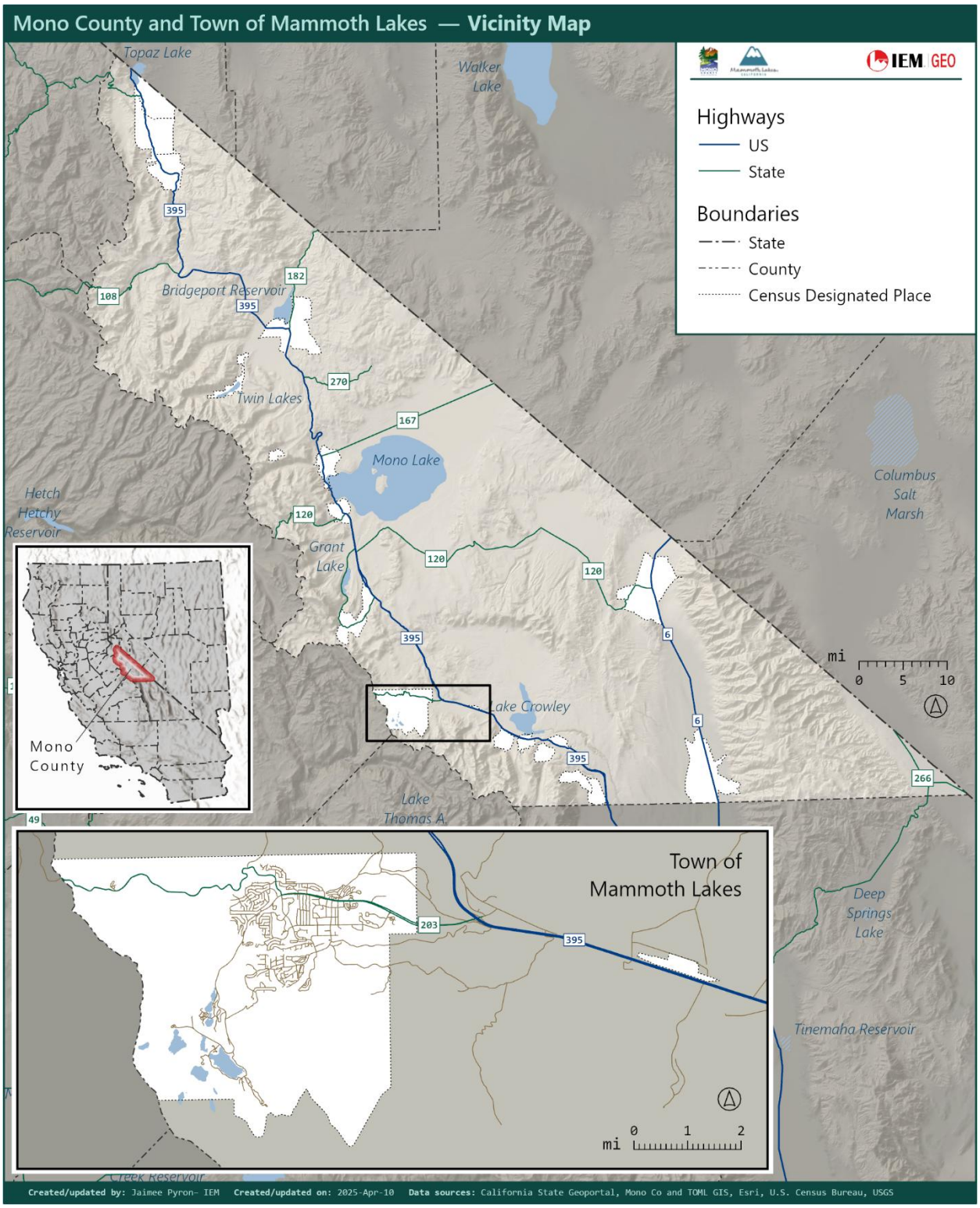


Figure 6: Vicinity Map for Mono County and the Town of Mammoth Lakes

Jurisdictional Profiles

Mono County Profile

The County's geography contributes to its challenging and isolated nature. The County is rural and sparsely populated, with a population of 13,195 according to the 2020 census. Despite its location, the County attracts over 1.5 million visitors annually to destinations like the Town, Mammoth Mountain Ski Area (MMSA), and June Mountain Ski Area, generating over $450 million in revenue. Access to the County is mainly through US 395, which runs along the foot of the Sierra for about 120 miles. US 6 also provides access to the Tri-Valley region, including Chalfant Valley and Benton. Most residents and visitor services are in small communities with populations of 300 or fewer along this main roadway.

Driving distances to major cities include five to seven hours to Los Angeles, three hours to Reno, and six to seven hours to the San Francisco Bay area via various routes connecting to US 395. The County has two seasonal highways that connect to Yosemite National Park and Nevada and three small public airports.

About 94% of the land in the County is publicly owned, with much of it managed by the United States Forest Service (USFS) and the Bureau of Land Management (BLM). This includes two national forests—Inyo National Forest and Humboldt-Toiyabe National Forest—and three wilderness areas: Hoover Wilderness, Ansel Adams Wilderness, and John Muir Wilderness. Yosemite National Park's eastern entrance, which attracts nearly 4 million visitors annually, is located in the County as well.

The Los Angeles Department of Water and Power (LADWP) also owns significant land in the southern part of the County. The County is bordered by other mountainous counties with low and dispersed populations, such as Alpine, Tuolumne, Mariposa, Madera, Fresno, and Inyo counties in California, and Douglas, Lyon, Mineral, and Esmeralda counties in Nevada.

Mammoth Lakes Profile

More than half of the population of the County resides in the Town, which is the County's only incorporated community. The remaining population is distributed among several small communities scattered throughout the County. Situated on the southwest side, the Town is accessible via SR 203 from US 395. The Town's municipal boundary encompasses approximately 25 square miles with around 4 square miles designated as the urban growth boundary where development occurs. The Town is located along the edge of the geologically active Long Valley Caldera, which features many hot springs. SR 203 extends westward, providing access to MMSA and Devils Postpile National Monument. Major roads in the Town include Lake Mary Road, Old Mammoth Road, Minaret Road, and Meridian Road, which form primary corridors looping around the area. The Mammoth Yosemite Airport, owned and operated by the Town, is roughly 8 miles southeast of the Town along US 395. The Town is bordered by the Ansel Adams and John Muir Wilderness Areas.

Located just a few miles southwest of the Town is the Lakes Basin, a series of glacier-carved lakes and streams nestled into the Sierras. The Lakes Basin is easily accessible from the Town by car, public transit,

foot, and bike with a series of paved and unpaved trails connecting the Town to the lakes. The Lakes Basin is a major recreational and economic asset for the Town, drawing hikers, campers, anglers, paddleboarders, rock climbers, and sightseers from around the world during spring and summer.

History

Mono County History

Archaeological evidence suggests that the area now known as Mono County was settled around 12,000 years ago. Early inhabitants were likely mobile hunter-gatherers, and it wasn't until 4,000 to 8,000 years ago that more permanent settlements began to form. Much like today's residents, the indigenous peoples primarily lived in the Great Basin area stretching from north of Mono Lake to Owens Lake in Inyo County. These native tribes included the Owens Valley Paiute (Eastern Mono), Western Shoshone (Panamint or Koso), Southern Paiute, and Kawaiisu (Nuwa). The early 1800s saw the first contact between native inhabitants and Europeans, who arrived as fur trappers.

The County was established in 1861, carved from parts of Calaveras, Fresno, and Mariposa Counties. Mining played a significant role in the County's early development. The discovery of gold in the County in the 1870s and 1880s drew thousands of newcomers to the area, including to communities like the Town, Bridgeport, and Lee Vining. Following the mining era, ranching became a crucial economic activity, surpassing mining in importance into the early 1900s. The early 20th century also witnessed the contentious acquisition of vast land areas by the City of Los Angeles in Mono and neighboring Inyo Counties to redirect water from Mono Lake and the Owens River into the Los Angeles Aqueduct, which was completed in 1913.

US 395, the primary access route into and out of the County, was completed in the early 1930s, alongside the more limited access provided by US 6. Tourism emerged as a key economic driver in the following decades, which is a trend that continues today. The County's economy is now heavily reliant on tourism, agriculture, government, and land management activities.

Mammoth Lakes History

The Town, similar to many other communities in the County, was initially established by those pursuing mining ventures. However, the Town's stint as a mining hub was brief and not particularly profitable. By the end of the first quarter of the twentieth century, tourism had become the primary industry in the region. The Town has experienced steady growth, largely due to its appeal as a hotspot for outdoor recreation and as a convenient stop for visitors heading to Yosemite National Park.

Climate and Weather

The County and the Town fall under the Dsc Köppen classification, which is a cold semi-arid climate characterized by cold winters and relatively dry conditions with most precipitation occurring during the

winter months. Winters tend to be cold with considerable snowfall, while summers are warm and dry. The annual precipitation is generally concentrated in the winter months, contributing to the area's occasional heavy snowfalls. The combination of warm summers and snowy winters creates a distinctive and varied weather pattern throughout the year. Figure 7 displays the average monthly highs and lows for the Town.

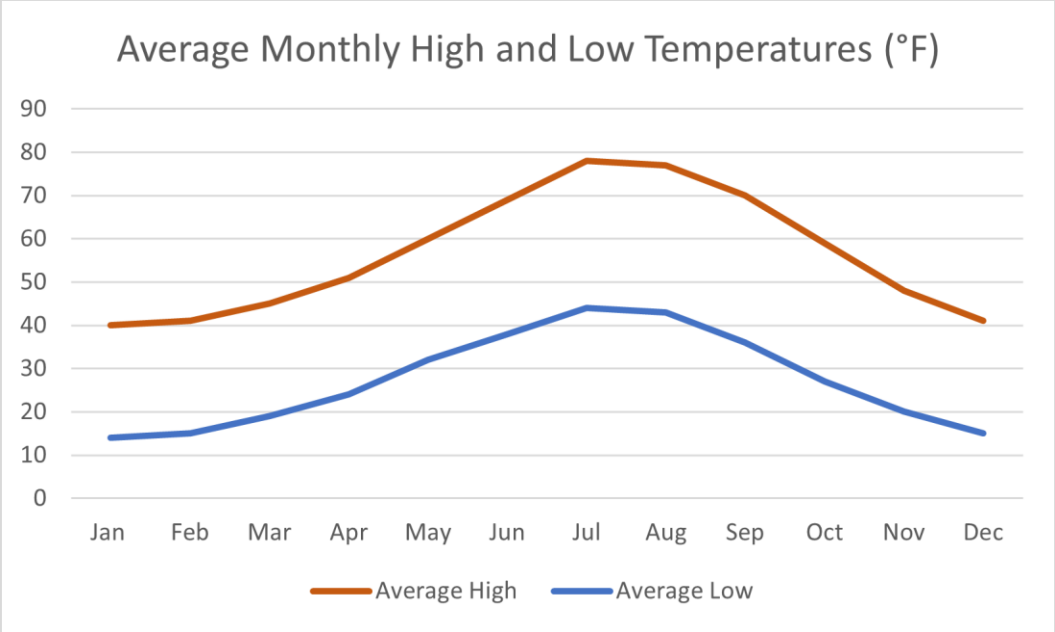


Figure 7: Average Monthly High and Low Temperatures for Mammoth Lakes[2]

Community Demographics

Understanding the demographic characteristics of the County and the Town, as well as the daily routines, travel patterns, and resident knowledge, aids hazard mitigation planners in identifying potential vulnerabilities and determining effective public education strategies. The demographics presented here are from the 2022 American Community Survey population estimates. It is important to note that both the County and the Town are significant tourist destinations with economies and infrastructure heavily influenced by tourism. Many properties and services are seasonal, and the population and job figures can vary significantly during the year due to the influx of visitors. Part-time residents are typically not included in census or standard demographic surveys.

[2] Mammoth Lakes, CA Weather, https://www.bestplaces.net/weather/city/california/mammoth_lakes.

Table 14: Demographic Data for Mono County and Mammoth Lakes[3]

Category	Mono County	Mammoth Lakes
Total Population	13,169	7,233
Median Age	40.3	37.7
Under 18 Years	2,419 (18.4%)	1,499 (20.7%)
Elderly Population (65+ years)	2,164 (16.4%)	844 (11.7%)
Total Housing Units	13,632	9,885

Table 15: Race/Ethnicity Demographic Data for Mono County and Mammoth Lakes[4]

Race/Ethnicity[5]	Mono County	Mammoth Lakes
White	9,755 (74.0%)	5,347 (73.9%)
Black or African American	12 (0.1%)	0 (0.0%)
American Indian and Alaska Native	211 (1.6%)	45 (0.6%)
Asian	296 (2.2%)	224 (3.1%)
Native Hawaiian and Other Pacific Islander	0 (0.0%)	0 (0.0%)
Other Race	788 (6.0%)	427 (5.6%)
Hispanic or Latino (of any race)*	3,513 (26.7%)	1,992 (27.5%)

Figure 8 displays the estimated population density by census tract for Mono County and the Town.

[3] U.S. Census Bureau, 2023, "American Community Survey Demographic and Housing Estimates: DP05." https://data.census.gov/table/ACSDP5Y2023.DP05?q=Mono+County+CA
[4] Ibid.
[5] Those of Hispanic or Latino ethnicity can also be categorized under other various races, leading to a total in this table of more than 100%.

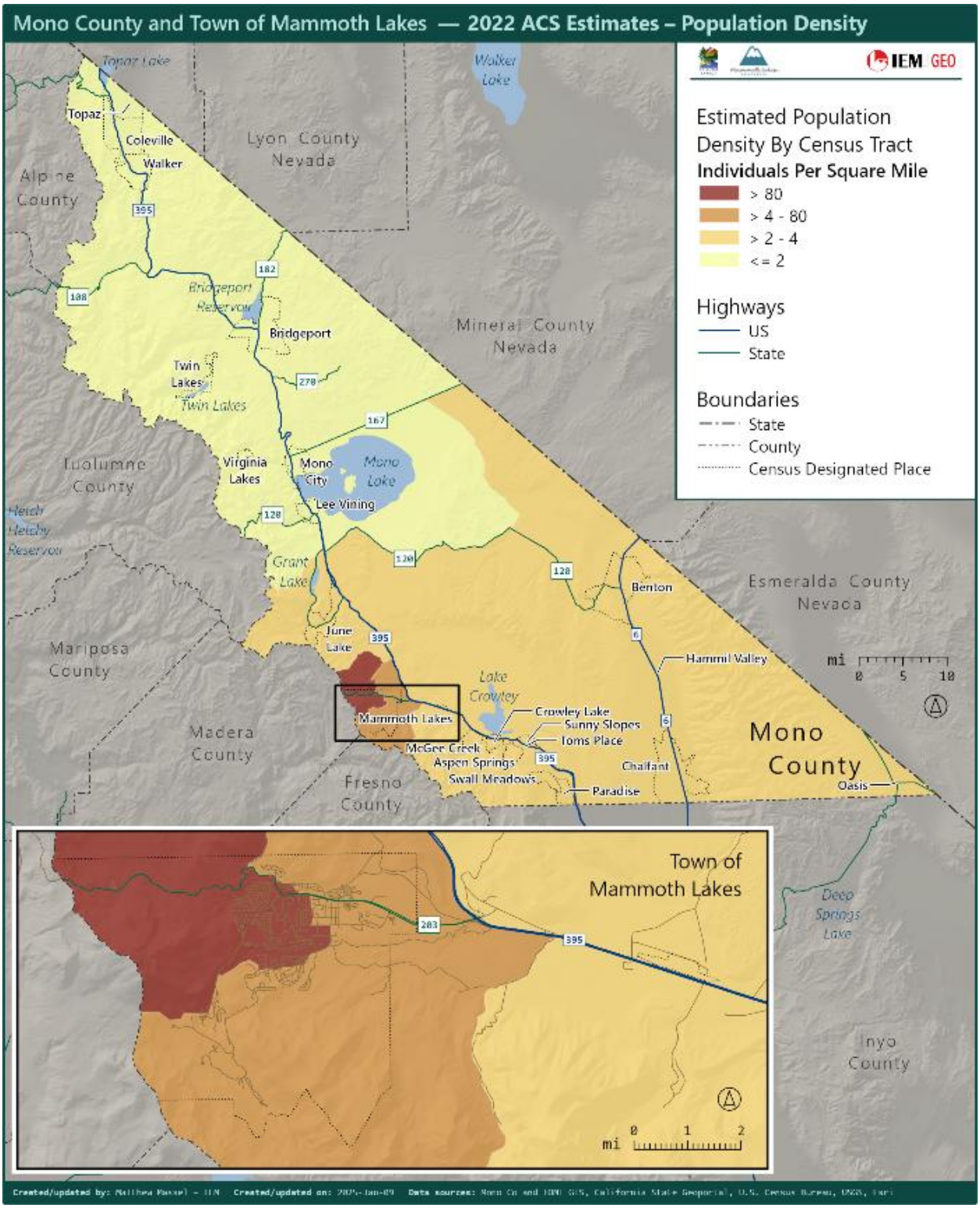


Figure 8: Land Use and Land Classification for Mono County, California

Mono County

More than half of the County's population lives in the Town. Most of the remaining residents are spread across smaller unincorporated communities—most with fewer than 1,000 full-time residents. Although the listed population numbers provide an estimate of permanent residents, communities known for recreational attractions can see their population double or even triple during peak summer and winter tourist seasons due to an influx of visitors. The unincorporated communities in the County include:

- **Topaz –** The northernmost town in the County, Topaz has a residential population of 50 but is a popular recreational destination for casinos, fishing, and water sports. The town abuts Topaz Lake and has moderate hillsides directly to the east along US 395. Topaz is part of Antelope Valley.
- **Coleville and Walker –** Also part of Antelope Valley, and running alongside the Walker River and US 395, the neighboring communities of Coleville and Walker have populations of 495 and 721, respectively. Ranching and farming remain important activities along with tourist attractions, such as water sports and horseback riding. The areas near the river and adjacent to these towns include riparian vegetation, irrigated farmland, and grasses, while the hills to the west have rocky slopes, dry chaparral, and dispersed coniferous trees.
- **Bridgeport –** The County seat, Bridgeport, has a population of 553. It is in the relatively lush and green Bridgeport Valley, surrounded by grasses and agricultural land.
- **Mono City –** This is a small community of 172 residents located just north of Mono Lake. It is in a relatively flat landscape and is adjacent to Mill Creek, which runs into Mono Lake.
- **Lee Vining –** Lee Vining has a population of 217 and is located on the southwest side of Mono Lake and near the intersection of US 395 with SR 120, Lee Vining is a frequent shopping point for visitors headed to Yosemite in the summer months. This community along Lee Vining Creek sits at the foot of several steeply sloped mountains.
- **June Lake –** This community of 629 residents is spread alongside the tall Carson Peak and SR 158. SR 158, also known as the June Lake Loop, provides access to several scenic lakes, including June Lake, June Mountain Ski Area, and many hiking trailheads.
- **Chalfant (or Chalfant Valley), Hammil Valley, and Benton** – These three communities, often referred to as the Tri-Valley area, are home to over 1,100 residents. US 6 runs north–south through the three communities and into Nevada, while SR 120 connects Benton to US 395. Located in a series of flat valleys, this area forms the largest agricultural basin in the County. Although primarily an agricultural community, dramatic landscapes and several hot springs bring many recreational visitors to the area.
- **Crowley Lake, Aspen Springs, Hilton Creek, and McGee Creek** – The communities of Crowley Lake/Hilton Creek and the much smaller McGee Creek are located adjacent to each other. On the south side of US 395, Aspen Springs can be accessed only via Crowley Lake Drive. Crowley Lake is a popular recreational destination for fishing and other water sports. With 45 miles of shoreline, Crowley Lake has a marina, RV sites, boat rentals, and shops. Together, the communities have a resident population of just over 1,000, making up the largest urbanized population in the

unincorporated County. Immediately south of the communities are prominent mountain peaks, including Mount Baldwin and Mount Morgan.

- **Tom's Place and Sunny Slopes** – Continuing south along US 395 from Crowley Lake are the small communities of Tom's Place and Sunny Slopes, located on land owned by the USFS and private land, respectively. Tom's Place is surrounded by dense coniferous forest and is primarily made up of cabins, stores, and other facilities that make up Tom's Place Resort. Although the bulk of development is directly adjacent to US 395, several residences in Sunny Slopes are located on the other side of US 395 along Rock Creek Road, which follows Rock Creek for close to 10 miles before dead-ending at the Mosquito Flat trailhead in Inyo County.
- **Swall Meadows and Paradise –** Swall Meadows and its smaller southern neighbor Paradise have roughly 178 and 174 residents, respectively. They are residential communities partway up the sloping Sherwin Grade with no commercial development, and surrounded by Great Basin Sagebrush Scrub, Pinyon/Juniper, and Jeffry Pine plant communities. These communities can be accessed via a single roadway, Lower Rock Creek Road to Swall Meadows Road.
- **Oasis –** The County's southernmost community and located within 3 miles of the Nevada border along SR 168 where it intersects NV 266, Oasis is isolated from other Mono County communities. Oasis is in Fish Lake Valley and is surrounded by flat land with dry and bushy vegetation.

Many County residents do not work in the communities in which they live. Many residents in the Antelope Valley commute to Bridgeport and Gardnerville, Minden, and Carson City in Nevada; residents of the Tri-Valley area commute to Bishop in Inyo County; and residents of Long Valley, June Lake, and Benton commute to the Town. Bridgeport is the only unincorporated community that has a large portion of its residents working in the community. Development and rising housing prices are forcing many residents of the Town to move elsewhere (Crowley Lake, June Lake, Bishop, and Chalfant) and commute to jobs in the Town.

Mammoth Lakes

The Town is a vibrant year-round resort destination with a modest permanent population bolstered by many seasonal and occasional visitors. The Town features vacation homes and lodging that host far more individuals than its 7,000 permanent residents. Tourism drives the local economy, peaking in summer and winter when the influx of visitors is greatest. Winter activities include skiing, snowboarding, and other outdoor sports, while summer offers hiking, fishing, camping, mountain and road bicycling, golfing, and sightseeing. Given the Town's reliance on tourism, many residents work in the service sector, including MMSA, with other major employers being government entities and Mammoth Hospital.

Located near US 395, the Town is accessible primarily via SR 203, Sherwin Creek Road in certain seasons and the Mammoth Scenic Loop, weather permitting. The southern parts of the Town, including Old Mammoth, the Bluffs, Valentine Reserve, and the Lake Mary area, are reached via Old Mammoth Road and Lake Mary Road. Nestled on the lower slopes of MMSA, the Town is surrounded by dense coniferous forests. The following maps present the 2022 Social Vulnerability Index (SVI) for the County and the Town, highlighting vulnerability levels by census tract across five key themes, socioeconomic status, household

characteristics, racial and ethnic minority status, housing type and transportation, and overall vulnerability, to support equitable hazard mitigation and emergency planning efforts.

Social Vulnerability Index for Mono County and Mammoth Lakes

The Center for Disease Control's Social Vulnerability Index (SVI) is a means to identify communities that may be particularly vulnerable to hazards and disasters. Using 16 different variables pulled from US Census data, communities are given a score in four broad categories of social vulnerability (socioeconomic status, household characteristics, racial and ethnic minority status, and housing type and transportation) which are then combined into an overall vulnerability score at the census tract level.[6] See a visualization of these variables and groupings in Figure 9.

It should be noted that SVI does not tell the whole story of social vulnerability in the County. SVI is a tool to get a high-level understanding of where vulnerabilities might exist throughout the County. Census tracts cover multiple smaller communities that each have their own characteristics which can get lost in SVI scores. For example, the southern part of the unincorporated County is included with the Town in the same census tract. Smaller communities in the unincorporated part of the County have significantly different profiles than the Town, which is not captured in the census. This discrepancy can lead to overgeneralization or underestimating risks. That being said, it is included in the plan for awareness purposes.

Figure 10 through Figure 14 show the SVI scores from census tracts in the County for socioeconomic status, household characteristics, racial and ethnic minority status, housing type and transportation, and the overall SVI score.

[6] Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. "CDC/ATSDR Social Vulnerability Index 2022 Database California." https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html

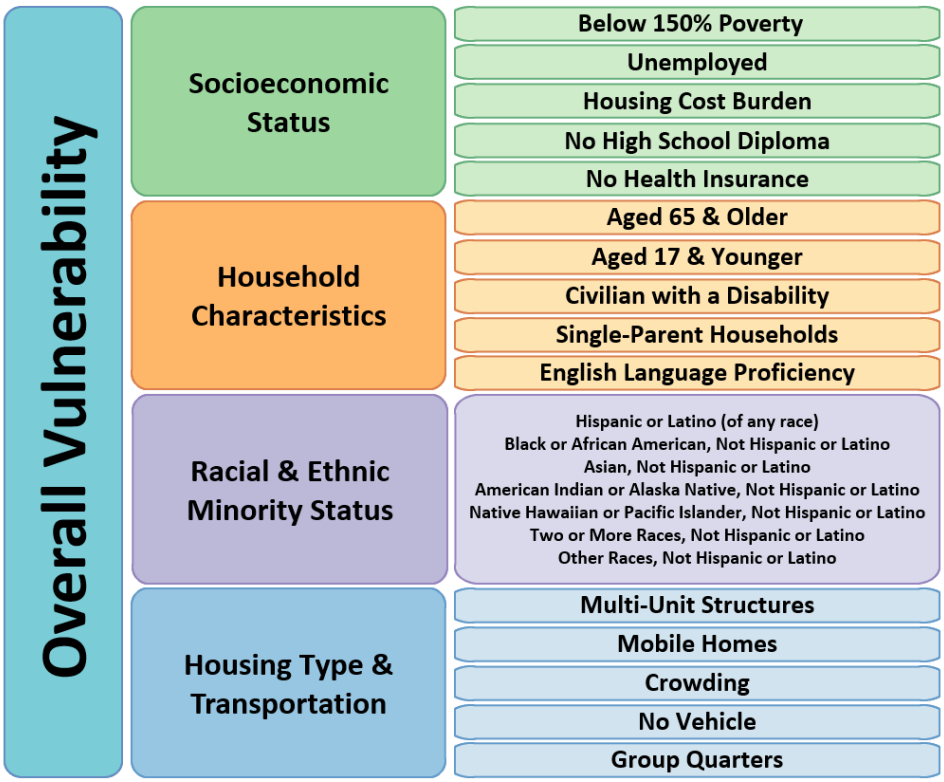


Figure 9: SVI Variables Grouped into Themes

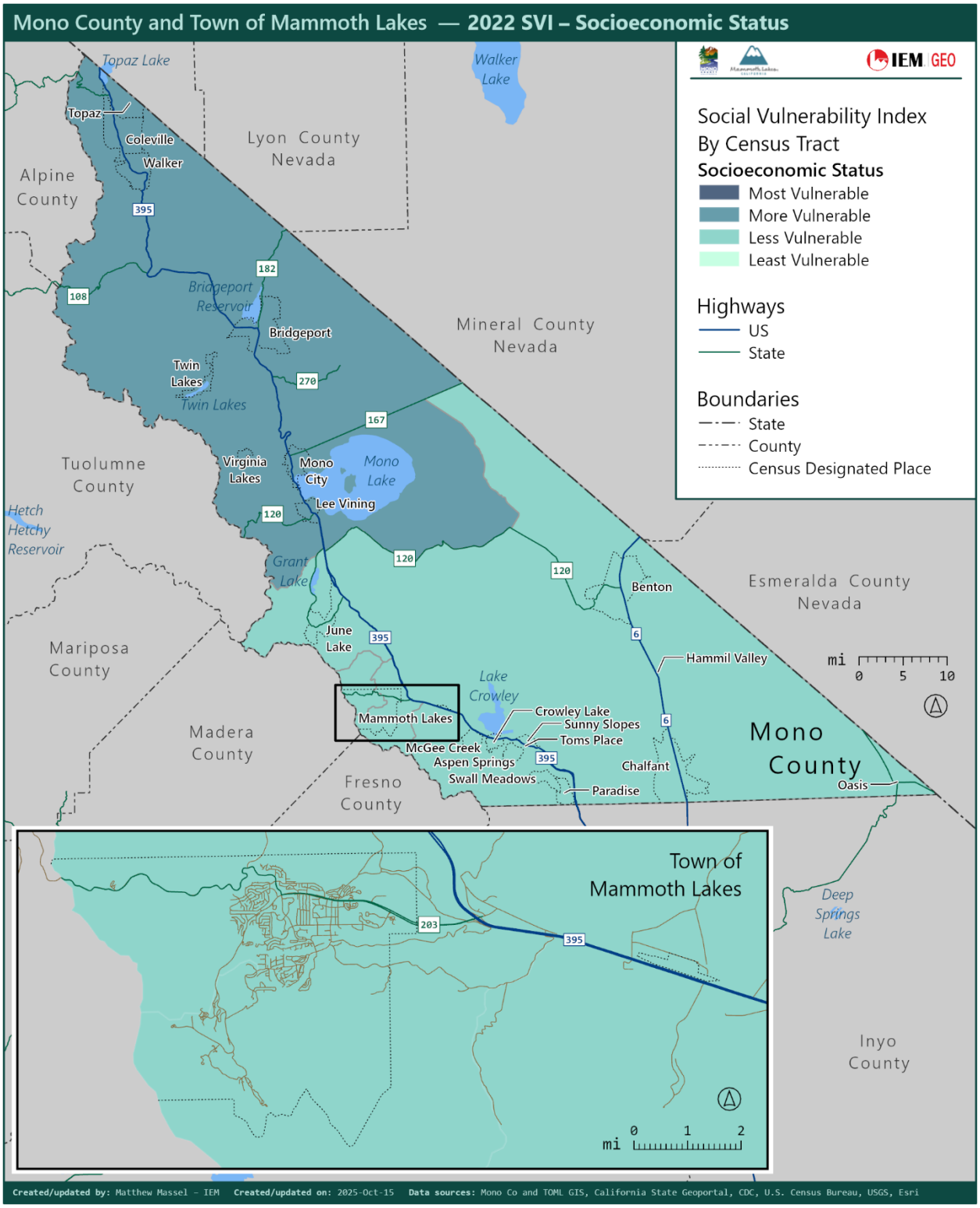


Figure 10: Social Vulnerability Index Socioeconomic Status for Mono County and the Town of Mammoth Lakes

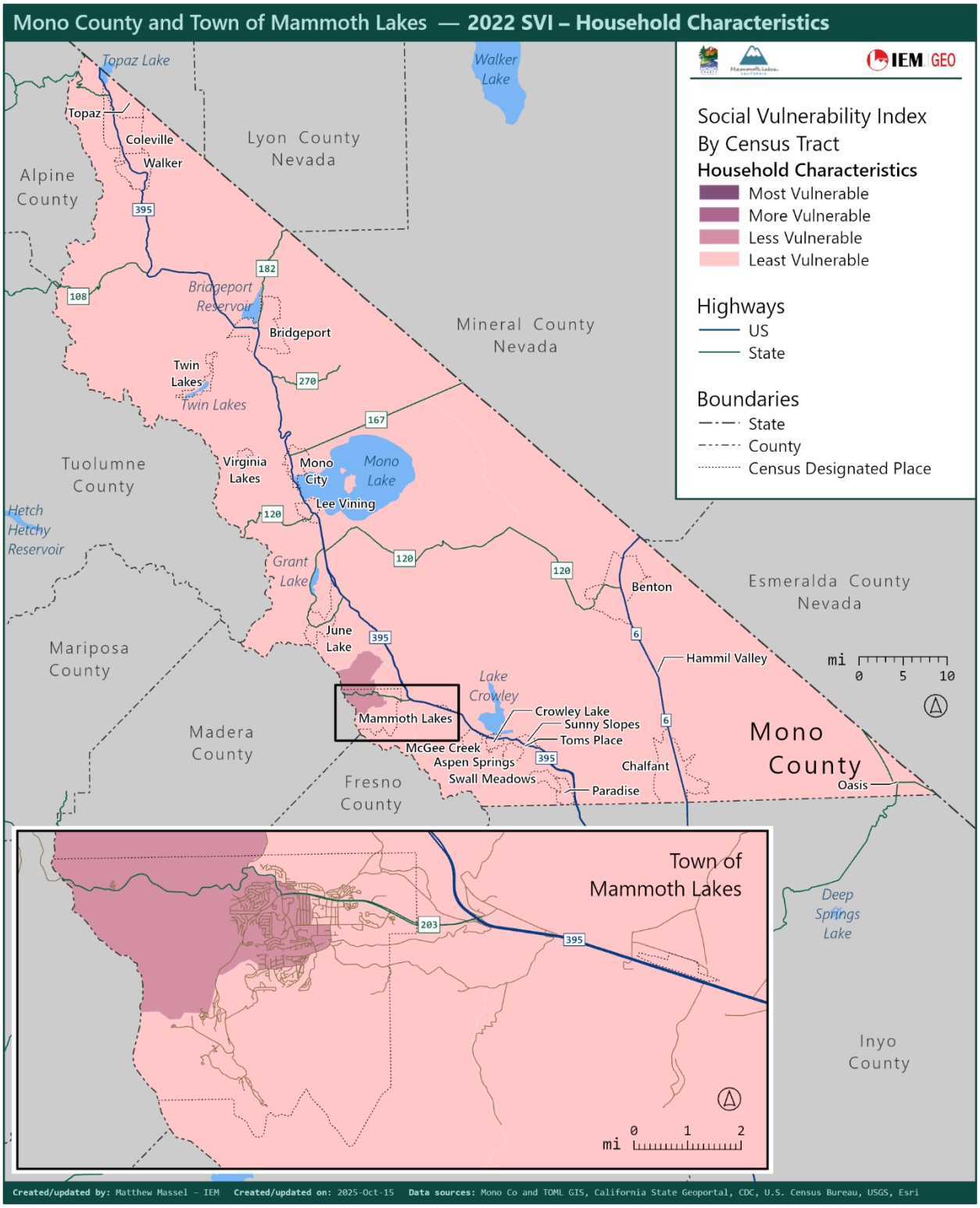


Figure 11: Social Vulnerability Index Household Characteristics for Mono County and the Town of Mammoth Lakes

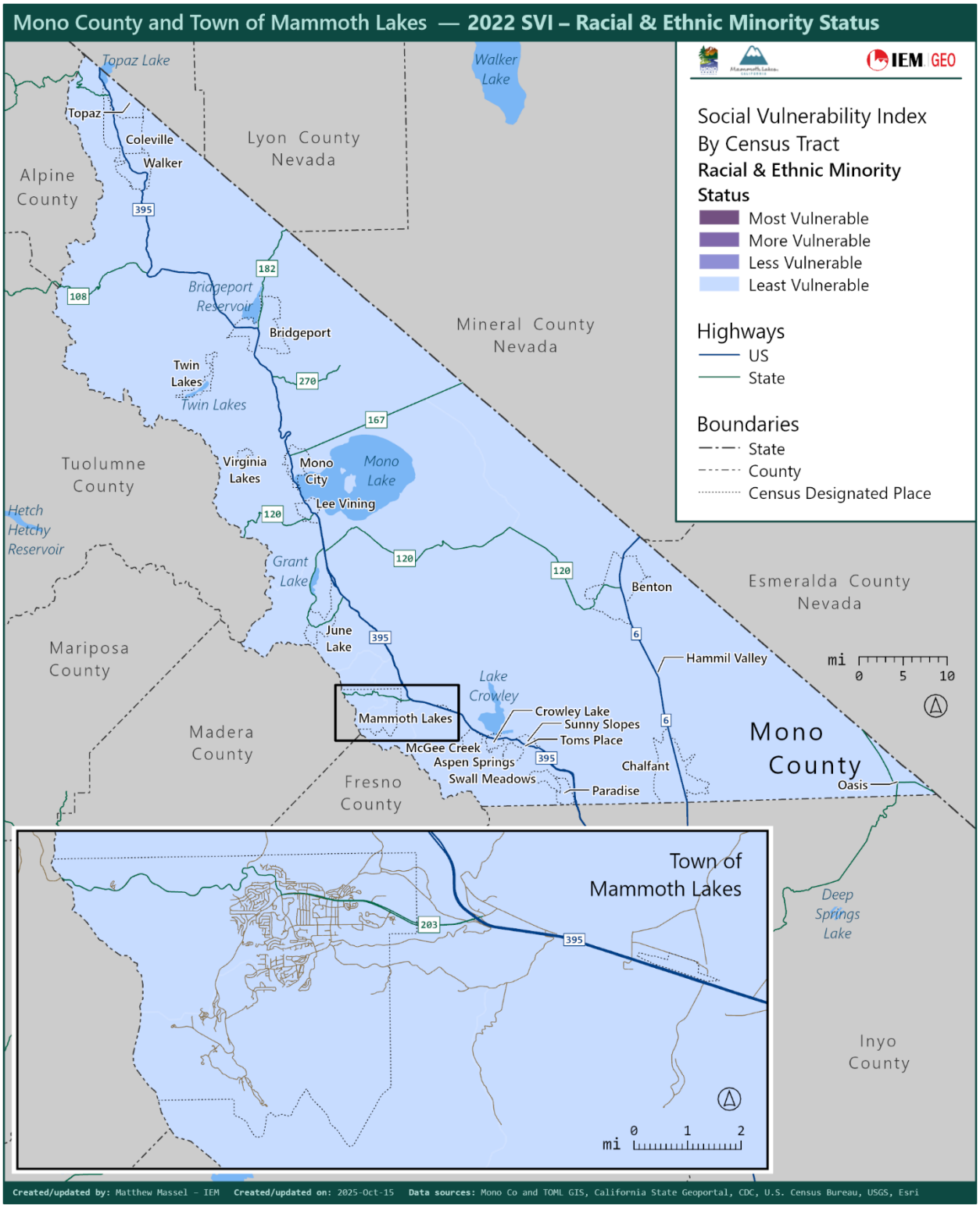


Figure 12: Social Vulnerability Index Racial and Ethnic Minority Status for Mono County and Mammoth Lakes

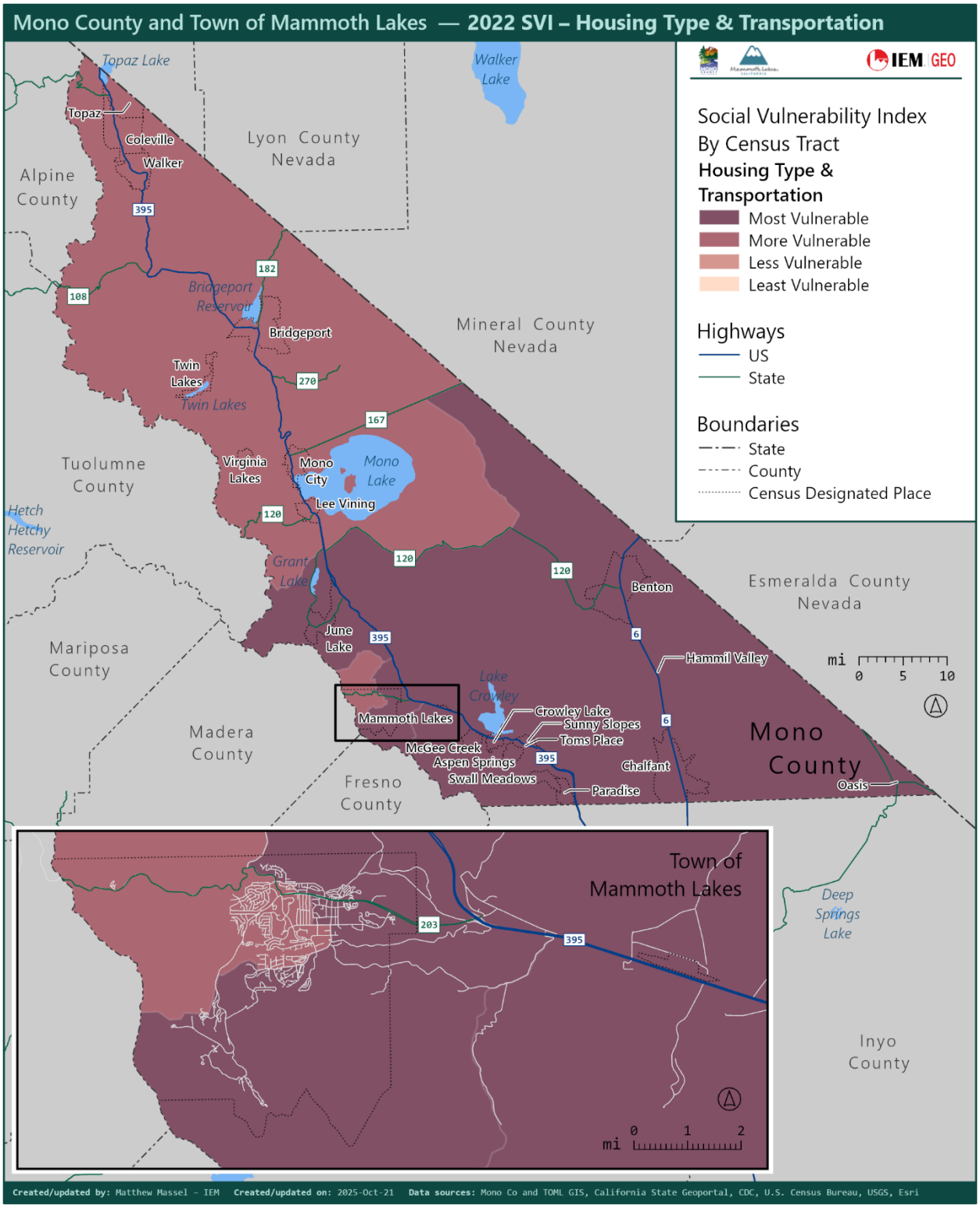


Figure 13: Social Vulnerability Index Housing Type and Transportation for Mono County and the Town of Mammoth

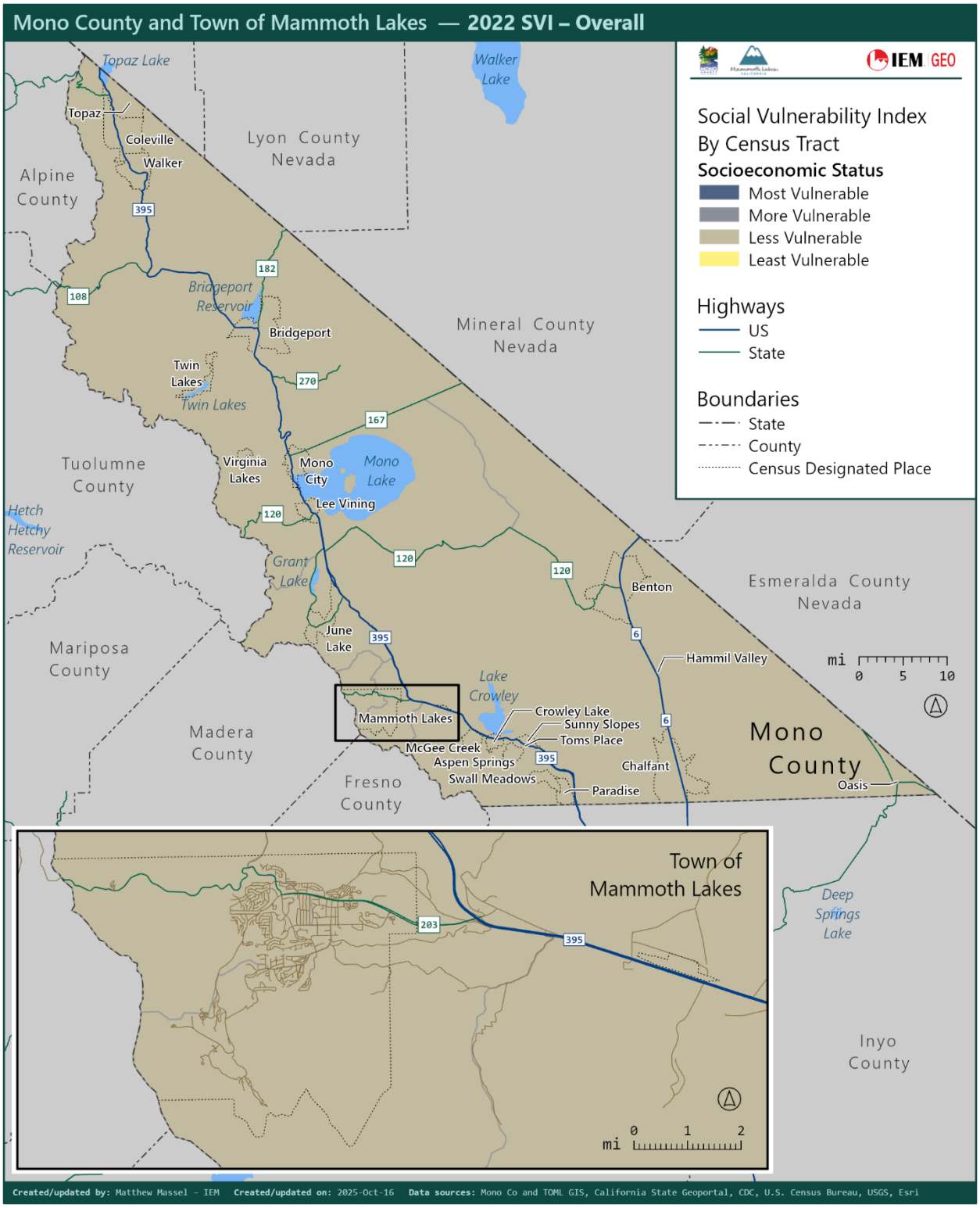


Figure 14: Social Vulnerability Index Overall Status for Mono County and the Town of Mammoth Lakes

Land Use and Land Classification

Land use and land classification in the County and the Town reflect a unique blend of federally managed open space, resource conservation areas, and locally controlled development zones. In the County, the majority of land is under federal or state ownership, including holdings by the USFS, BLM, and the LADWP, with private lands largely concentrated in unincorporated communities for agricultural, residential, and limited commercial use. In contrast, the Town features a more consolidated land pattern than the County with a 4-square-mile urban growth boundary within a 25-square-mile municipal boundary. Zoning in the Town focuses on residential, recreational, commercial, and institutional uses, particularly within the urban growth boundary. Together, these classifications inform land management, planning, and hazard mitigation efforts across the region. The following map displays landownership in the County and the Town.

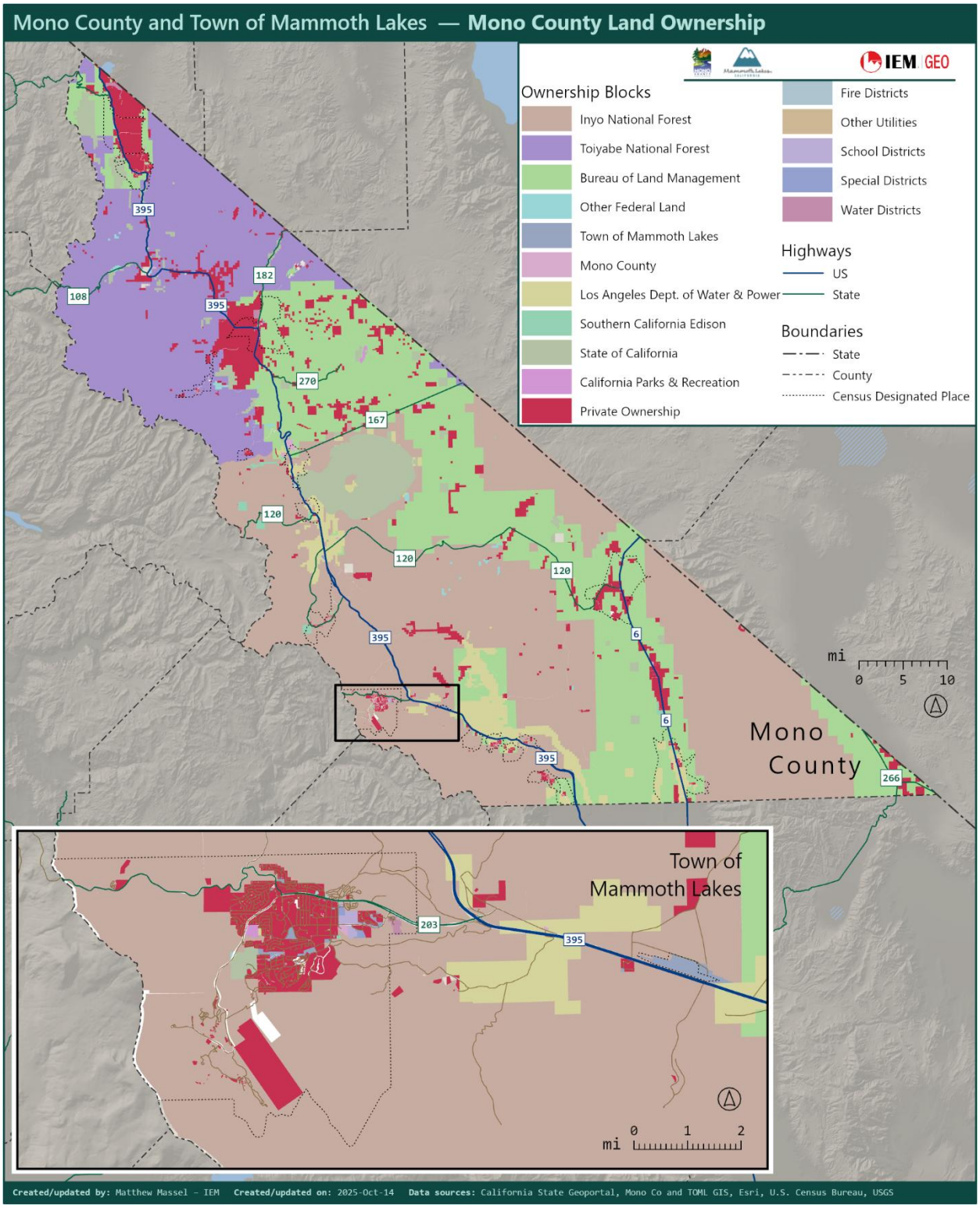


Figure 15: Land Ownership in Mono County and the Town of Mammoth Lakes

Mono County

The County's land use is primarily characterized by vast open spaces and natural resource areas managed by various federal entities. Significant portions are owned by the State of California and the City of Los Angeles, specifically LADWP, largely for open space and water conveyance purposes. Federal agencies, such as the Humboldt-Toiyabe National Forest, Inyo National Forest, and the BLM Bishop Field Office, hold substantial lands, with some regions also under tribal government jurisdiction. Utilities such as Southern California Edison (SCE) manage lands for purposes including dams, power transmission, and water storage. The remaining land is owned by private entities and individuals serving agricultural, residential, industrial, and commercial uses. While most privately held land is located in unincorporated regions of the County, in terms of percentage of land that is privately held, the Town has more than the County. Overall, the County has less private land than most other jurisdictions in California. The following map identifies the land use designations for the County.

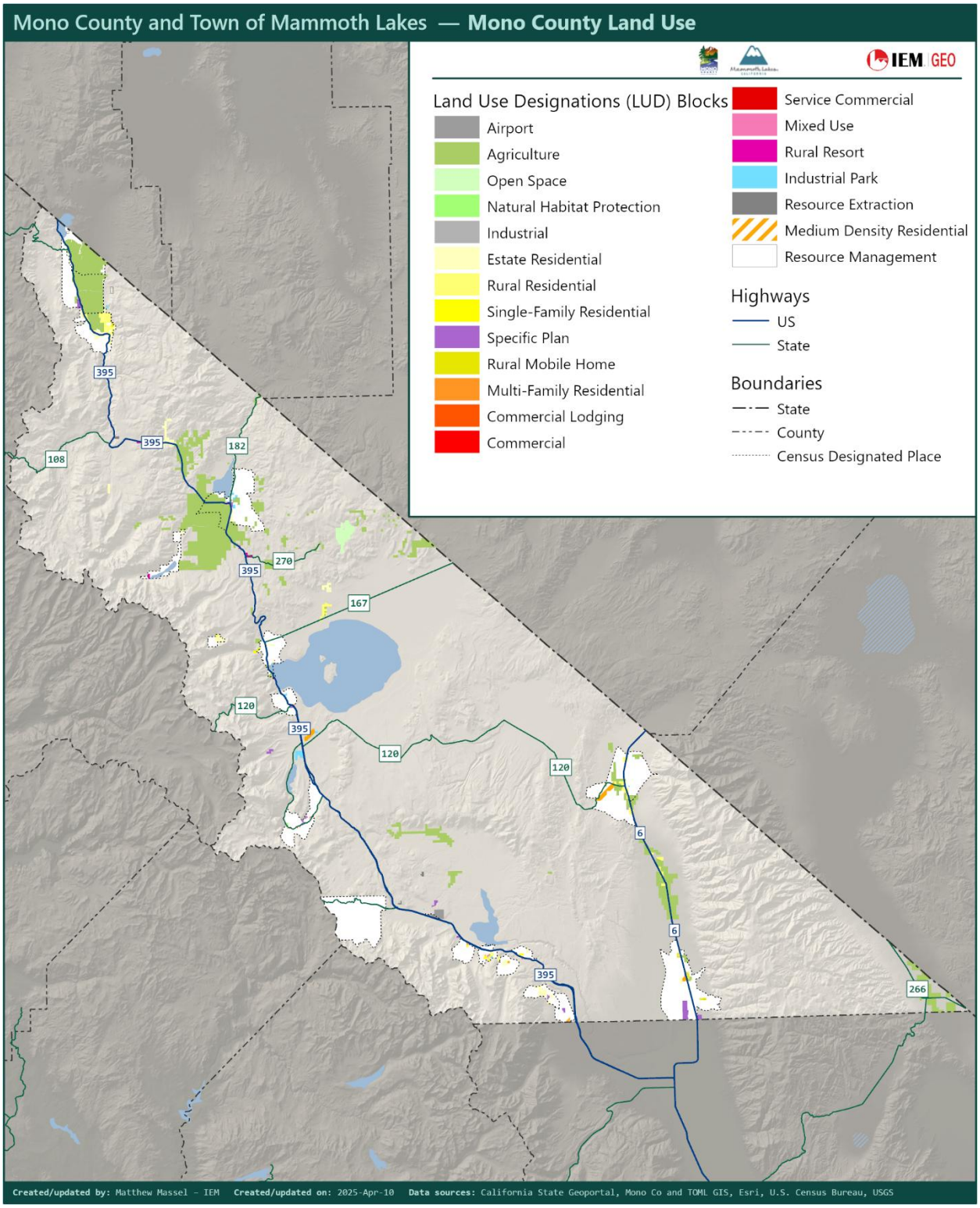


Figure 16: Land Use and Land Classification for Mono County, California

Mammoth Lakes

Land in the Town is allocated to residential areas, leisure and recreation facilities (especially those related to skiing), public and semi-public institutional uses, open spaces, industrial zones, Mammoth Yosemite Airport, and other commercial purposes. The Town's municipal boundary, which spans 25 square miles, encompasses large areas in the National Forest and BLM territories. In the urban growth boundary, most land is owned by private entities or individuals. The following map identifies the land use designations for the Town.

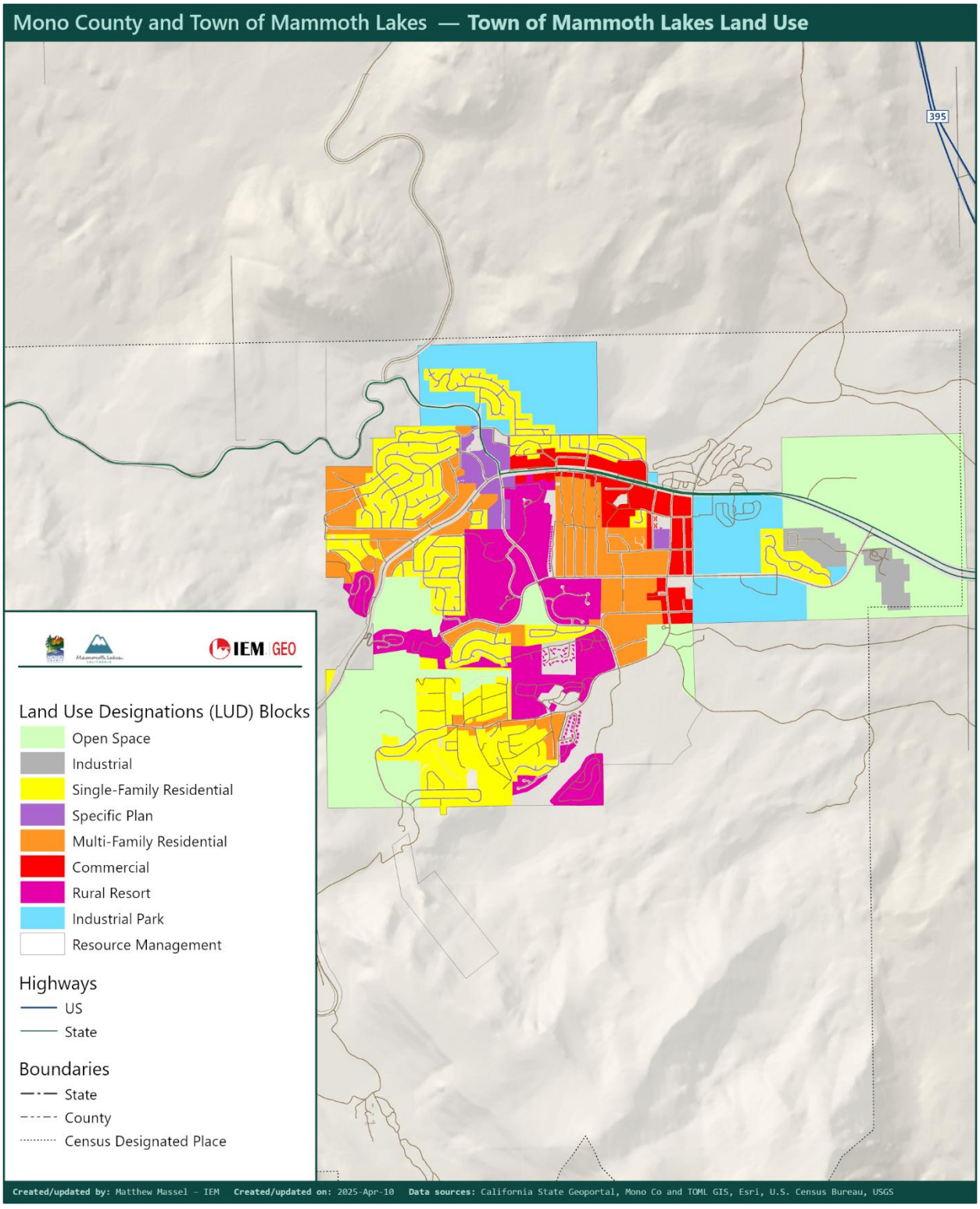


Figure 17: Land Use and Land Classification for the Town of Mammoth Lakes, California

Infrastructure Systems and Critical Facilities

The County's infrastructure systems and critical facilities form the backbone of public safety, economic development, and quality of life for residents and visitors alike. Despite the region's remote location and challenging terrain, significant improvement in communications, transportation, water, and energy systems have been accomplished. However, ongoing issues, such as limited broadband and cellular coverage in rural areas, aging water infrastructure, single-access evacuation routes, and vulnerabilities in energy distribution, underscore the need for continued investment and strategic planning. These infrastructure components are especially vital during emergencies, where reliable access, communication, and utilities directly impact the effectiveness of response and recovery efforts. The following map displays the critical infrastructure within the County.

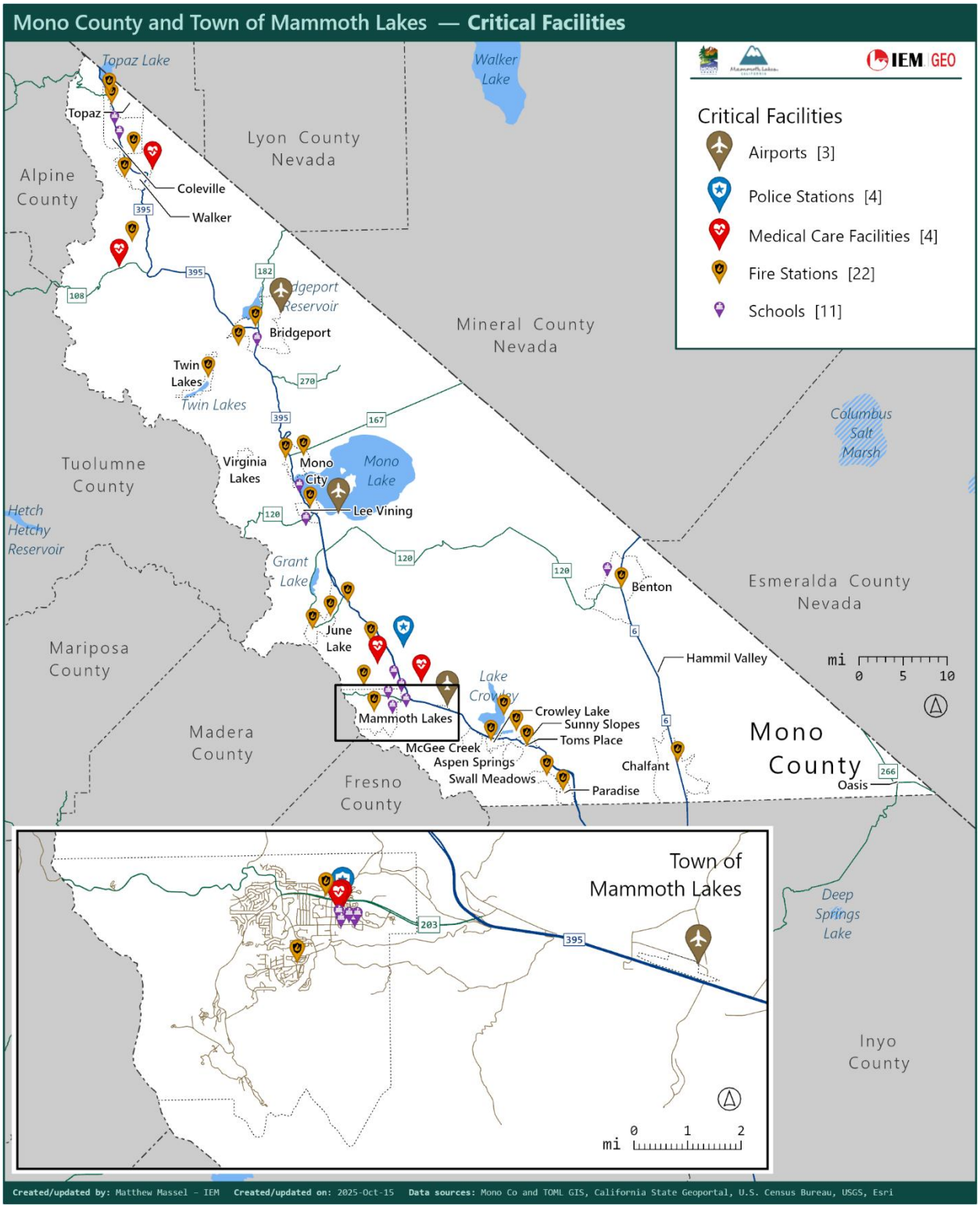


Figure 18: Critical Infrastructure for Mono County and the Town of Mammoth Lakes

Communications

Telecommunications infrastructure and services play vital roles in emergency response and are essential for the long-term growth and sustainability of the County. They provide the fundamental resources necessary for businesses to function and enhance residents' quality of life. Communications services encompass several key technologies and infrastructure elements, including basic telephone, wireless telephone, radio, and broadband internet. Due to the County's remote location, services across all these communications technologies pose significant challenges.

INTERNET AND BROADBAND

Until recently, the County faced challenges with poor broadband quality due to its remote location and dispersed population. This issue was significantly addressed in 2013–2014 with the completion of the Digital 395 fiber optic cable, which connects southern California to northern Nevada along the US 395 corridor. The County is now focusing on enhancing broadband speed, reliability, cost-effectiveness, and accessibility via the Inyo Mono Broadband Consortium. In addition, the County is actively participating in local, regional, statewide, and federal initiatives to improve the use of broadband and communications technologies, including cellular services.



Figure 19: Overview of Broadband Services for Mono County[7]

CELLULAR SERVICES

Cellular coverage in the County remains inconsistent. Although the Town and its surrounding mountain portals generally enjoy reliable service, coverage in some unincorporated areas depends on the carrier. AT&T and Verizon are the primary providers, and although their coverage areas overlap, they do not offer the same level of service in every location. Many parts of the County's primary highway corridors

[7] "Making Sense of Broadband," https://www.monocounty.ca.gov/Broadband.

experience spotty service, and it is often unreliable or nonexistent away from main roads and urban centers.

The limited number of cell towers, which are spread far apart, constrains the network capacity. Even in more developed areas with typically good service, network capacity can be quickly overwhelmed during emergencies. As more households abandon landlines, cellular service becomes increasingly crucial, particularly for the use of reverse 911 technology to communicate with residents during hazard events. In the past, the malfunction of the landline service has resulted in residents being unable to contact emergency services via 911 while those in remote areas may need to travel in order to access cellular service in the County.

RADIO

Interoperable communications are crucial to modern emergency operations. Responders depend heavily on the Mono County Public Safety Radio System (MCPSRS) for field communication and coordination with Dispatch during events. Although functional, the current system is outdated, facing several technical challenges and reliability concerns. Despite being built with redundant layers to maintain communications during failures, its complexity and incremental development make it difficult to use, manage, and troubleshoot, particularly during crises. Town, County, and state emergency response staff have noted persistent challenges with radio communication due to various technical issues, identifying this as a priority for improvement in the coming years.

In response to these challenges, the County was awarded a federal Community Oriented Policing Services (COPS) Technology and Equipment Program (TEP) grant of $3 million to fund radio replacement and radio sites in the County in December 2022. In November 2023, the Mono County Board of Supervisors approved a proposal to partner with the Town, Mammoth Lakes Fire Protection District, and the California Office of Emergency Services to become part of the California Radio Interoperable System (CRIS). During 2024 and 2025, efforts focused on radio subscriber upgrades and CRIS radio site development. While the legacy system remains in use today, the County anticipates migrating to the CRIS radio system in 2026.

Since interoperable communications are critical, the CRIS system has provisioned dedicated mutual aid talk groups for law, fire, medical, emergency management, and other mutual aid at the County, region, and statewide operational areas, and provides "secondary subscriber" connections to any agency that requires the use of CRIS for interoperable communications with a zero-cost subscriber fee.

Transportation

There are a limited number of major access roads in the County, and these are critical for community mobility and emergency responders. Major access roads include the following:

- **US 395** serves as the primary transportation artery linking the Eastern Sierra with Southern California and the Reno/Tahoe region in northern Nevada. It also doubles as Main Street for towns like Lee Vining, Bridgeport, Walker, Coleville, and Topaz. This route remains the key access point to and through the County, and most of the County's population lives in small communities of 300 people or

fewer along this corridor. By car, Los Angeles is about five to six hours south via US 395, Reno is roughly three hours north, and the San Francisco Bay Area is about five to six hours west, accessible through various connecting routes. The highway is maintained and kept open year-round.

- **US 6**, stretching from the Inyo County line north of Bishop to the Nevada state line, offers vital regional and interregional transportation links. This highway caters to local traffic and interregional trucking routes connecting Southern California, Reno, and the western mountain states, including Washington, Idaho, and Montana. In addition, US 6 serves as Main Street for the Tri-Valley communities. The road remains open throughout the year and faces minimal exposure to hazards.
- **SR 89** provides access from US 395 to Monitor Pass and is closed in the winter.
- **SR 108** provides access from US 395 west to Sonora Pass and is closed in the winter.
- **SR 120** provides access from US 395 west to Tioga Pass and east to Benton. The western segment is closed in the winter, and the eastern segment also may be closed, depending on snow conditions.
- **SR 158**, the June Lake Loop, provides access from US 395 to the community of June Lake and is Main Street through part of the June Lake Loop. A portion of SR 158 is closed in the winter.
- **SR 167** provides access from US 395 to the Nevada state line, north of Mono Lake, and access to the community of Mono City.
- **SR 168** provides access from US 395 at Big Pine in Inyo County north to Oasis in the southeast corner of the County.
- **SR 182** provides access from its junction with US 395 in Bridgeport northeast to the Nevada state line and main street access to a portion of the community of Bridgeport.
- **SR 203** provides access west from US 395 to the Town, becoming Main Street through Town before turning up to the MMSA and continuing on to the USFS Road to Reds Meadow and Devils Postpile National Monument. The portion of the road beyond the MMSA is closed in the winter.
- **SR 266** provides access through Oasis in the southeast corner of the County.
- **SR 270** provides access east from US 395 to Bodie State Historic Park and is closed for a portion of the winter.

The County is home to three small public airports. The County operates both Bryant Field and Lee Vining Airport, while the Town manages Mammoth Yosemite Airport. In addition, several heliports are available, including the one at the Marine Corps Mountain Warfare Training Center. Figure 20 and Figure 21 display a mixture of Federal-, State-, County-, and Town-maintained roads. These maps do not capture all Federal roads in the County, though, as there are many dirt roads utilized by the USFS and BLM that are unmapped in the dataset used.

The Eastern Sierra Transit Authority (ESTA) was established in November 2006 as a Joint Powers Authority between the Counties of Inyo and Mono, the City of Bishop, and the Town. ESTA offers a variety of bus services, including deviated fixed routes, local in-town dial-a-ride services, multiple town-to-town services throughout the US 395 and US 6 corridors, and interregional service (CREST) extending from Reno,

Nevada, to Lancaster, California, with connections to the Los Angeles area. ESTA services can be used during hazard events to transport individuals without access to vehicles.

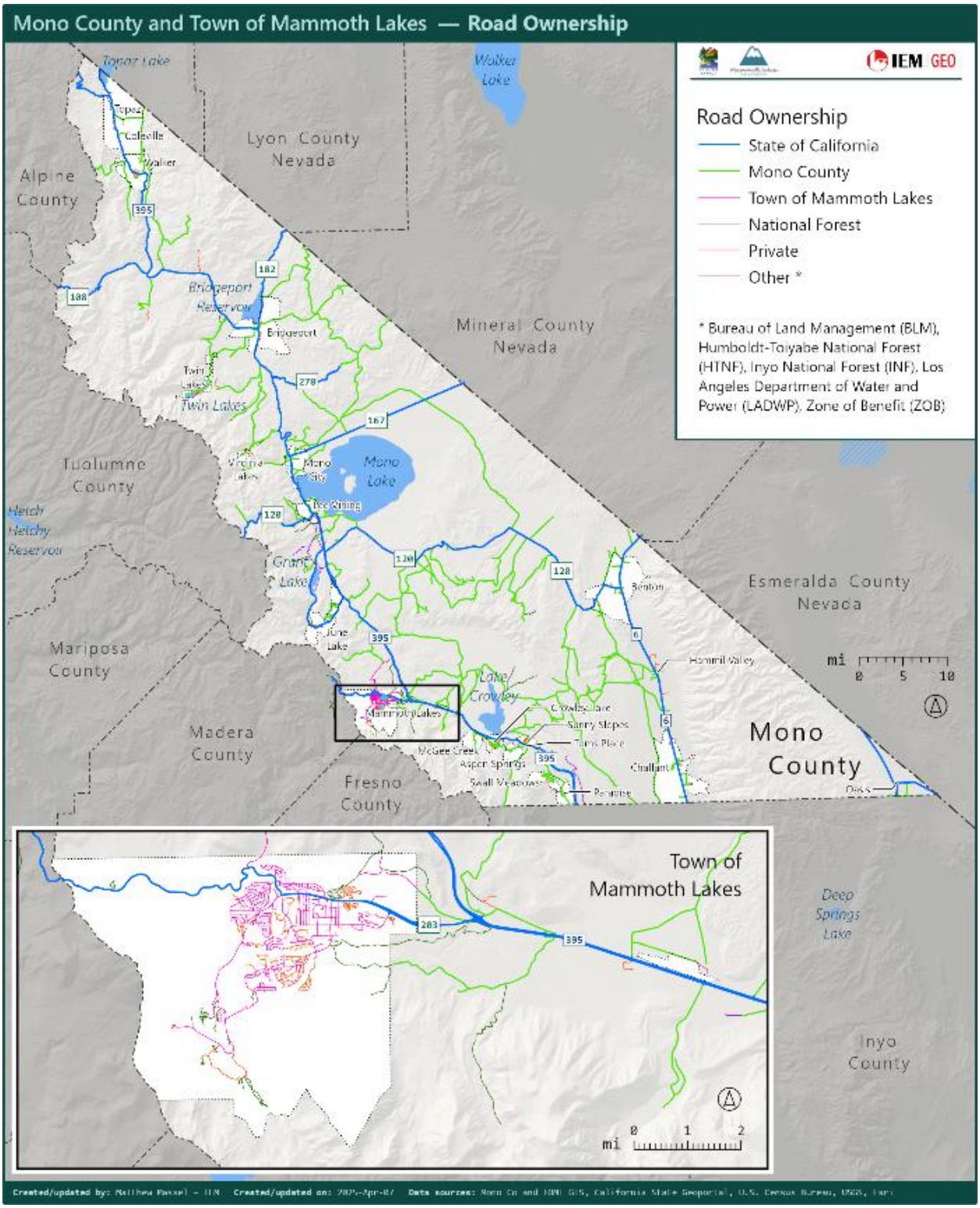


Figure 20: Road Network Ownership for Mono County and the Town of Mammoth Lakes

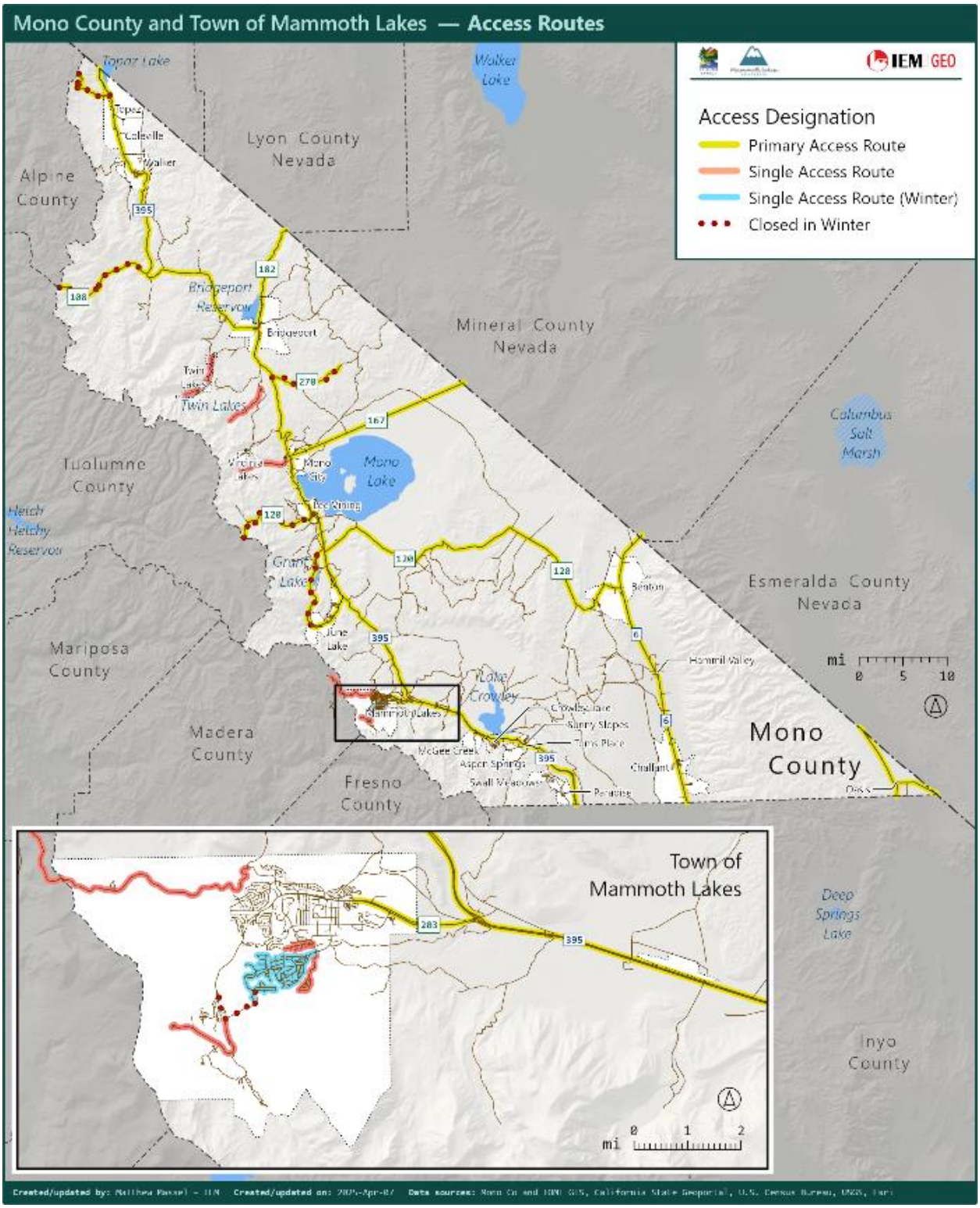


Figure 21: Road Access Designation for Mono County and the Town of Mammoth Lakes

Evacuation and Emergency Access Routes

In most of the County, US 395 serves as the primary route for evacuation and emergency access. Several communities, including Paradise, Swall Meadows, Lundy Lake, Virginia Lakes, Twin Lakes, and parts of June Lake, Crowley Lake, McGee Creek, and Chalfant Valley, have only one access route. This limited accessibility could hamper transportation in and out during emergency evacuations and response efforts. In the Town, SR 203 is the main access route, connecting to US 395. In addition, the Mammoth Scenic Loop provides an alternative route to US 395, although it can be closed during heavy winter storms. Certain neighborhoods in the southern part of the Town lack secondary access to SR 203 and US 395.

The communities of Paradise, Swall Meadows, Lundy Lake, Virginia Lakes, and Twin Lakes are each served by a single access route. Certain neighborhoods and subdivisions in the Town also have limited access. Mono City and parts of Tom's Place have secondary access routes that are narrow, poorly maintained dirt roads. Addressing these accessibility issues is challenging because most of the land and roadways are owned by federal agencies, which often lack sufficient personnel. Effective coordination between the County, Town, and agencies is required for land identification and road maintenance.

The County has pre-defined evacuation zones to streamline and manage the evacuation process. Residents can use the Zonehaven AWARE platform through the READY Mono homepage to find their specific evacuation zone and access emergency information for their area. This system helps emergency personnel manage traffic flow and prevent congestion by evacuating the most at-risk zones first.[8]

Water

Water and sewer services in the County are managed by various special districts and mutual water companies in more densely populated areas, or by well and septic systems in more rural areas. Key water distribution districts include the Birchim Creek Community Services District, Hilton Creek Community Services Districts, Wheeler Crest Community Services District, Mountain Meadows Mutual Water Company, Lundy Mutual Water Company, June Lake Public Utility District, Lee Vining Public Utility District, and Bridgeport Public Utility District, which mainly rely on groundwater wells or a combination of surface and groundwater sources. According to the Mono County General Plan, several of these districts face challenges with maintaining aging infrastructure, which can threaten water quality and supply. This issue was highlighted by the Mono County Board of Supervisors in their 2018 Housing Program matrix as an unstudied factor in local housing production. To address this, the County applied for California Development Block Grant (CDBG) program funds and received a $250,000 award in February 2021 for the "Special Districts Needs Assessment" project. Despite initial difficulties in attracting consultant responses, Resource Concepts, Inc. (RCI) was contracted in January 2022, with the project spanning from May 10, 2022, to June 30, 2024. The project consisted of three phases. Phase 1 involved extensive data gathering from Special Districts to update the Municipal Service Review and Sphere of Influence Reports. Phase 2 assessed the capacity of water and sewer districts to support housing development, focusing on key housing opportunity sites in Bridgeport, Crowley Lake, June Lake, and Lee Vining. Phase 3 developed

[8] READY Mono "Zonehaven AWARE Platform," https://ready.mono.ca.gov/pages/evacuations.

Capacity Improvement Plans with recommendations for potential projects to increase housing density in these communities. The Mono County Board of Supervisors accepted the final grant deliverables and closed out the grant during a public hearing in June 2024.[9]

Areas not covered by these districts depend on private groundwater wells and small septic systems. The LADWP holds significant rights to surface water in the Mono Basin and operates an extensive aqueduct system, diverting water from Mono Lake to Los Angeles. This water is heavily regulated by the state, particularly under the 1994 State Water Resources Control Board (SWRCB) Decision 1631. Recent droughts have caused significant drops in Mono Lake's water levels, posing threats to the County's scenic value and the basin's ecosystem.

The Mammoth Community Water District (MCWD) provides water to the Town, drawing from Mammoth Creek and various wells around the Town. The MCWD's service area spans 5.7 square miles within the Town's incorporated boundary, mostly within a 4-square-mile urban growth boundary. This area includes approximately 2,500 acres of private land, while the surrounding lands are federally owned and managed by the Inyo National Forest.

MCWD sources its water from surface water, groundwater, recycled water, and water conservation efforts. Surface water is stored and diverted at Lake Mary, and groundwater is supplied by nine production wells in the Mammoth Groundwater Basin. Since 2010, recycled water meeting Title 22 standards has been used for unrestricted irrigation. The MCWD operates three treatment plants and one wastewater/recycled water treatment plant.

Energy

Electricity infrastructure is accessible in all community areas of the County, playing a critical role in public health and safety, especially in post-disaster operations. However, this infrastructure can pose hazards, such as the risk of downed power lines sparking wildfires. Due to their remote locations, the County and the Town are vulnerable to large-scale blackouts if transmission lines or substations are disrupted by natural hazards such as wildfires, high winds, winter storms, or avalanches. The region experiences significant issues with grid reliability and extended power outages, including those associated with Public Safety Power Shutoff (PSPS) events.

Three agencies provide electricity in the County. SCE, a privately owned utility, serves most of the County, including the Town and all unincorporated areas except for Coleville and Walker. These two communities, along with others in the Lake Tahoe region, receive electricity and other utility services from Liberty Utilities. The southeastern part of the County is served by Valley Electric Transmission, a member-owned utility primarily operating in Nevada. These providers draw power from various sources, including renewable energy, fossil fuels, and hydroelectric facilities. The County hosts nine power plants, including five small hydroelectric facilities producing just over 21 megawatts and three geothermal power plants

[9] Mono County "Special Districts Needs Assessment," https://www.monocounty.ca.gov/planning/page/special-districts-needs-assessment.

near the Town owned by Mammoth Pacific LP.[10] Power is distributed through a network of power lines and substations, with three major transmission lines owned by SCE running through the County and 13 substations converting high-voltage electricity to usable lower-voltage power. Due to their remote locations, the County and the Town are vulnerable to large-scale blackouts if these transmission lines or substations are disrupted—often by natural hazards like wildfires, wind, or avalanches.

The Mammoth Geothermal Complex is a notable geothermal power generation facility located at Casa Diablo Hot Springs, approximately 3 miles east of the Town. This complex, owned by Ormat Technologies and operated by its subsidiary Mammoth Pacific Geothermal, consists of four binary cycle geothermal power stations. The complex has a combined nameplate capacity of 60 MW, with three 10 MW units commissioned between 1984 and 1990, and a newer 30 MW unit, Casa Diablo IV, which became operational in 2022. The geothermal energy is harnessed from the Long Valley Caldera's hydrothermal system, where geothermal heat from the magma chamber below the caldera floor is harnessed to produce energy. The Mammoth Geothermal Complex is recognized for its sustainable and environmentally friendly approach to energy production, providing base-load electricity with minimal emissions. It plays a crucial role in supplying renewable energy to the region, including Central Coast Community Energy and Silicon Valley Clean Energy.[11]

There is no natural gas service in the County, so many households and businesses rely on propane for heating, cooking, and backup power. Although propane is versatile and easily transportable, it can pose risks, such as leaks and intense fires during transport, construction, heavy snow, or fires. In addition, many residents use wood stoves and pellet stoves for heating, which also can present fire hazards.

Development Trends and Future Development

Mono County

Approximately 94% of the County's 3,132 square miles are under public ownership and are primarily used for resource conservation and open space. Most developed properties in the unincorporated regions are concentrated in 16 community areas. Between April 2020 and January 2024, the County experienced fluctuations in its population. The Town saw its population vary from 7,220 in April 2020 to a peak of 7,305 in January 2023 before declining slightly to 7,110 in January 2024. The rest of the County showed a gradual decrease in population, from 5,975 in April 2020 to 5,751 in January 2024. The total population of

[10] GridInfo, "Summary of Electricity Activity in Mono County, CA," https://www.gridinfo.com/california/mono-county.
[11] Ormat "Geothermal Power," https://www.ormat.com/en/renewables/geothermal/view/?ContentID=9116. CALCCA "CAISO's First Geothermal Plant in 30 Years Comes Online," https://cal-cca.org/caisos-first-geothermal-plant-in-30-years-comes-online/.

the County declined from 13,195 in April 2020 to 12,861 in January 2024, with the incorporated Town consistently housing roughly half of the County's population.[12]

The number of completed housing units in the County rose significantly from 2020 to 2024. From 2020 to 2024, the number of completed housing units was 0, 0, 1, 15, and 23, respectively.[13] A large percentage of these completed units in 2023 and 2024 were low-income units. In both 2023 and 2024, 11 low-income units were completed in the County. In terms of permitting future housing, the County permitted an average of 13 units per year from 2020 to 2023. In 2024, there was a boom in housing permits, with 28 permitted units. Every year since 2020, the dominant housing type permitted has been single-family detached units, but in 2023 and 2024, there were significant numbers of mobile home units permitted as well. The year 2024 also saw the most accessory dwelling unit permitted since the California Housing and Community Development (HCD) data began in 2014. According to HCD, the County has either met or is close to meeting its Regional Housing Needs Allocation across all housing income types. This shows that the County is actively building enough housing to meet the needs of residents from low income to high income.

In recent years, the County has undertaken several notable projects to enhance community safety, infrastructure, and sustainable development. One significant initiative, the Bryant Field Airport Stock Drive Realignment, included an Initial Study and Mitigated Negative Declaration to realign Stock Drive near Bryant Field Airport, enhancing safety and accessibility. The County also conducted a Biomass Utilization Study to explore sustainable methods for using biomass resources, aimed at promoting renewable energy and reducing wildfire risks. There have been several walkability projects initiated throughout the County, including the Bridgeport Main Street Revitalization project, Lee Vining Main Street Rehabilitation project, and the June Lake Loop Active Transportation Plan. The Bridgeport Main Street Revitalization project included a collaborative design process with the residents of Bridgeport, the restriping the main street to update parking and add bike lanes, and the creation of School Street Plaza. The Lee Vining Main Street Rehabilitation project is currently in progress, with a focus on revitalizing the main street, including infrastructure improvements, pedestrian safety enhancements, and aesthetic upgrades to support local businesses and tourism. The June Lake Loop Active Transportation Plan was completed in 2023 and sets a framework for developing multi-modal transportation improvements along SR 158. The planning process included identifying barriers, engaging the public, analyzing existing infrastructure, and developing a list of prioritized projects. The projects are designed to encourage residents and visitors to walk and bicycle along the June Lake Loop.

[12] State of California Department of Finance, "E-4 Population Estimates," https://dof.ca.gov/Forecasting/Demographics/ Estimates/e-4-population-estimates-for-cities-counties-and-the-state-2021-2024-with-2020-census-benchmark/.
[13] California Department of Housing and Community Development, "Annual Progress Reports," https://www.hcd.ca.gov/housing-open-data-tools/apr-dashboard.

Mammoth Lakes

The Mammoth Lakes General Plan maintains an urban growth boundary that reflects a commitment to preserving the Town's compact urban form, protecting natural and outdoor recreation resources, and preventing urban sprawl. This boundary limits the area available for future development, ensuring that new projects align with these principles. Given that the land outside the urban growth boundary is predominantly federal property, most new development is expected to occur in the designated area.

The Town experiences significant seasonal fluctuations in its nonresident population due to its tourism-dependent economy. During the winter tourist season, the community and ski area require a large number of seasonal employees, as the tourist numbers can involve a significant increase in the population. The Town's General Plan considers the development needs of both nonresident and visitor populations during peak tourist seasons and those of permanent residents.

The Town anticipates that the combined number of residents, visitors, and workers on a winter weekend will reach over 53,000, with a policy target of 53,091 people. The permanent population is projected to grow between 1.4% and 2.4% annually.[14] To accommodate this growth, a mix of new resort-style housing and new residential units is planned in the urban growth boundary. Most new commercial development will occur in designated areas, such as the Resort, North Village, and Commercial 1 and 2 zones, while industrial development of approximately 500,000 square feet will be confined to the industrial designation. An upcoming project includes the Mammoth Main Base Redevelopment (Evolving Main), which involves a land exchange and redevelopment of approximately 35 acres at the base of the MMSA. This project includes plans for 250 hotel rooms, 209 resort residential units, and 95,000 square feet of commercial space, which will help support increased visitation to the area.[15]

[14] Town of Mammoth Lakes "2016 General Plan Update" https://www.townofmammothlakes.ca.gov/162/General-Plan.
[15] Town of Mammoth Lakes "Mammoth Main Base Redevelopment Project Evolving Main Information Sheet" https://www.townofmammothlakes.ca.gov/DocumentCenter/View/13840/LWC_MammothMainBase_InfoSheet_02-21-24



Section 3:
Risk Assessment



Risk Assessment

The risk assessment is the process of measuring the potential impact to life, property, and economic impacts resulting from the hazards that could impact the planning area. The intent of the risk assessment is to identify, as much as practicable given existing/available data, the qualitative and quantitative vulnerabilities of a community. The results of the risk assessment allow for a better understanding of the impacts of natural hazards to the community. They also provide a foundation on which to develop and prioritize mitigation actions to reduce damage from natural disasters through increased preparedness and response times and better allocate resources to areas of greatest vulnerability.

This chapter provides an overview of the types of hazard events in the County and the Town, including past hazard events and how these hazards may change in the future. It also discusses the process used by plan participants to identify and prioritize hazards.

Hazard Identification

The National Risk Index (NRI) is a dataset and online tool designed to illustrate the US communities most at risk for 18 natural hazards. It was designed and built by FEMA in close collaboration with various stakeholders and partners in academia, local, state, and federal government, and private industry. Cal OES recommends utilizing the NRI to identify hazards of concern.

There are 21 hazards that local governments may wish to consider when conducting hazard mitigation planning efforts. Some of these events will not occur in the County or the Town because the necessary attributes for these events to occur are not present in the community (sea level rise, for example). The Planning Team reviewed the comprehensive list of hazards during its November 6, 2024, meeting, including the hazards in FEMA's guidance and two additional hazards (energy and pandemic) suggested by Planning Team members. This discussion resulted in identification of the hazards that pose a potential risk to the County and the Town. This chapter summarizes the Planning Team's discussion of each hazard and shows which hazards were identified for inclusion in this MJHMP.

Table 16: Mono County and Town of Mammoth Lakes Hazard Identification

List of Hazards	In Hazard Area?		Discussion Summary
	Mono County	Town of Mammoth Lakes	
Agricultural Pests	No	No	The 2023 Crop and Livestock Report does not mention any specific agricultural pests of note.[16]
Avalanche	Yes	Yes	Avalanches occur in the mountainous areas of the County, affecting portions of Mammoth Lakes, several unincorporated communities, and several important access roads.
Coastal Erosion/Bluff Failure	No	No	Not applicable. The County and Mammoth Lakes are not coastal communities.
Coastal Storm	No	No	Not applicable. The County and Mammoth Lakes are not coastal communities.
Dam Failure	Yes	No	The County is susceptible to inundation caused by failure of dams owned by Southern California Edison (SCE), the Los Angeles Department of Water and Power (LADWP), and other private entities, and it has experienced warnings of potential dam failure in the recent past.
Disease/Pest Management	Yes	Yes	Invasive pests have the potential to damage trees; mosquitoes have the potential to spread disease. Bridgeport Reservoir and Crowley Lake have been impacted by harmful algal blooms, while tree borers and bark beetles relate to tree mortality and increased wildfire risk.
Drought	Yes	Yes	The County and Mammoth Lakes both depend on groundwater and surface water, which are susceptible to drought. Further, drought also decreases forest health, which makes trees more prone to bark beetle pest and disease infestations, increasing wildfire risk.
Earthquake and Seismic Hazards	Yes	Yes	The County and Mammoth Lakes are susceptible to earthquake ground shaking, and certain areas may also experience liquefaction, fault rupture, and tectonic subsidence.
Expansive Soil	No	No	Not applicable. Expansive soil issues are not prevalent in the County.

[16] Mono County.org, 2024, "2023 Inyo and Mono Counties Crop and Livestock Report," https://www.inyocounty.us/sites/default/files/2024-11/Crop%20Report%202023web_0.pdf.

List of Hazards	In Hazard Area?		Discussion Summary
	Mono County	Town of Mammoth Lakes	
Energy Shortage and Energy Resiliency	Yes	Yes	Recent events and the implementation of SCE Public Safety Power Shutoff (PSPS) Program increase incidents in the County and Mammoth Lakes.
Epidemic/Pandemic	Yes	Yes	Increased public health concerns following the COVID-19 pandemic and other public health infectious disease epidemics have heightened the vulnerability of the County and Mammoth Lakes populations.
Extreme Heat	Yes	No	Extreme heat that could endanger life is an issue in the Tri-Valley portion of the County.
Flood	Yes	Yes	The Town and the County have 100- and 500-year flood zones, as mapped by FEMA.
Hailstorm	No	No	Although hailstorms have occurred within the area, they are rare. The Planning Team did not identify any local hailstorms of note.
Hazardous Materials	Yes	Yes	The County and the Town contain properties and transportation corridors with the potential for hazardous materials spills. This hazard will be discussed in association with propane explosions, a related human-caused hazard.
Human-Caused Hazards	No	No	With the exception of human-caused hazards related to hazardous materials, this plan focuses on natural hazards.
Hurricane	No	No	Not applicable. The County and Mammoth Lakes are not coastal communities.
Landslide (Geological Hazards)	Yes	No	The conditions for landslides are present near the hills and mountains of the unincorporated County, but not near Mammoth Lakes.
Land Subsidence	No	No	Not applicable. There are no historical or expected occurrences of non-tectonic subsidence in the County. Tectonic subsidence is addressed in the Earthquake section.
Sea Level Rise	No	No	Not applicable. The County and Mammoth Lakes are not coastal communities.
Severe Winter Weather and Snow	Yes	Yes	Severe winter storms and heavy snow frequently block roads, lead to dangerously low temperatures, and can affect utility services.

List of Hazards	In Hazard Area?		Discussion Summary
	Mono County	Town of Mammoth Lakes	
			These are frequent impacts for both the County and Mammoth Lakes.
Tornado	No	No	There are no recorded tornado hazards in the County or Mammoth Lakes.
Tsunami	No	No	Not applicable. The County and Mammoth Lakes are not coastal communities.
Volcano	Yes	Yes	The County and the Town are located in volcano hazard areas.
Wildfire	Yes	Yes	Wildfire hazards are a significant issue in this part of California.
Wildlife Collision	Yes	Yes	Wildlife vehicle collisions are a common road hazard in the County, especially along SR 203 and US 395.
Wind	Yes	Yes	The County and Town are subject to high wind events, especially on exposed and high-altitude roadways, making travel hazardous and downing power lines, which causes electricity outages and potential fire hazards.
Windstorm	Yes	Yes	The County and Town are exposed to high wind events. This hazard will be combined with wind.
Climate Change	Yes	Yes	Climate change is not profiled as a distinct hazard, but rather a phenomenon that could exacerbate other hazards. Climate change will be considered as a factor for relevant identified hazards.

Some of the hazards addressed in this plan combine multiple FEMA-identified hazards for organizational purposes. The Planning Team identified and prioritized 16 hazards that may impact the County and Mammoth Lakes.

Hazard Prioritization

The Planning Team used the Calculated Priority Risk Index (CPRI), a comprehensive assessment tool used to evaluate and prioritize risks within a given context. It considers various factors such as probability, impact, and urgency to determine the level of risk associated with particular events or situations. By considering these variables, the CPRI helps organizations and individuals make informed decisions about risk management and mitigation strategies. It provides a systematic approach to identifying and addressing potential issues, allowing for more efficient allocation of resources and proactive risk

prevention. With the CPRI, stakeholders can prioritize their focus on the most critical risks, leading to more effective risk management and, ultimately, better outcomes.

Table 17 illustrates the methodology of the CPRI. Plan participants were asked to consider the five risk index factors and select a degree of risk level for each of the 15 identified hazards. The results can be found in each jurisdictional annex, in a CPRI table with an overall risk factor value score for each hazard, based on the degree of risk level assigned to the five risk index factors.

Table 17: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years.	30%
	2	Occasional	A 1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years.	
	3	Likely	An 11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years.	
	4	Highly Likely	A 91%–100% probability of occurrence in the next year or a recurrence interval of less than one year.	
Potential Consequences	1	Negligible	Very few injuries, if any. Only minor property damage and minimal disruption of quality of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	
	3	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities more than one week.	
	4	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	
Warning Time	1	Self-defined	More than 24 hours.	10%
	2	Self-defined	12–24 hours.	
	3	Self-defined	6–12 hours.	
	4	Self-defined	Less than six hours.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Duration	1	Brief	Up to six hours.	10%
	2	Intermediate	Up to one day.	
	3	Extended	Up to one week.	
	4	Prolonged	More than one week.	
Spatial Extent	1	Negligible	Less than 1% of area affected.	20%
	2	Small	1%–25% of area affected.	
	3	Moderate	25%–50% of area affected.	
	4	Large	Greater than 50% of area affected.	

Hazard Profiles

For each hazard, a profile is established to provide a general ***hazard description*** and ***cascading hazards*** associated with the profiled hazard. The profile will also describe what ***locations*** the hazard is likely to affect as well as the potential ***magnitude or extent*** of hazard events. A ***history of previous hazard events*** included in the profile will support historical understanding of what locations are at risk and the magnitude of impacts likely to occur. Each profile thus includes a description of major hazard events in recent history, and, to the extent possible, a complete listing of hazard events by date and location. The risk assessment includes a report on any FEMA Major Declarations since the last plan update, the National Center for Environmental Information (NCEI) database report on any data from all natural hazard events, and property and crop damage loss values.

In addition, the ***probability of future events*** was examined, with an in-depth discussion of how ***climate change*** may have affected hazard occurrences and is projected to affect the development and occurrence of future hazard incidents. Climate change is expected to exacerbate existing hazards in the County and the Town. As such, the Planning Team determined that it would be best to discuss climate change considerations throughout all applicable hazard profiles. Each hazard profile contains a specific section on climate change. Data emphasizing local vulnerabilities, including from Cal-Adapt, is incorporated into these sections. Cal-Adapt is a web-based tool that supports local government's climate adaptation and resilience planning. Other key data sources for this section including California's Fourth Climate Change Assessment. The climate change assessment provides a scientific foundation for profiling local climate vulnerabilities.

The risk assessment also focuses on the ***vulnerability*** and ***impacts*** of specific community assets within each jurisdiction for each hazard. ***Vulnerability*** refers to which assets are at risk. In this case, the term *assets* is defined broadly to include large portions of the communities profiled including people, structures, community lifelines, systems, natural, historic, and cultural resources as well as activities that have value to the community such as economic activities.

One component of vulnerability is impacts to populations, including socially vulnerability populations. FEMA defines ***social vulnerability*** as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. Social vulnerability affects a community's capacity to prepare for, respond to, and recover from hazard events. Groups with higher social vulnerability experience the same hazard event differently than groups with lower social vulnerability. Common and determining characteristics may include age, gender, and income. However, additional characteristics can include social networks, education, cultural knowledge, and political power. Social vulnerability data was drawn from the US Census American Community Survey and is available at the block group level of geographical unit size.

Community lifelines are also important to consider. FEMA defines community lifelines as those essential elements of service which enable all other aspects of society to function. Plan participants discussed the community lifelines during the risk assessment meetings and components of community lifelines are referenced throughout the risk assessment.



Figure 22: Community Lifelines

The risk assessment also identifies the ***impact*** of hazards on critical facilities, providing loss estimates and an evaluation of current land use development trends. Implementing the 2023 Cal Office of Emergency Services and FEMA planning guidance, the plan looks more closely at the vulnerabilities to understand not just general statements on who or what may be the most vulnerable but more jurisdiction-specific details and a rationale for why these community-identified assets are vulnerable. The plan contains problem statements that clearly connect the vulnerability assessment to the mitigation actions selected, integrating local information to help make this vulnerability assessment a useful resource when developing effective mitigation actions.

The exposure of property and structures, primarily in urbanized communities, is a primary focus of mitigation planning efforts. Hazus software analyzes the effect of the hazards on critical facilities and infrastructure. Hazus modeling, a standardized methodology for estimating potential monetary losses from these hazards, provides an estimate of the worth of buildings in the County, broken down by occupancy type. It produces probabilities for potential damage and loss estimates for all public and

privately owned assets in the planning area. Hazus Level 2 was utilized for this plan to assess risk from flooding and earthquake hazards. A Level 2 analysis is referred to as an advanced analysis because it incorporates local data on critical infrastructure into the national datasets. The GIS Team's use of Hazus data is even more effective in predicting damage estimations based on stakeholder input about hazard locations and structural values. Both hazard profiles include a section for Hazus Level 2 to show building exposure estimates for the County (including the Town).

The GIS Team, in collaboration with the County GIS Team, worked with plan participants and stakeholders to analyze and map areas of concern and vulnerability and ensure that the best available data was incorporated into the loss estimate. Incorporating more specific information on the County and Town's critical infrastructure provides higher-quality data for decision-makers. In addition, the GIS Team used historic or scenario-based modeling to generate projected economic losses, building damage, and social impacts for those hazards that Hazus does not model.

Changes in development refers to changes to the hazard area or magnitude that may occur specifically for each jurisdiction as the result of new development and infrastructure, population changes, including moving to and from a particular area, and climate change. How these changes could affect hazards is discussed in detail for each hazard as applicable, noting that there has not been widespread development in the planning area since the prior plan update.

Avalanche

Hazard Description

An avalanche is composed of rapidly moving masses of snow descending slopes. While avalanches often carry rocks, soil, vegetation, and ice, they are usually less destructive and more frequent than other natural mountain slope hazards such as landslides and debris flows. Avalanche risk is affected by various factors including terrain, slope angle, weather conditions, temperature, and snowpack characteristics. In the County, avalanches generally present a concern from November to April. They may be triggered by human activities or environmental factors such as wind, precipitation, or temperature changes. Human-induced avalanches generally occur away from developed areas typically involving skiers or hikers in remote mountainous regions. Consequently, these events usually result in less damage and loss of life compared to naturally occurring avalanches near populated areas.

Avalanches can manifest as either loose or slab avalanches and are further classified as wet or dry based on the snow's moisture content. Loose avalanches involve surface snow and release when cohesion between snow grains is lost. Slab avalanches penetrate deeper snow layers and release as a cohesive plate when a weaker layer within the snowpack fails. Slab avalanches, whether wet or dry, can be extremely large and destructive, with the capability to travel long distances on gentle terrain, damaging or destroying structures, transmission poles, and heavy equipment.

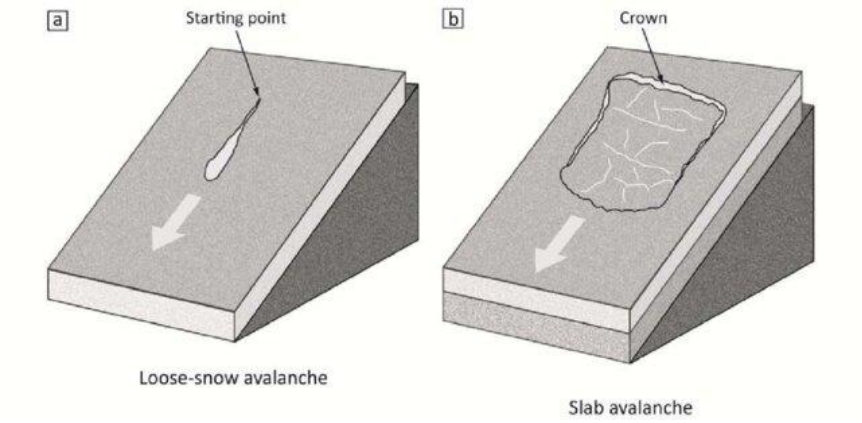


Figure 23: Loose (a) and Slab (b) Avalanche Illustrations[17]

Avalanche terrain is characterized by steep slope angles ranging from 30 to 45 degrees. Avalanche paths include a starting zone where avalanches initiate, a track where maximum velocity is achieved, and a runout zone, which consists of lower gradient slopes where avalanches decelerate and debris deposits form. Numerous avalanche paths are found on the steep slopes of the eastern Sierra Nevada in the County. Many facilities, mountain communities, and County and state highways are situated in the lower-angle terrain of avalanche runout zones.

CASCADING HAZARDS

Avalanches can trigger a chain reaction of cascading hazards that compound the overall impact on communities. Following are some of the hazards that can occur:

- **Secondary Avalanches** – One avalanche can destabilize surrounding snowpacks, leading to additional avalanches.
- **Landslides and Mudflows** – The force of an avalanche can dislodge soil and rocks, potentially leading to landslides or mudflows, especially in warmer conditions.
- **Flooding** – Avalanches can dam rivers or streams with snow and debris, leading to potential flooding when the snow and ice melt.
- **Loss of Vegetation** – The sheer force of an avalanche can strip vegetation from the slopes, leading to soil erosion and habitat loss.

Location

In 1973, Norm Wilson carried out the initial avalanche study in the County, focusing on identifying potential avalanche zones within the June Lake Loop. Following a fatal avalanche incident in the Twin

[17] Schläppy, R. (2014). Snow avalanche hazard assessment in the French Alps using a combination of dendrogeomorphic and statistical approaches (Doctoral dissertation, Université Panthéon-Sorbonne-Paris I; Université de Berne).

Lakes, Bridgeport area in February 1986, the County enlisted renowned avalanche consultant Art Mears, PE, to map out areas susceptible to avalanches. Mears produced maps for the County delineating two distinct zones: the "Red" or "High" avalanche zones where avalanches occur every 3 to 30 years on average or generate impact pressures of roughly 600 pounds per square foot (psf) or higher; and the "Blue" or "Moderate" zones where avalanches are expected every 10 to 100 years with impact pressures below 600 psf.

Mears identified avalanche hazard zones at eight locations in the County: Swall Meadows, Lee Vining, Lundy, Virginia Lakes, Twin Lakes, below Carson Peak, Long Valley, and Aspen Springs. In some instances, Red Zones extended across roads and into developed areas and campgrounds. For example, at McGee Creek, the Red Zone encompassed portions of US 395, Crowley Lake Drive, and McGee Creek Road near a trailer park.

In 1987, the Mears report was submitted, but the County did not adopt it. Instead, the County Board of Supervisors established local avalanche committees to create "historical runout maps" based on the recollections of committee members regarding runout distances of historical avalanches in Swall Meadows, McGee Mountain, and Twin Lakes, Bridgeport. Two avalanche zones were defined: the "Avalanche Influence Area," a community zone where privately owned property had experienced avalanche activity and where residents and visitors would be alerted to avalanche hazards, and the "Conditional Development Areas," which were privately owned zones that had previously experienced avalanches and were subject to development restrictions and conditions.

Due to significant advancements in understanding avalanche dynamics, impact pressures, and runout distances since these studies, the findings may no longer be considered current or accurate. Nonetheless, the 1986 Mears study, along with compilations of historical avalanche activity from longtime residents, Snow Survey Associates, the National Oceanic and Atmospheric Administration's Storm Center data, and the Eastern Sierra Avalanche Center data, remains a valuable indicator of areas prone to avalanches. Table 18 details areas prone to avalanches based on the sources provided above.

Table 18: Avalanche Hazards by Community Planning Area

Community Planning Area	Avalanche Hazard
Antelope Valley	None Identified
Benton Valley	None Identified
Bodie Hills	None Identified
Bridgeport Valley	Yes: Twin Lakes Area
Chalfant Valley	None Identified
Hammil Valley	None Identified
June Lake	Yes: Several Areas
Lee Vining	Yes: Poole Power Plant Road
Long Valley	Yes: Several Areas

Community Planning Area	Avalanche Hazard
Mammoth Vicinity	Yes: Several Areas
Mono Basin	Yes: Several Areas
Oasis	None Identified
Sonora Junction	None Identified
Swauger Creek	None Identified
Upper Owens	None Identified
Wheeler Crest	Yes: Swall Meadows
Development Outside Community Planning Areas	Yes: Virginia Lakes and Lundy Canyon

Avalanches posing a risk to developed areas in the County generally originate from public lands managed by the USFS. Within the boundaries of MMSA and June Mountain Ski Area, explosives and other methods are utilized to manage avalanches. However, these active mitigation measures are not feasible on public lands above communities and roadways. The County primarily employs passive mitigation strategies, such as road closures, to address the avalanche threat. While avalanches in ski and backcountry areas are frequent, they are not the primary focus of this assessment due to the limited mitigation measures available. Therefore, the assessment concentrates on urbanized regions.

Certain sections of the Town lie within areas prone to avalanche runouts. In 1997, the Town implemented a Snow Deposition Design Zone to address potential avalanche hazards. This action was prompted by a 1995 survey related to a proposed development known as "The Bluffs" that revealed that the region is susceptible to naturally occurring avalanches. The southwestern part of the Town, located east and downslope of Mammoth Pass, was identified as a high-risk area due to its steep terrain, geological features, orientation, and prevailing winds that contribute to avalanche conditions. Although no additional specific avalanche studies have been conducted outside of The Bluffs, it is likely that avalanche hazards extend to much of the southwestern side of the Town near Mammoth Pass and similar slopes. Other areas known to be at risk from avalanche runout from Mammoth Mountain and Mammoth Pass include the Knolls and Sherwin area and along much of the entire extent of Lake Mary Road. Much of the MMSA is also within the hazard area.

Extent

The extent of avalanches can be classified in terms of its width, the distance it travels, and the depth of the resulting debris. Table 19 displays a commonly utilized scale for assessing avalanches based on their potential destructive force.

Table 19: Avalanche Size and Impact Scale

Avalanche Size	Avalanche Destructive Potential	Typical Mass (Tons)	Typical Path Length (Feet)	Typical Impact Pressure (Pounds Per Square Foot)
D1	Relatively harmless to people	Less than 10	33	21
D2	Could bury, injure, or kill a person	100	330	209
D3	Could bury and destroy a car, damage a truck, destroy a wood frame house, or break a few trees	1,000	3,280	2,089
D4	Could destroy a railway car, large truck, several buildings, or a substantial amount of forest	10,000	6,562	10,443
D5	Could gouge the landscape; largest snow avalanche known	1000,000	9,843	20,885

Based on historical occurrences, the planning area can expect to experience D4 avalanche sizes as a worst-case scenario.

History of Previous Hazard Events

The following information pertains to avalanches that have taken place in or near developed areas. Often, the details available are limited and do not typically include specifics of the hazard event or monetary estimates of economic damages. Notable avalanches on McGee Mountain occurred in the years 1952, 1969, 1978, and from 1981 to 1983. In 2017, a significant avalanche was released, crossing Crowley Lake Drive and damaging an occupied home. There have been no federal and state disaster declarations regarding avalanches since the prior plan update.

MONO COUNTY

- **Bridgeport Valley:** There have been at least 15 incidents of damage to buildings and other structures during the last 40 years, including four fatalities in the Twin Lakes Area. Destructive avalanches occurred in 1969, 1978, 1982, and 1986. In 1998, the Mono County Sheriff's Office reported that avalanches occurred in several places along US 395 near Bridgeport, resulting in highway closures. In 2005, a Sheriff's Department snow cat was destroyed in an avalanche. In 2006, three skiers were caught on a slab avalanche while crossing an open area on their way to Mt. Walt west of Twin Lakes. One of those skiers was killed in the accident.
- **June Lake**: Until North Shore Drive was constructed into June Lake as a secondary access route, SR 158, the main access into June Lake, was periodically closed due to avalanches, avalanche danger, or avalanche control; recent events occurred in 2014, 2016, and 2017. The community has also had to evacuate some parts of Town following several big storms. According to the Eastern Sierra Avalanche

Center, an avalanche was reported on Carson Peak in 2016 and on the slope between Hourglass and Negatives Bowls in 2017.

- **Long Valley and Crowley Lake**: Avalanches originating from McGee Mountain have extended across US 395. In 1992, an avalanche hit a barn, destroying the barn and killing two horses. An avalanche in heavy snow storms of January 2017 resulted in closure of US 395, damaged a house, and took out electrical power in Crowley Lake and the surrounding communities of Long Valley. On January 22, 2017, the Sheriff's Office reported an avalanche in Long Valley with a runout 0.75 miles west of Crowley Lake Drive and north of McGee Creek.
- **Wheeler Crest**: A major dry-snow avalanche, or an avalanche composed primarily of cold, low-moisture snow, occurred in 1969 in Swall Meadows. Avalanche risk also exists on the Lower Rock Creek access road from a number of small east-facing paths that descend directly onto the road.
- **Sherwin Range**: A number of avalanches have occurred in the Sherwin Range, near Swall Meadows, including in 1986 and 2005. The 2005 avalanche in the Sherwin Range was set off by a backcountry snowboarder; there was one injury.
- **Mono Basin**: Several large avalanche paths are known to extend east of US 395 approximately one to two miles north of Lee Vining. In 2001, 2005, and 2006, the highway was closed due to avalanches; there were no injuries or fatalities. Discussion with local residents indicates that seven buildings were destroyed there during two separate avalanches in the 1960s and 1970s near Lundy Lake. According to the Eastern Sierra Avalanche Center, an avalanche was triggered by a skier in 2017 on the eastern slope of Mt. Olsen. During the record-breaking winter of 2022 and 2023, this section of US 395 was shut down for weeks due to hazardous conditions.
- **Outside of the Community Planning Areas**: Virginia Lakes is primarily a seasonal residential area and is not regularly used during winter when the access road is not plowed. Seven buildings on the north side of the Virginia Lakes access road were destroyed by a large avalanche in 1982. In 1986, a large avalanche extended its path through a forest on the flat bottom of the valley before stopping on the south edge of Virginia Lakes Road. Lundy Canyon, west of Mono City, is also prone to avalanches.

TOWN OF MAMMOTH LAKES

The Town has experienced multiple avalanches over the years. In the winter of 1983, avalanches destroyed numerous cabins at Lake Mary, Mammoth Knolls, and the Mammoth Lakes Basin. The same year, a mud and snow slide damaged two homes on Forest Trail near Canyon Lodge, necessitating evacuations. In 1986, a large avalanche affected the bluff area south of Tamarack Street, stopping just short of several residences. A tragic avalanche in Old Mammoth in 1992 resulted in the deaths of a snowboarder and a dog. Avalanches in Mammoth Bowl were reported in 2013, and in 2017, a skier triggered an avalanche above Lake Mary Road.

Avalanches are a significant concern for the MMSA which is crucial to the Town's economy and employs many residents. The last recorded fatality in the ski area due to an avalanche was in February 2025; however, there have been several avalanches prior to this that have caused significant injuries. For instance, in 2008, the Mammoth Times reported an avalanche in the Dragon's Tail area above Chair 9

triggered by ski patrol performing avalanche control duties. The avalanche resulted in a patroller suffering cracked or broken ribs. An avalanche in March 2018 led to several rescue efforts and the temporary closure of both ski resorts although no property damage occurred, and only minor injuries were reported. While there have been no major incidents in the Sherwin area, the potential runout to Snowcreek V poses a concern for future development plans identified in the Snowcreek Master Plan.

The National Centers for Environmental Information (NCEI) Storm Events Database identified three avalanches occurrence within the County and the Town since 1996. Table 20 provides a brief overview of the avalanches.

Table 20: Avalanche Events Since the Last Plan Update[18]

Date	Description	Location
1/28/2021	Multiple avalanches occurred in Walker Canyon with up to 15 feet of debris covering US 395. A snowplow was hit shortly after midnight January 28 and pushed into the Walker River. Fortunately, the driver was not killed but was hospitalized. Extreme avalanche danger was noted at the time from the Eastern Sierra Avalanche Center.	Mono County
February and March 2023	Record snowfall in late February and early March 2023 triggered multiple massive avalanches that swept down slopes and buried a half mile stretch of US 395, north of Lee Vining toward Mono City. They carried snow debris, trees, power lines, rock fence, and guardrails across the highway. Some debris piles were estimated at 30–40 feet high, spreading for nearly three miles in sections. The avalanches knocked out power infrastructure, cutting electricity to Mono City and Bridgeport.	Mono County
2/14/2025	Two ski patrollers were caught in an avalanche on Lincoln Mountain while conducting avalanche mitigation work that resulted in the fatality of one of the patrollers	Mono County

The Eastern Sierra Avalanche Center identifies 106 avalanche occurrences since the last plan update. Below are brief synopsis of selected events that have complete data such as photos and a brief synopsis.

- December 15, 2024
  - Natural avalanche activity was visible in the steep areas along the Mammoth Crest, particularly between Crystal Chute and Jaws.

[18] National Centers for Environmental Information. "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/.

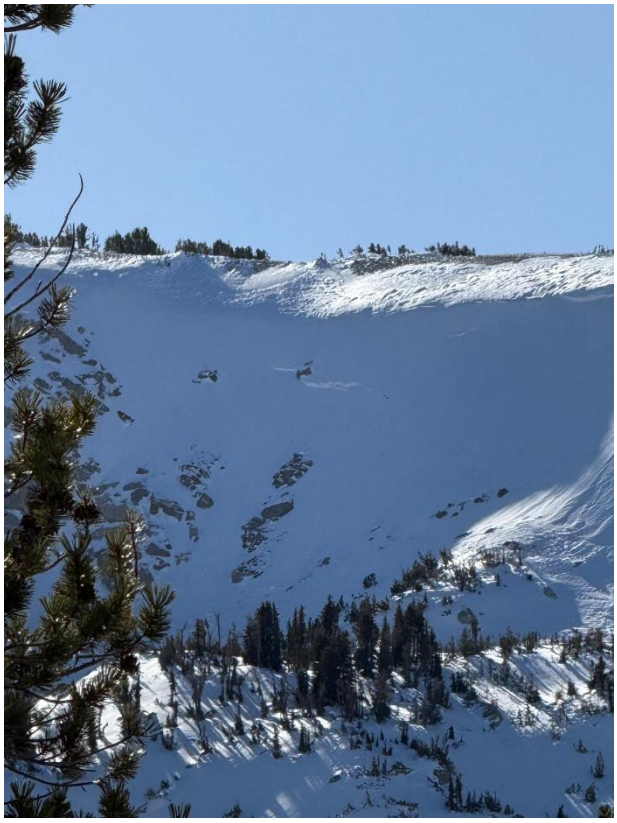


Figure 24: Natural Avalanche Crowns December 15, 2024, along Mammoth Crest[19]

- April 2, 2024
  - Small wet avalanches occurred in very steep, rocky areas where the snowpack was thin in Mammoth Crest. Snowballs and small rolling slides were seen, with several minor avalanches.

[19] Eastern Sierra Avalanche Center. https://www.esavalanche.org/observations/#/view/observations/2ac874c1-0281-438b-8658-f3416cde181e.



Figure 25: Loose Wet Run Activity on April 2, 2024[20]

- March 20, 2024
  - On March 20, a visit to the base of Hourglass Couloir via Treasure Lakes provided a clear view of the conditions in the Rock Creek area. Around midday, widespread rollerball activity was observed on steep westerly slopes, with significant entrainment (up to D1) particularly evident on the southeast slopes of Treasure Peak above Treasure Lakes. The snow height in the Treasure Lakes area was close to 2 meters. Melt-freeze crusts became notably softer above 11,000 feet, and due north aspects above this elevation had up to 15 cm of powder snow overlying four-finger snow, making for good skiing conditions. A pit was dug at 11,600 feet on a north aspect to examine the upper snowpack, revealing a stable structure except for a previously weak layer (1 finger minus under pencil) located 50 cm down, which was unreactive in tests. The height of snow was greater than the probe's depth, even after excavating a meter, largely due to accumulation from the previous winter. The top of Hourglass Couloir was scoured, showing signs of wind slab debris, so a decision was made to ski a due north run on the ridge separating Dade Lake from the Hourglass/Treasure Lakes drainage, where good skiing quality was found. Light to moderate snow began at 1430 and continued intermittently until at least 1700, initially comprising a mix of rimed crystals and graupel.

[20] Eastern Sierra Avalanche Center. https://www.esavalanche.org/observations/#/view/observations/5880ee7b-ba6b-4c3c-a6de-d258aba8e7c4.



Figure 26: Southeast Slopes of Treasure Peak Above Treasure Lakes Showing Recent Loose Wet Activity[21]

- February 7, 2024
  - On February 7, 2024, a professional observer reported seeing a natural wind slab in Negative 1 and S-Chute, which likely failed naturally at ridge top elevation due to wind overloading. It ran quickly and produced an impressive powder cloud. Several D1 natural slabs were also seen on the steep eastern slopes of Dream Mountain, where active cross loading was occurring. Later, after a lap in Dream Bowl in light and unconsolidated powder, steeper terrain exposed to wind loading at the entrance was skied. Upon hitting a convex rollover at the trigger point, two D1 wind slabs were triggered, fracturing at the skis on the old-new snow interface and propagating 8 to 10 meters. The crown in both cases was 15 to 20 cm deep. Skiing out was manageable because the sliding snow remained soft and light, and the old snow interface from last weekend's storm was supportive. As the descent continued, several very soft sloughs were set off.
- Multiple avalanches west of Mono Lake on US 395 – approximately March 2025
  - Record snowfall in late February and early March 2023 triggered multiple massive avalanches that swept down slopes and buried a half mile stretch of US 395, north of Lee Vining toward Mono City. They carried snow debris, trees, power lines, rock fence, and guardrails across the highway. Some debris piles were estimated at 30–40 feet high, spreading for nearly 3 miles in sections. The avalanches knocked out power infrastructure, cutting electricity to Mono City and Bridgeport.

[21] Eastern Sierra Avalanche Center. https://www.esavalanche.org/observations/#/view/observations/4d21f5b7-ab95-4df4-b0a9-5997c154960f.



Figure 27: D1 Wind Slab Triggered by Observers on February 7, 2024[22]

Additional avalanches reported include:

- February 14, 2025
  - Two ski patrollers were caught in an avalanche on Lincoln Mountain while conducting avalanche mitigation work that resulted in the fatality of one of the patrollers.[23]
- March 25, 2025
  - A natural rockslide triggered an avalanche on the northeast side of the Mammoth Mountain under Starr Chute. No deaths or injuries occurred.[24]

Probability of Future Hazard Events

The NCEI Storm Events Database and Eastern Sierra Avalanche Center identified 107 avalanche occurrences within the County planning area since 1996, resulting in a 100% annual chance of occurrence or a highly likely chance of occurrence with approximately three to four significant events every year.

CLIMATE CHANGE CONSIDERATIONS

In the County and the Town, climate change profoundly affects avalanche activity and the associated risks, introducing several critical considerations. The rise in global temperatures due to climate change has resulted in warmer conditions that can significantly influence the frequency and intensity of avalanches. As temperatures increase, the stability of the snowpack is compromised, making it more susceptible to

[22] Eastern Sierra Avalanche Center. https://www.esavalanche.org/observations/#/view/observations/8b10ac14-1ccc-4dec-a8a1-38fcf4806145.
[23] SKI, "Update: Ski Patroller Dies Following Avalanche at Mammoth Mountain." https://www.skimag.com/news/mammoth-mountain-avalanche/
[24] Mammoth, "Operations Update." https://www.mammothmountain.com/discover-mammoth/mammoth-blog/operations-update-march-25

avalanche occurrences. The thermal dynamics of the snow layers alter leading to instability and a higher likelihood of avalanches.

Climate change also leads to alterations in the snowpack structure, resulting in weaker layers and increased instability. Warmer temperatures can cause the snow to melt and refreeze. creating ice layers within the snowpack that act as potential weak points. These structural changes can lead to unpredictable avalanche conditions making forecasting and risk assessment more challenging.

The impact of rising temperatures extends to the seasonality of avalanches. With milder winters and earlier spring thaws, the traditional avalanche season may shift starting earlier and lasting longer. This extended period of avalanche risk demands a reevaluation of current preparedness measures and seasonal forecasting models. The prolonged avalanche season increases the window of vulnerability for communities and infrastructure highlighting the need for continuous vigilance and updated response plans.

Changes in temperature and precipitation patterns due to climate change can significantly impact the terrain, making certain slopes more prone to avalanches. Variations in snow accumulation and melt rates can alter the physical landscape, leading to more frequent slope failures. The geomorphological characteristics of avalanche-prone regions may change affecting the stability and behavior of avalanches.

As avalanches become more frequent and intense under changing climatic conditions, communities in avalanche-prone areas face heightened risks. The increased avalanche activity can cause severe damage to infrastructure, homes, and essential services posing significant threats to human life and property. The socioeconomic impacts of avalanches can be devastating, necessitating comprehensive risk mitigation strategies and community engagement to enhance resilience. The integration of climate change projections into avalanche risk management frameworks is essential for safeguarding vulnerable communities.

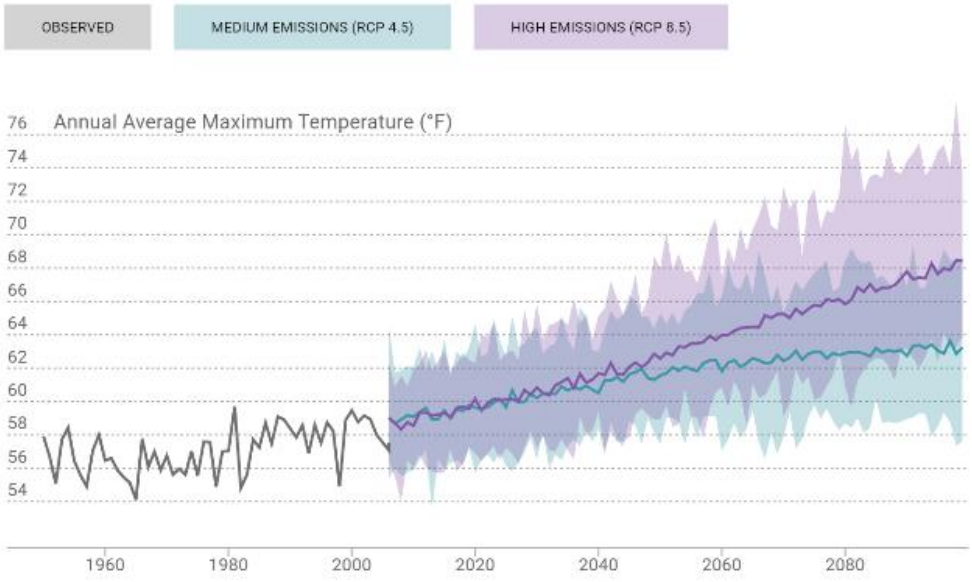


Local Climate Change Snapshot for Mono County

California

Annual Average Maximum Temperature

Average of all the hottest daily temperatures in a year.



1Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.

2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Mono County boundary.

Figure 28: Annual Average Maximum Temperature for Mono County Planning Area[25]

[25] Cal-Adapt. "Local Climate Change Snapshot for Mono County, California." https://cal-adapt.org/tools/local-climate-change-snapshot.

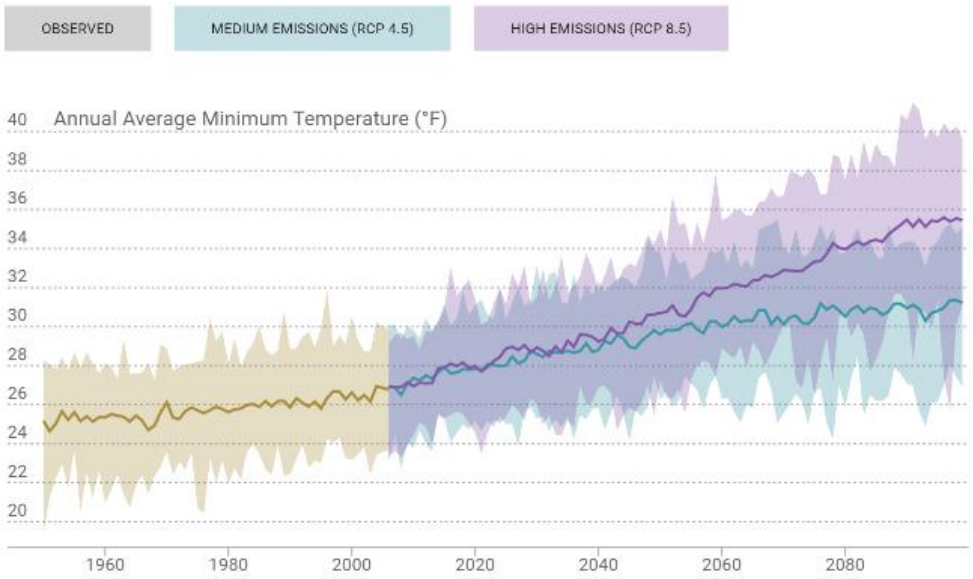


Local Climate Change Snapshot for Mono County

California

Annual Average Minimum Temperature

Average of all coldest daily temperatures in a year.



1Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.

2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Mono County boundary.

Figure 29: Annual Average Minimum Temperatures for Mono County Planning Area[26]

[26] Cal Adapt. "Local Climate Change Snapshot for Mono County, California." https://cal-adapt.org/tools/local-climate-change-snapshot.

Vulnerability

The County and the Town are highly vulnerable to the hazard of avalanches due to their diverse climate and topography. Various people and resources are vulnerable to avalanches due to the area's unique terrain and climate. Residents and visitors engaged in outdoor activities like skiing, snowboarding, and hiking in the backcountry face significant risks from avalanches, which can cause serious injuries or fatalities. Structures, including homes, lodges, and those located in avalanche-prone zones, may suffer severe damage or destruction from the powerful force of descending snow masses. The local economy, heavily reliant on tourism and outdoor recreation, is also at risk as avalanches can lead to temporary closures of resorts and trails deterring tourists and impacting local businesses that depend on winter sports enthusiasts. Natural resources such as forests and wildlife habitats can be affected by avalanches disrupting delicate ecosystems and altering landscapes. Cultural resources, including historic sites and indigenous sacred areas that are situated in mountainous regions, may face threats from avalanches that alter or bury these critical locations. Community activities, especially those in snow-covered areas, could decline as safety concerns over avalanche hazards emerge, potentially leading to reduced participation in winter recreation and outdoor events.

ESTIMATED IMPACTS AND LOSSES

Since 1996, the NCEI Storm Events database and Eastern Sierra Avalanche estimates there have been $250,000 in damage to property and one injury as a result of 107 avalanche occurrences within the County planning area. This equates to approximately $2,336 in estimated avalanche damage per event. Table 21 shows a breakdown of property/crop damage along with injuries/fatalities as a result of the one NCEI Storm Events Database occurrence recorded.

Table 21: Avalanche Events Since 1996[27]

Date	Type	Fatalities	Injuries	Property Damage	Crop Damage
1/28/2021	Avalanche	0	1	$250,000	$0
2/14/2025	Avalanche	1	0	$0	$0

The following communities are at risk from avalanches:

- **Mammoth Lakes:** The Mammoth Lakes area, including the MMSA and nearby residential neighborhoods, is highly exposed to avalanche hazards due to its mountainous terrain and heavy winter snowfall. Steep slopes surrounding the ski area and backcountry zones, such as those along the Mammoth Crest and the Sherwin Range, have a history of frequent avalanche activity. While most developed areas within the Town are protected by avalanche control measures implemented by the ski area and local authorities, outlying neighborhoods, trailheads, and recreation areas remain

[27] National Centers for Environmental Information "Storm Events Database" https://www.ncdc.noaa.gov/stormevents/.

vulnerable to natural slides during periods of intense storms or rapid warming. Avalanches in these areas could threaten access roads, ski infrastructure, and backcountry users.

- **Bridgeport Valley**: The area experiences frequent, large avalanches. This area contains few permanently occupied homes but a number of seasonally occupied cabins, as well as recreational facilities such as boat docks, restrooms, stores, campground sites, parking lots, and trails.
- **June Lake**: Portions of SR 158 are in the runout zone for avalanches, which would block the primary access route to neighborhoods and facilities along the June Lake loop and force traffic onto Northshore Drive. Several dozen homes in the residential community are in the direct path of runout zones as well.
- **Long Valley**: Residential development in Long Valley is exposed to large avalanches originating from the northeast face of McGee Mountain and from slopes below Castle Rock, located directly above existing development. A portion of US 395 and residential, lodging, and commercial facilities in several small communities of the Crowley Lake area are directly in the runout area of frequent avalanches from McGee Mountain.
- **Wheeler Crest**: A major dry-snow avalanche occurred in 1969 in Swall Meadows. Avalanche risk also exists on the Lower Rock Creek access road from a number of small east-facing paths that descend directly onto the road.
- **Mono Basin**: Several large avalanche paths are known to extend east of US 395 approximately one to two miles north of Lee Vining. While few structures are in the runout zone, an avalanche could shut down and damage US 395 as well as major power lines. An area at the west end of Lundy Lake, which includes some private homes, is threatened by a large, steep avalanche path. At present, Lundy Lake is not occupied continuously during the avalanche season.
- **Outside of the Community Planning Areas**: Much of the development in Virginia Lakes is in a runout zone, as are several portions of the single access route to it. Within the conditional avalanche areas, permanent structures must be engineered to withstand an avalanche. Seasonal recreational vehicle use can be authorized in lieu of permanent structures. This area is primarily a seasonal residential area, although a number of dispersed housing units are present. It is also frequented by recreational snowmobiles and backcountry skiers. It includes several dozen seasonal residence structures, as well as recreational infrastructure such as bathrooms, trailheads, and parking lots.

Table 22 provides road segments that are at risk of avalanche occurrences.

Table 22: Road Segments at Risk of Avalanche Occurrences

Planning Area	Road	General Location
Bridgeport	Twin Lakes Road	South of Bridgeport
Long Valley	Crowley Lake Drive	At McGee Mountain
	Rock Creek Road Narrows	Near Tom's Place
June Lake	Lakeview Drive	Near June Lake
Mammoth Vicinity	Benton Crossing Road	Near Wildrose Summit

Planning Area	Road	General Location
Mono Basin	Picnic Grounds Road	Near Lee Vining
Wheeler Crest	Mountain View Road, Foothill Road, and Swall Meadows Road	Swall Meadows
	Lower Rock Creek Road Narrows	North of Swall Meadows
Outside Planning Area	Virginia Lakes Road	Northwest of Mono City
	Lundy Lakes Road	Northwest of Lee Vining
Town of Mammoth Lakes	Minaret Road	Near Mammoth Mountain Ski Lodge
	Sherwin Creek Road	Access to backcountry recreation areas
	Lake Mary Road	Leading into the Lakes Basin

Several areas in Town, including homes in the Sherwin Range and Knolls neighborhoods, face the risk of avalanche damage.

The Town's zoning code incorporates a Snow Deposition Design Overlay Zone (SDD), which marks areas at risk of avalanches. This zone includes locations immediately above, adjacent to, or within 150 feet of the 30-degree point of an avalanche starting zone. Any development within the SDD requires a use permit and certification from an avalanche expert regarding the occurrence, force, and behavior of avalanches. However, the SDD does not guarantee the safety of homes within the zone and is not intended to be exhaustive regarding all potential avalanche risk areas.

VULNERABLE POPULATIONS

In the County and the Town, vulnerable populations for avalanches include residents living in high-risk areas such as the Sherwin Range and Knolls neighborhoods as well as those in the Twin Lakes and Long Valley communities. Tourists visiting the region, particularly those engaging in outdoor recreational activities like skiing, snowboarding, and hiking, are at significant risk. These visitors often frequent areas with steep slopes and avalanche-prone terrain, increasing their exposure to potential avalanche hazards.

Impacts

Avalanches pose substantial risks in the County, influencing diverse aspects of the community. There are health concerns due to the potential for injuries or fatalities, which can create anxiety and reduce the quality of life for residents. Economically, the local tourism industry, a vital component of the area's economy, can suffer if winter sports enthusiasts are deterred by avalanche hazards. Infrastructure, including homes and historic sites, face the threat of severe damage or destruction from avalanches necessitating expensive repairs and preservation efforts. Environmental impacts are also significant as avalanches can disrupt ecosystems, affect wildlife habitats, and alter landscapes. Cultural practices, particularly those connected to mountainous regions, may be threatened if significant natural landmarks are damaged or destroyed. These avalanche-related challenges can also limit outdoor recreational

activities and divert resources from other community initiatives influencing overall community engagement and cohesion.

Changes in Development

The County and the Town have updated their development regulations and building codes to address avalanche risks aiming to enhance safety and minimize damage from potential avalanche events.[28] New buildings and renovations in avalanche-prone areas must now adhere to stricter structural standards to withstand the force of avalanches including reinforced foundations and the use of avalanche-resistant materials. Zoning laws have been revised to restrict construction in high-risk avalanche zones limiting development to essential infrastructure and emergency facilities. Developers are required to design the structure to withstand avalanches and be approved by a licensed engineer. However, the mechanism used to withstand the avalanche is at the discretion of the owner/engineer. Building codes now mandate the inclusion of emergency evacuation plans and routes in the design of new structures ensuring safe evacuation in the event of an avalanche.

Dam Failure

Hazard Description

Dams play a crucial role in modern infrastructure providing essential services such as water storage, flood control, renewable energy generation, irrigation, and recreation. By creating reservoirs, dams help regulate water supplies and support economic development. However, despite their benefits, dams also pose significant risks if they fail. Dam failure occurs when the structure or its foundation is compromised to the extent that it can no longer contain the water it holds. This failure can lead to the sudden release of large volumes of water causing flash floods downstream with potentially devastating consequences including loss of life, extensive property damage, and displacement of populations in the affected areas.

The causes of dam failure are varied and often interconnected, involving both natural and human factors. Common causes include prolonged periods of rainfall and flooding, which can overwhelm a dam's capacity and lead to overtopping. Heavy winters can lead to rain-on-snow events which could cause an overflow. If the spillway is inadequate or obstructed, excess water may spill over, eroding the embankment and causing failure. Internal erosion, which occurs when water leaks through the dam's embankment or foundation, can weaken the structure over time. Such leaks may lead to a phenomenon known as piping, where the flow of water gradually erodes the dam from the inside.

[28] Mono County. "Mono County Design Standards (2022)." https://www.monocounty.ca.gov/building/page/design-standards.

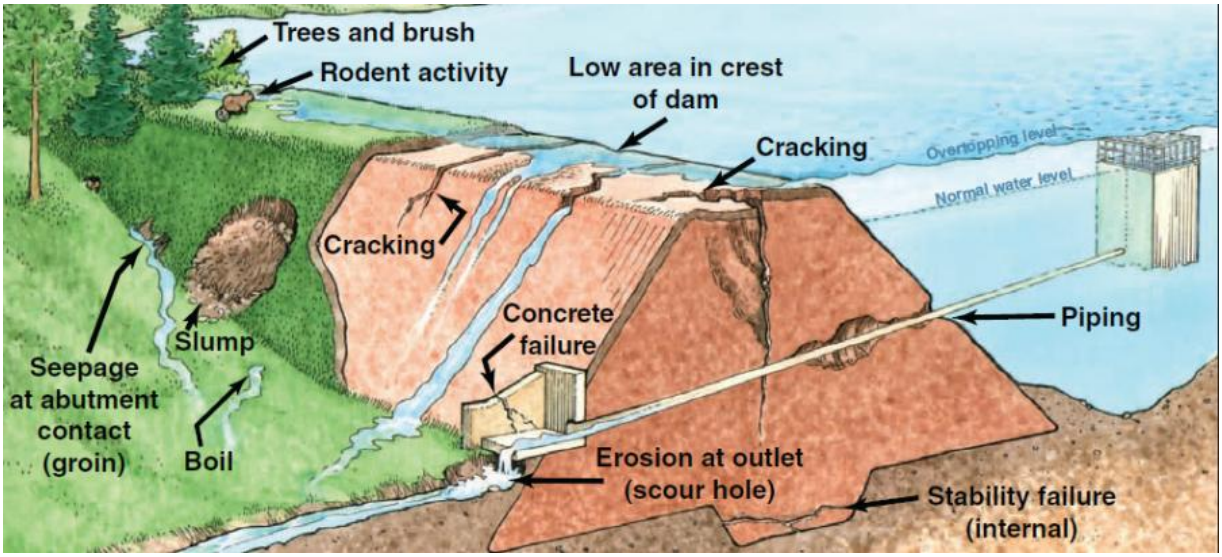


Figure 30: Different Types of Dam Failure Modes[29]

Other contributing factors to dam failure include improper design or construction, where substandard materials or inadequate construction techniques compromise the dam's structural integrity. Negligent operation and maintenance are also key risks, with failure to properly maintain gates, valves, and other essential components contributing to a dam's vulnerability. Natural hazards such as landslides, earthquakes, and high winds can exacerbate the likelihood of failure. Landslides into reservoirs can create sudden surges overwhelming the dam's ability to manage water levels. Earthquakes can induce cracks or structural weaknesses in the dam's embankment, further compromising its stability.

In general, FEMA's Rehabilitation of High Hazard Potential Dams (HHPDs) Grant Program describes risk of dam failure in three terms:[30]

- **Incremental Risk:** The risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping, or experience component malfunction or improper operation, where the consequences considered are over and above those that would occur without dam breach. The consequences typically are due to downstream inundation, but loss of the pool can result in significant consequences in the pool area upstream of the dam.[31]

[29] Association of State Dam Safety Officials. "Lessons Learned from Dam Incidents and Failures." https://damfailures.org/lessons-learned/intervention-can-stop-or-minimize-consequences-of-a-dam-failure-warning-signs-should-not-be-ignored/#top.
[30] FEMA. "Rehabilitation of High Hazard Potential Dams Grant Program Guidance." June 2020; FY22 High Hazard Potential Dam Notice of Funding Opportunity, p. 19.
[31] Ibid., p. 64.

- **Non-Breach Risk:** The risk in the reservoir pool area and affected downstream floodplain due to "normal" dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel capacity) or "overtopping of the dam without breaching" scenarios.[32]
- **Residual Risk:** The risk that remains after all mitigation actions and risk reduction actions have been completed. With respect to dams, FEMA defines residual risk as "risk remaining at any time." It is the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue.[33]

The consequences of dam failure extend beyond immediate physical damage. A breach in a dam, especially one with a large reservoir, can result in rapid downstream flooding that provides little time for evacuation. The effects can disrupt water supply networks, causing regional shortages if no alternative water sources are available. The economic impacts of dam failure can be significant, especially in areas where dams support critical infrastructure or energy generation.

CASCADING HAZARDS

Dam failure can trigger a chain reaction of cascading hazards that compound the overall impact on communities. The following are some of the hazards that can occur:

- **Flooding:** The most immediate and obvious hazard is catastrophic flooding downstream, which can lead to significant property damage, loss of life, and environmental destruction.
- **Infrastructure Damage:** Floodwaters can damage roads, bridges, and utilities, leading to widespread disruption of services such as electricity, water supply, and communication.
- **Contamination:** Floodwaters can spread hazardous materials, including sewage, chemicals, and debris, leading to contamination of water supplies and agricultural land.
- **Landslides:** The sudden release of water can destabilize slopes and lead to landslides, which can further damage infrastructure and homes.

Location

Dam failure hazards are anticipated to affect both the County, and the Town. Currently, there are 22 dams in the unincorporated area of the County. Additionally, Rock Creek Lake Dam, in Inyo County, is located upstream of properties located in the County.

Figure 31 shows where dams in the County are located and watersheds.

[32] Ibid., p. 65.
[33] Ibid., p. 67.

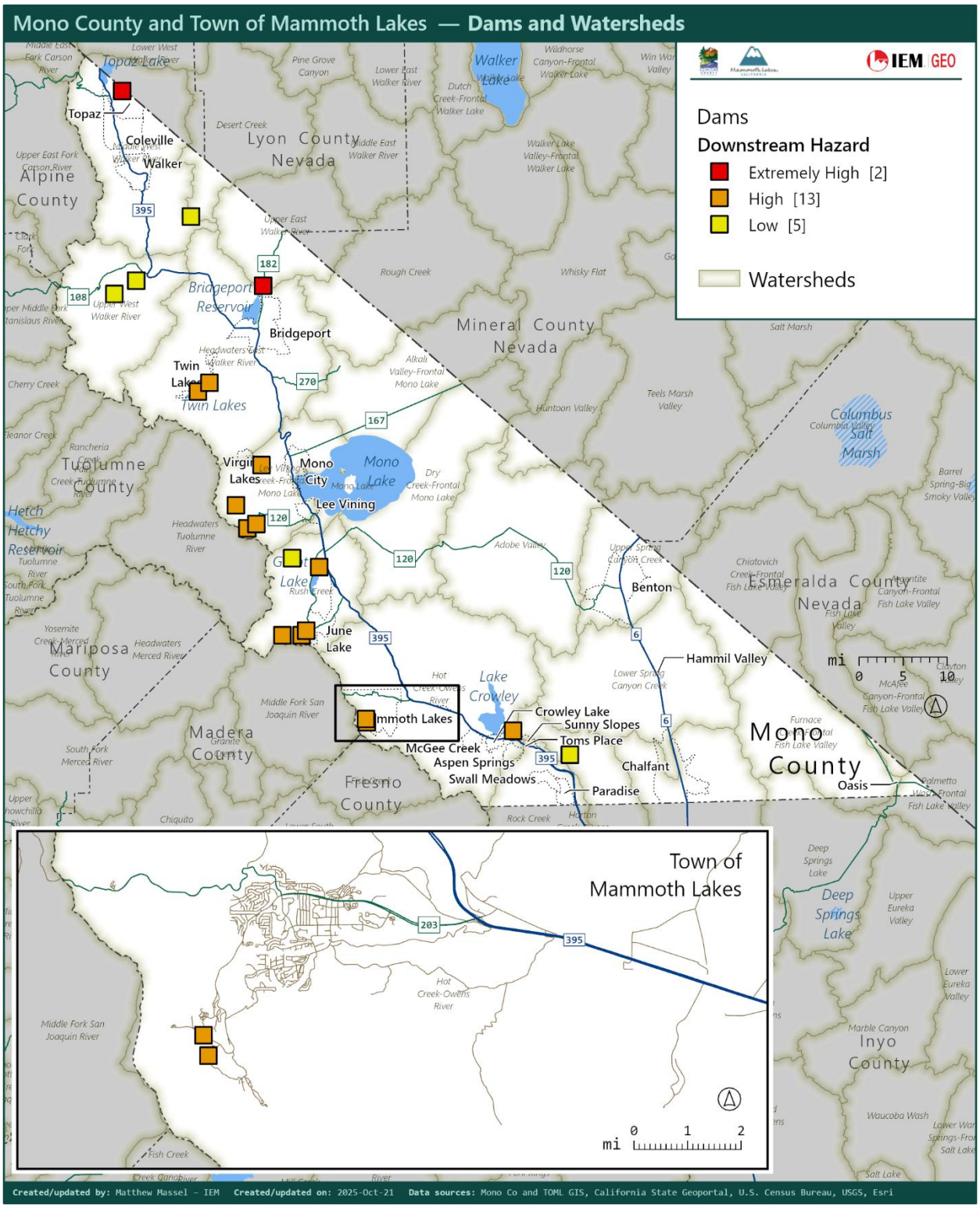


Figure 31: Mono County and Town of Mammoth Lakes – Dams and Watersheds Map

Table 23 provides more details on dams within the County, including HHPDs from the National Inventory of Dams database.

Table 23: Mono County Dams - National Inventory of Dams[34]

Name	NID	State Regulated	Federal Regulated	Purpose	Hazard Potential	EAP Prepared	Owner	Capacity (Acre Ft)	Inspection Date
Agnew Lake	CA00454	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	810	7/18/2023
Black Reservoir	CA00646	Yes	No	Water Supply	Low	Not Required	The Wildlands Conservancy	185	5/24/2024
Bridgeport	CA00284	Yes	No	Water Supply	High	Yes	Walker River Irrigation District	44,100	6/21/2024
Gem Lake	CA00453	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	17,228	7/18/2023
Grant Lake	CA00089	Yes	No	Water Supply	High	Yes	City of L.A. Department of Water and Power	47,525	10/24/2023
Lake Mamie	CA10389	No	No	Water Supply	Significant	Not Required	US Forest Service	0	10/24/2013
Lake Mary	CA10388	No	No	Water Supply	High	No	US Forest Service	1,300	10/24/2013
Lobdel Lake	CA00647	Yes	No	Water Supply	Low	Not Required	David Park	640	11/2/2023
Long Valley	CA00090	Yes	No	Water Supply	High	Yes	City of L.A. Department of Water and Power	183,465	10/24/2023
Lower Twin Lake	CA00644	Yes	No	Water Supply	High	Yes	Centennial Livestock	4,011	5/23/2024
Lundy Lake	CA00451	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	4,113	7/19/2023

[34] National Inventory of Dams. https://nid.sec.usace.army.mil/nid/#/dams/search/sy=@countyState:Mono,%20California&viewType=map&resultsType=dams&advanced=false&hideList=false&eventSystem=false

Name	NID	State Regulated	Federal Regulated	Purpose	Hazard Potential	EAP Prepared	Owner	Capacity (Acre Ft)	Inspection Date
Poore Lake Reservoir	CA00648	Yes	No	Water Supply	Low	Not Required	Park Livestock Company	1,200	11/2/2023
Rhinedollar	CA00457	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	749	7/19/2023
Rush Meadows	CA00450	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	5,280	7/12/2022
Saddlebag Lake	CA00455	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	18,100	7/19/2023
Tioga Lake Auxiliary	CA00456	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	1,254	7/19/2023
Tioga Lake Main	CA00456	Yes	Yes	Hydroelectric	High	Yes	Southern California Edison Company	1,254	7/19/2023
Topaz Lake	CA01473	Yes	No	Flood Risk Reduction	High	Yes	Walker River Irrigation District	59,600	6/21/2024
Topaz Lake Dam	NV10470	Yes	No	Irrigation	High	No	Walker River Irrigation District	1,000	11/13/2023
Upper Gorge	CA00095	Yes	No	Other	Low	Not Required	City of L.A. Department of Water and Power	26	9/20/2023
Upper Twin Lake	CA00643	Yes	No	Water Supply	High	Yes	Centennial Livestock	2,070	5/23/2024
Walker Lake	CA00091	Yes	No	Water Supply	Low	Not Required	City of L.A. Department of Water and Power	540	10/24/2023

Table 24 provides information on dams located in the County using the California Open Data Portal.

Table 24: Mono County Dams - California Open Data Portal[35]

Name	NID	State ID	Owner	Down Stream Hazard	Condition
Agnew Lake	CA00454	No. 104-38	Southern California Edison	High	Satisfactory
Black Reservoir	CA00646	No. 538-0	Bently Family, LP	Low	Satisfactory
Bridgeport	CA00284	No. 70-2	Walker River Irrigation District	Extremely High	Satisfactory
Gem Lake	CA00453	No. 104-37	Southern California Edison	High	Fair
Grant Lake	CA00089	No. 6-33	City of Los Angeles Department of Water and Power	High	Satisfactory
Lobdel Lake	CA00647	No. 539-0	Private Entity	Low	Satisfactory
Long Valley	CA00090	No. 6-34	City of Los Angeles Department of Water and Power	High	Satisfactory
Lower Twin Lake	CA00644	No. 531-2	Centennial Livestock	High	Fair
Lundy Lake	CA00451	No. 104-35	Southern California Edison	High	Satisfactory
Poore Lake Reservoir	CA00648	No. 540-0	Park Livestock Company	Low	Satisfactory
Rhinedollar	CA00457	No. 104-41	Southern California Edison	High	Satisfactory
Rush Creek Meadows	CA00450	No. 104-34	Southern California Edison	High	Satisfactory
Saddlebag	CA00455	No. 104-39	Southern California Edison	High	Satisfactory
Tioga Lake	CA00456	No. 104-40	Southern California Edison	High	Satisfactory
Topaz Lake*	CA01473	No. 70-3	Walker River Irrigation District	Extremely High	Satisfactory

[35] California Open Data Portal, "CSV." https://data.ca.gov/dataset/i17-california-jurisdictional-dams/resource/c92c6569-e45f-438d-ac2f-1f4a7642260b

Name	NID	State ID	Owner	Down Stream Hazard	Condition
Upper Gorge	CA00095	No. 6-42	City of Los Angeles Department of Water and Power	Low	Satisfactory
Upper Twin Lake	CA00643	No. 531-0	Centennial Livestock	High	Fair
Walker Lake	CA00091	No. 6-35	City of Los Angeles Department of Water and Power	Low	Satisfactory
Agnew Lake	CA00454	No. 104-38	Southern California Edison	High	Satisfactory

*While the Topaz Lake dam is located within the planning area, the dam owner noted that there is a natural outlet and the inundation area is more likely to impact Douglas County, Nevada than the County itself.

Southern California Edison (SCE) is in the process of relicensing the Lee Vining Hydroelectric Project, which has a capacity of 11.25 megawatts and is located on Lee Vining Creek in the County. The project includes four dams, a powerhouse, and other necessary facilities. SCE's current license, issued by the Federal Energy Regulatory Commission in 1997, will expire on January 31, 2027. To continue operations, SCE must obtain a new license, which involves a multi-year application process. This process began with the filing of a Preliminary Application Document and Notice of Intent in August 2021.

The Lee Vining Hydroelectric Project is situated on the eastern slope of the Sierra Nevada Mountains, near Yosemite National Park. Key facilities include Saddlebag Dam and Lake, Tioga Dam and Lake, Rhinedollar Dam and Lake, a flowline, and the Poole powerhouse. Water from Saddlebag and Tioga Lakes flows into Rhinedollar Lake, which serves as the intake for the powerhouse. The project also includes a pipeline and penstock system that conveys water to the powerhouse.[36]

The County encompasses eight dam inundation areas: Agnew Lake, Bridgeport Lake, Gem Lake, Grant Lake, Rhinedollar, Rush Creek Meadows, Saddlebag Lake, and Twin Lakes. These hazard zones are delineated as follows:

- **Agnew Lake**: The inundation area extends northeast from Agnew Lake Dam, encompassing Silver Lake and Grant Lake, and terminates near Mono Lake.
- **Bridgeport Lake**: This area follows a northern path along SR 182, reaching the boundary of the County.
- **Gem Lake**: The inundation zone stretches northeast from Gem Lake Dam to Agnew Lake Dam, covering Silver Lake and Grant Lake, and concludes near Mono Lake.

[36] Lee Vining Hydroelectric Project. "Project Description."

- **Grant Lake**: The hazard area extends northward from Grant Lake Dam to Mono Lake.
- **Rhinedollar**: This zone runs south of SR 120, passing through Lee Vining and ending at Mono Lake.
- **Rush Creek Meadows**: The inundation area includes Gem Lake and the stream between Rush Creek Meadows Dam and Gem Lake Dam.
- **Saddlebag Lake**: The zone extends south from Saddlebag Dam to Rhinedollar Dam, then continues south of SR 120 through Lee Vining to Mono Lake.
- **Twin Lakes:** The inundation area runs north from Lower Twin Lake Dam towards Bridgeport.

Existing inundation mapping does not identify any dam inundation hazard areas in the Town. Inundation modeling and analysis for the dams at Lake Mary, and Lake Mamie, both situated within Inyo National Forest, are also not available from the Department of Water Resources. Mammoth Creek, which drains the Mammoth Lakes Basin containing over a dozen lakes, including the three dammed lakes, collects water from the Sierra crest and flows downstream through Lake Mary, Lake Mamie, and into Twin Lakes. The creek exits the Mammoth Lakes Basin at the outlet of Twin Lakes and continues along the southern edge of the Town. Failure of any of these dams could lead to significant flood inundation within the urban area of the Town, potentially impacting numerous structures along the creek. Plan participants and stakeholders identified this missing data as a data deficiency. Although the Mammoth Community Water District (MCWD) dams may be low-risk dams, they potentially could impact the Town. The current report for MCWD appears outdated. A new study could help develop a better estimate of what would happen if their dams fail. Including the CFS from prior recent major storm events, such as in 2017, would help create more realistic dam failure scenarios.

Extent

Federal guidelines provide for a three-level classification system that defines low-, significant-, and high-hazard potential classifications depending on the potential for loss of life, economic loss, and environmental damage resulting from a hypothetical dam failure.

Table 25: Dam Classification System

Classification	Description
High	Likely to cause loss of life.
Significant	Could cause economic loss, environmental damage, or disruption of services.
Low	Unlikely to cause loss of life or significant economic or environmental damage.

Currently, Mono Count has 16 high-hazards dams, one significant-hazard dam, and five low-hazard dams within the planning area. None of these dams impact the Town.

History of Previous Hazard Events

The County and the Town have not experienced any dam failures to date. However, the substantial snowpack during the winter of 2016–2017 placed considerable stress on the dams at Gem and Agnew Lakes. In response, SCE installed a pump system at Agnew Lake to manage the increased water flow and maintain safe dam levels. In 2017 and 2023, the Walker River Irrigation District was able to release reservoirs anywhere from 6-10 times. According to the Mono County Emergency Operations Plan, seven dams—Lower and Upper Twin Lakes, Lundy Lake, Long Valley, Crowley Lake, Rush Creek Meadows, and Saddlebag—pose some risk to downstream developed areas, anglers, recreation visitors, and people in campgrounds in the event of a dam failure. Many of the events that worried the dam failure stakeholders have been rain-on-snow events. Despite these potential risks, the dams in the County are generally not considered major threats. There have been no federal and state disaster declarations regarding dam failure since the prior plan update,

Probability of Future Hazard Events

The absence of historical dam failure events in the County complicates the prediction of future probabilities. An independent forensic analysis of the 2017 Oroville Dam incident in Butte County highlighted systemic deficiencies in dam safety regulations and industry practices, suggesting potential overconfidence among dam owners in their safety assessments. Despite these concerns, the fact that only two of California's 1,500 dams have failed in the past 90 years, with no failures since 1963, indicates approximately a 2% annual chance of occurrence for a future dam failure.

CLIMATE CHANGE CONSIDERATIONS

The potential impact of climate change on dam failure risk is a growing concern. As climate change leads to more extreme weather patterns, including increased precipitation and snowmelt, the stress on dam infrastructure could intensify. This heightened stress may exacerbate existing vulnerabilities in dam structures particularly those not designed to handle such extreme conditions. While historical data suggests that dam failures are rare, the evolving climate conditions necessitate a reassessment of dam safety protocols and infrastructure resilience to mitigate the heightened risks posed by climate change.

Cal-Adapt California Fourth Climate Change Assessment Sierra Nevada Region Report states flood risks are projected to increase within and downstream from the Sierra Nevada as climate change increases storm intensities and temperatures. However, accurate estimates of the coming changes in flood characteristics (e.g., flood frequencies and magnitudes, flood durations, seasonal timing) have yet to emerge and are much needed by communities, engineers, and hazards-managers in the region. Improved projections of future flood frequencies and dam failure risks—along with closely related projections of

water-supply benefits and environmental and community impacts—are necessary as a part of debates regarding new reservoir-storage options in the region.[37]

Vulnerability

The California Department of Water Resources Division of Safety of Dams (DSOD) maintains a database of dams in the state; critical dam safety status information includes certification, downstream hazard, and condition assessment. The condition assessment is based on definitions established by the National Inventory of Dams, as well as additional criteria identified by the DSOD. The condition assessment has five possible ratings based on the described criteria outlined in Table 26.

Table 26: Dam Safety Condition Assessment Rating System[38]

Rating	National Inventory of Dams Definitions	California Division of Safety of Dams Additional Criteria
Satisfactory	No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerable risk guidelines	None
Fair	No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action.	Dam has a long-standing deficiency that is not being addressed in a timely manner. Dam is not certified, and its safety is under evaluation. Dam is restricted and the operation of the reservoir at the lower level does not mitigate the deficiency.
Poor	A dam safety deficiency is recognized for loading conditions that may realistically occur. Remedial action is necessary. A poor rating may also be used when uncertainties exist as to critical analysis parameters that identify a potential dam safety deficiency. Further investigations and studies are necessary.	Dam has multiple deficiencies or a significant deficiency that requires extensive remedial work.

[37] Cal-Adapt, 2025, "California Fourth Climate Change Assessment Sierra Nevada Region Report," https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

[38] California Department of Water Resources Division of Safety of Dams "Dams within Jurisdiction of the State of California 2024" https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Division-of-Safety-of-Dams/Files/Publications/Annual-Data-Release/DAMS-WITHIN-JURISDICTION-OF-THE-STATE-OF-CALIFORNIA-LISTED-ALPHABETICALLY-BY-COUNTY-SEPTEMBER-2024.pdf

Rating	National Inventory of Dams Definitions	California Division of Safety of Dams Additional Criteria
Unsatisfactory	A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.	None

The condition assessments for various dams in the County indicate that most are in satisfactory condition. However, Gem Lake and Lower Twin Lake are rated as fair, while Grant Lake is in poor condition. The status of Lake Mamie and Lake Mary remains unknown. While the Bridgeport dam was rated as Satisfactory, based on previous hazard events, the Walker River Irrigation District recommended upgrading the spillway. The reservoir gate and other upgrades were installed around 1923-1925 and the spillway was retrofitted in 1976, so it has been in use for a while. Completing additional dam improvement projects now would help reduce the risk of an incident similar to what happened at the Oroville dam in 2017 when the spillway failed during the release from floodgates. While the Oroville dam technically did not fail, this incident highlights the value of proactively addressing dam failure risk.

Table 27: Dam Condition Assessment[39]

Name	Condition Assessment
Agnew Lake	Satisfactory
Black Reservoir	Satisfactory
Bridgeport	Satisfactory
Gem Lake	Fair
Grant Lake	Poor
Lake Mamie	Unknown
Lake Mary	Unknown
Lobdel Lake	Satisfactory
Long Valley	Satisfactory
Lower Twin Lake	Fair
Lundy Lake	Satisfactory
Poore Lake Reservoir	Satisfactory
Rhinedollar	Satisfactory
Rush Meadows	Satisfactory
Saddlebag Lake	Satisfactory

[39] California Department of Water Resources Division of Safety of Dams. "Dams within Jurisdiction of the State of California 2024." https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Division-of-Safety-of-Dams/Files/Publications/Annual-Data-Release/DAMS-WITHIN-JURISDICTION-OF-THE-STATE-OF-CALIFORNIA-LISTED-ALPHABETICALLY-BY-COUNTY-SEPTEMBER-2024.pdf.

Name	Condition Assessment
Tioga Lake Auxiliary	Satisfactory
Tioga Lake Main	Satisfactory
Topaz Lake	Satisfactory
Topaz Lake Dam	Satisfactory
Upper Gorge	Satisfactory
Upper Twin Lake	Fair
Walker Lake	Satisfactory

VULNERABLE POPULATIONS

In the County, several vulnerable populations could be at risk in the event of a dam failure. These include residents living in downstream areas, particularly those in developed regions near the dams such as Lower and Upper Twin Lakes, Lundy Lake, Long Valley, Crowley Lake, Rush Creek Meadows, and Saddlebag Lake.

Tourists and recreational visitors who frequent campgrounds, hiking trails, and fishing spots near these dams are also at risk. Economically disadvantaged individuals, those with limited English proficiency, and people with access or functional needs may face greater challenges during evacuation and recovery efforts.

Impacts

Dam failures can significantly impact the County, affecting various aspects of life and community. Estimating the impacts and losses due to dam failure involves considering several factors including the potential for flooding, damage to infrastructure, and the risk to human life. In the event of a dam failure, the immediate impact would be the inundation of downstream areas which could lead to significant property damage, displacement of residents, and potential loss of life. Critical infrastructure such as roads, bridges, and utilities could be severely affected by disrupting transportation and essential services.

Economic losses would likely be substantial, encompassing the costs of emergency response, repairs, and reconstruction. Economically, dam failures can devastate local farmers by destroying crops and farmland, while a decline in tourism, critical for the area's economy, can occur if flooding deters visitors.

Health risks arise from injuries and fatalities caused by flooding, which can threaten residents and lead to anxiety and a decline in quality of life. The social and psychological effects on affected communities could also be profound with residents facing the loss of homes, livelihoods, and a sense of security. The structural integrity of homes and historic sites may be compromised as flooding causes damage, necessitating costly repairs and preservation efforts.

Additionally, there would be long-term environmental impacts including habitat destruction and water quality degradation. Ecosystem disruptions can lead to biodiversity loss, impacting local wildlife and the environment, while traditional cultural practices may be threatened if natural resources are affected. These

dam failure-related challenges can limit outdoor recreational activities and divert resources from other initiatives ultimately influencing community engagement and cohesion.

Changes in Development

In the County and the Town, recent changes in development have emphasized the importance of adhering to updated building codes and statutes particularly concerning dam safety and infrastructure resilience. The 2022 California Building Codes and Mono County Design Standards have been implemented to ensure that new developments meet stringent safety requirements.[40] These standards include specific provisions for the construction and maintenance of dams aiming to mitigate risks associated with potential dam failures.

The Mono County 2025 Capital Improvement Plan outlines strategic initiatives for infrastructure improvements, including enhancements to dam safety.[41] This plan prioritizes projects that bolster the structural integrity of existing dams and related facilities ensuring they can withstand extreme weather events and other stressors. The Town's Capital Facilities and Financing Plan serves as the Town's long-range planning document directing investments in new public facilities, operations, and maintenance.[42] By integrating these updated codes and strategic plans, the County and the Town are proactively addressing potential vulnerabilities and enhancing the overall safety and resilience of their communities.

Disease/Pest Management

Hazard Description

Disease and pest management hazards arise from undesirable organisms such as insects, bacteria, and viruses that can cause serious harm to plants, animals, and humans. These organisms threaten human health by infecting individuals, flora, and fauna with various diseases, some of which can be fatal. Pathogenic organisms that carry diseases can also significantly damage forests, creating safety hazards while causing environmental harm and economic consequences.

Due to the rural nature of the County, diseases that impact forests and those that are carried by wildlife are of particular concern, in addition to those affecting human health. Several insects and rodents can be considered hazardous in the County:

[40] Mono County. "Mono County Design Standards." https://www.monocounty.ca.gov/building/page/design-standards.
[41] Mono County. "Mono County 2025 Capital Improvement Plan." https://www.monocounty.ca.gov/cao/page/mono-county-2025-capital-improvement-plan.
[42] Mammoth Lakes California. "Capital Facilities and Financing Plan." https://www.townofmammothlakes.ca.gov/428/Capital-Facilities-and-Financing-Plan?utm.

- Mosquitoes are among the most prevalent carriers of harmful pathogens known as arboviruses, such as West Nile, Western equine encephalomyelitis, St. Louis encephalitis, and Zika virus. The rate of infection is extremely low in California, but the symptoms can be severe and deadly.
- Rodents such as squirrels and mice can be carriers of hantavirus and plague. Hantavirus is transmitted through deer mouse urine, saliva, or feces, while plague is hosted within some rodents and transmitted to humans by fleas.
- Chronic wasting disease is a neurological disease that affects deer, elk, and moose. Although primarily a concern for wildlife populations, it can indirectly affect forest health and management practices.[43]
- Lyme disease is spread by ticks associated with wildlife like deer and rodents and can affect humans and pets. A high deer population can increase tick prevalence, indirectly affecting forest areas.[44]
- Plague is found in squirrels, chipmunks, and other rodents in California and the Southwestern United States. It is transmitted to humans through flea bites or close contact with an infected animal.[45]
- Avian influenza primarily affects bird populations; outbreaks can alter wildlife interactions and impact forest ecosystems where affected birds reside.[46]
- Fir engraver beetles and Jeffrey pine beetles, while not a threat to human health, have infested forests throughout the Sierra Nevada. Pests of this variety inhabit trees, weakening and often killing them. Massive outbreaks of beetles can kill vast swaths of forests, which in turn can exacerbate fire hazards by increasing potential fuel sources.

Other species of insects, such as ticks, may also carry disease but have not caused substantial outbreaks in the County.

CASCADING HAZARDS

Cascading hazards from pests and animal diseases can create interconnected challenges that affect ecosystems and human communities. When outbreaks occur, they can disrupt local ecosystems, resulting in an imbalance where certain species may overpopulate while others decline. This loss of biodiversity can have long-term consequences for environmental health. Additionally, animal diseases can threaten food security by causing significant livestock losses, which directly affect food supply chains and lead to shortages, thereby increasing the risk of hunger and malnutrition. The economic repercussions are substantial, as farmers and communities that rely on agriculture may experience downturns, which can impact both local and national economies. Public health is also a concern, as some pests and diseases are

[43] California Department of Fish and Wildlife. "Chronic Wasting Disease Surveillance." https://wildlife.ca.gov/Conservation/Laboratories/Wildlife-Health/Monitoring/CWD.
[44] California Department of Public Health. "Lyme Disease." https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/LymeDisease.aspx.
[45] California Department of Public Health. "Plague." https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Plague.aspx.
[46] Mammoth Times. "Avian Flu Detected in Mammoth Lakes Sewage System." https://www.mammothtimes.com/news/avian-flu-detected-in-mammoth-lakes-sewage-system/article_ebe8ac52-bdb9-11ef-9332-a7fd5767e212.html.

zoonotic, posing transmission risks to humans and potentially leading to public health emergencies. In efforts to combat these issues, there may be a greater reliance on pesticides and antibiotics, which can result in environmental contamination and resistance problems. Moreover, outbreaks can disrupt wildlife habitats, displacing species and leading to conflicts between humans and wildlife. Changes in land-use patterns often occur in response to these outbreaks, further affecting ecosystems and local economies. Ultimately, the interconnectedness of these factors highlights the importance of developing effective management strategies to mitigate the cascading impacts of pest and animal diseases.

Location

Disease and pest management hazards are anticipated to affect both the unincorporated County and Town. However, there are no meaningful distinctions in hazard distribution between the two geographies. Thus, the two areas are discussed together below.

Because mosquitoes transmit many diseases, areas with high mosquito populations, such as bodies of water and humid environments, will be significantly more at risk. Mosquitoes are seasonal pests, typically appearing during warm months and disappearing during the winter.

Invasive tree pests typically occur in forested areas but can also affect street and private trees in developed regions of the County. Rodent-borne diseases are more prevalent in rural areas near the wildland–urban interface. Common agricultural diseases in the region include powdery mildew and Botrytis blight, which can severely diminish crop yields and threaten local biodiversity.

Extent

Pest diseases pose a significant threat to agricultural productivity and ecosystem health in the County and assessing their extent through the Disease Severity Index (DSI) provides valuable insights. The DSI serves as a quantitative measure of disease impact, reflecting factors such as the proportion of affected plants and the severity of symptoms observed in the field (see Table 28).

Table 28: Disease Severity Scale[47]

Disease Score	Lesion Area %	Disease Reaction
0	0	Highly Resistant (HR)
1	1–10	Resistant (R)
3	11–30	Moderately Resistant (MR)
5	31–50	Moderately Susceptible (MS)
7	51–75	Susceptible (S)

[47] ResearchGate. "Disease Severity Scale for Bacterial Leaf Blight Disease." https://www.researchgate.net/figure/Disease-severity-scale-for-bacterial-leaf-blight-disease-Chaudhry-1996_tbl1_308597732.

Disease Score	Lesion Area %	Disease Reaction
9	76–100	Highly Susceptible (HS)

History of Previous Hazard Events

Cases of disease outbreaks in the County have mostly been limited to a small number of infections; however, it is important to note that it is situated in a region that has a historical association with various disease outbreaks, including the epidemic plague. From 1966 to 2023, several plague cases were documented in the area, the most recent being two human cases of plague in Yosemite National Park in 2015[48]. Between 1984 and 2019, 5.6% of rodents tested in the County showed laboratory evidence of infection with *Yersinia pestis*, the bacteria that causes plague. Rodents in the County tested positive for the plague as recently as 2023.[49] No more recent data on plague outbreaks in the County was available at the time of this plan update. There have been no federal and state disaster declarations regarding disease and pest outbreaks since the prior plan update. The County is identified by the arrow in Figure 32.

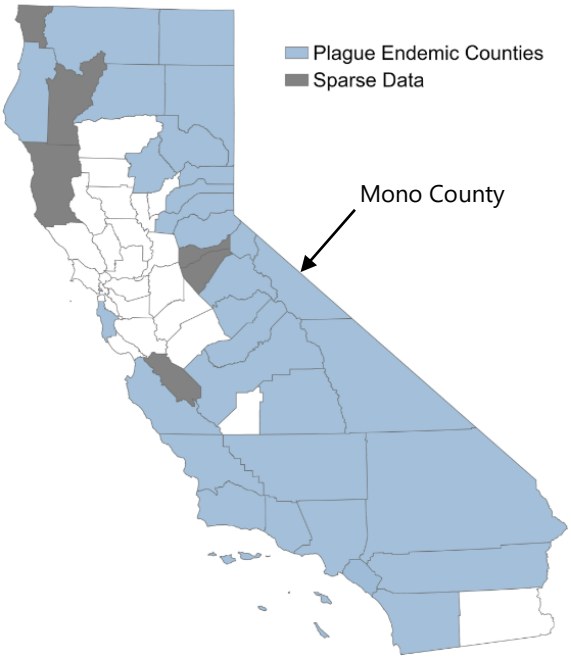


Figure 32: Plague Endemics by California County[50]

[48] California Department of Public Health. "Vector-Borne Disease Section Annual Report 2015." 2015. https://westnile.ca.gov/pdfs/VBDSAnnualReport15.pdf
[49] California Department of Public Health. "Vector-Borne Disease Section Annual Report 2023." 2023. https://westnile.ca.gov/pdfs/VBDSAnnualReport23.pdf
[50] California Department of Public Health. "Plague in California." https://storymaps.arcgis.com/stories/efd9ae9cc06a4f6b9d7fb5120def0ca2.

Hantavirus infections have been relatively rare, with 27 confirmed cases reported and three deaths occurring between 1993 and 2025. The recent reports of three cases in the Town are concerning and highlight the acute threat posed by this virus. The fatalities associated with these cases raise critical public health alarms, particularly given the unusual timing of the outbreaks early in the year.

One key point of concern is the uncertainty surrounding the source of exposure. The absence of mouse activity in the deceased individuals' homes suggests that the virus might have been contracted in less predictable environments, such as workplaces. This underscores the real challenge of preventing exposure, even as locations that appear tidy and free from rodent signs can still harbor risks. Observing deer mice in indoor spaces during the early part of the year indicates an increased risk, especially since their population appears elevated compared to previous years.

Additionally, the fact that none of the affected individuals engaged in typical exposure activities, such as cleaning up mouse droppings or nesting materials, highlights the need for increased public awareness. It is a reminder that everyday activities might inadvertently lead to exposure.[51] The County is identified by the arrow in Figure 33.

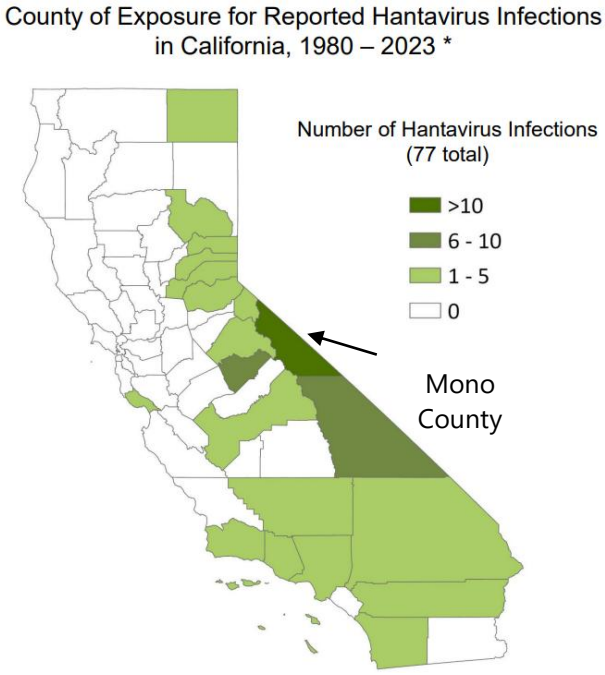


Figure 33: Hantavirus Infections[52]

[51] Mono County, "Third Hantavirus-Related Death Confirmed in Mono County." https://monocounty.ca.gov/cao/page/third-hantavirus-related-death-confirmed-mono-county

[52] California Department of Public Health. "Vector-Borne Disease Section." https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CountyofExposureforReportedHantavirus.pdf.

As of 2024, cases of West Nile virus have not been reported in the County, which is a positive sign indicating the absence of this vector-borne disease in the area this year. The County is identified by the arrow in Figure 34.

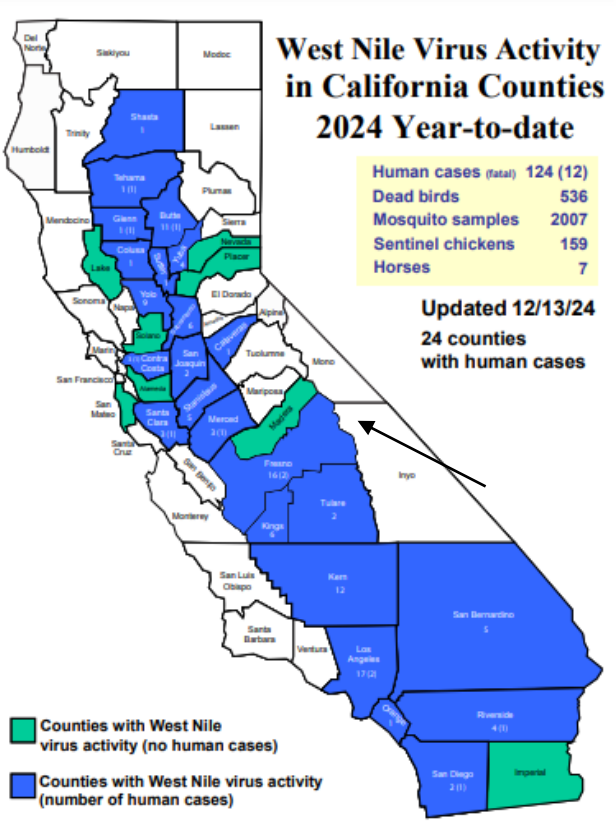


Figure 34: West Nile Virus in California[53]

Lyme disease has also been low, with reported cases ranging from 0.1 to 0.9 per year from 2013 to 2022. This suggests that while the risk exists, it remains minimal compared to other regions in California. The County is identified by the arrow in Figure 35.

[53] California Department of Public Health. "Vector-Borne Disease Section." https://westnile.ca.gov/

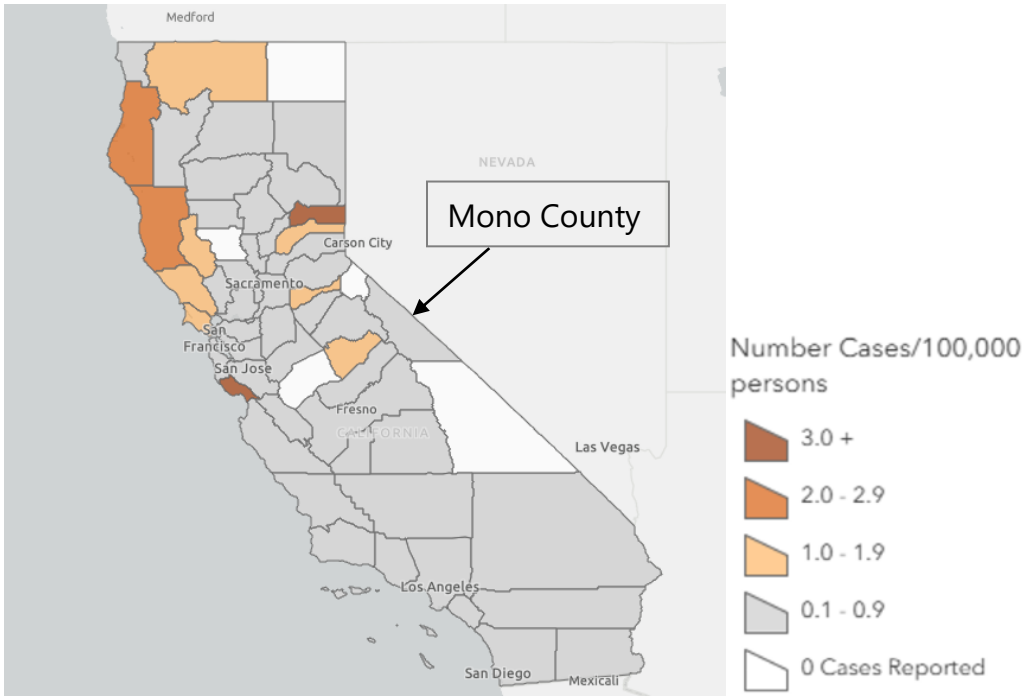


Figure 35: Lyme Disease in California, 2013–2022[54]

Although chronic wasting disease is concerning in the context of wildlife health, it has been reported only in nearby areas rather than the County, which may help safeguard local deer populations.[55]

The County faces a new challenge with widespread avian influenza infections, including two confirmed cases in the Town in 2024. Recent detections in wastewater highlight the importance of surveillance in understanding and managing outbreaks.[56]

Beetle infestations have been prevalent in the Sierra Nevada due to drought conditions, resulting in the death of tens of millions of trees since 2010. These infestations are not uncommon during drought conditions but have been significantly worse in the last several years.

Pine mortality caused by the mountain pine beetle (*Dendroctonus ponderosae*) has remained high but showed a decrease from approximately 390,000 dead trees over 40,000 acres in 2022 to around 270,000 dead trees over 36,000 acres in 2023. While tree mortality was widespread throughout the region, it was particularly severe around the Town and the County, especially affecting limber pine (*Pinus flexilis*) in the southern White Mountains.

[54] California Department of Public Health. "Vector-Borne Disease Section." https://storymaps.arcgis.com/stories/f64d0c19a3ab42cf90e8ce38397e96e0.
[55] LAist. "Deadly Brain Disease." https://laist.com/brief/news/climate-environment/california-deadly-brain-disease-in-deer.
[56] Mono County California's Eastern Sierra. "Public Health." https://monohealth.com/public-health.

Pinyon pine (*P. monophylla*) mortality caused by ips bark beetles decreased significantly in 2023, with an estimated 77,000 dead trees across 5,700 acres. This is a reduction from approximately 220,000 dead trees across 16,000 acres in 2022. The highest mortality rates were primarily concentrated in the White Mountains of Mono.[57]

Since 2017, multiple groups of Jeffrey pine trees have been killed by the western pine beetle and the Jeffrey pine beetle along Dry Creek Road, north of the Town, at an elevation of 9,000 feet in the County. Approximately 700 acres have been impacted over several years of infestation by both species, with each group affecting between 20 and 100 trees.[58]

Probability of Future Hazard Events

The probability of future pest diseases in the County, like in any area, can be influenced by several factors, including climate conditions, agricultural practices, and specific pest species. While it is difficult to assign an exact probability without specific data and modeling, historical evidence suggests that future events are highly likely due to climate change, agricultural practices, diverse ecosystems, and invasive species. Considering that there has been documented impacts to Mono County from human, animal, or plant disease and pests every year in recent history, the annual chance of occurrence for the future is near 100%.

CLIMATE CHANGE CONSIDERATIONS

Climate change poses significant considerations for pest diseases in the County. Rising temperatures may increase the prevalence of pests such as mosquitoes and ticks, which could spread vector-borne diseases. Additionally, shifting precipitation patterns can create conducive environments for waterborne pests and pathogens, while drought stress can make plants more vulnerable to infestations. The extended growing seasons associated with climate change may allow pests to thrive earlier in the year, potentially overlapping with their natural predators. Increased wildfire risks can disrupt ecosystems and reduce habitats for these predators, allowing pest populations to grow unchecked. Furthermore, invasive pest species may become more established as ecosystems shift, threatening local biodiversity and agricultural productivity.

Unusual climatic conditions have contributed to the ongoing infestation of the Southern Pine beetle and Jeffrey Pine beetle, which have killed approximately 20–100 trees along Dry Creek Road since 2017. The two species have affected roughly 700 acres over multiple years.[59] Similarly, drought-stricken trees are less able to defend themselves against invasive and damaging beetles. Warmer weather and slightly milder winters may result in fewer insects dying during cold weather periods. With declining snowpack, there

[57] Board of Forestry and Fire Protection. "California Forest Pest Conditions 2023." https://cdnverify.bof.fire.ca.gov/media/0bhnv1vo/full-12-c-i-ca-forest-pest-conditions-report-2023_adamfk.pdf
[58] Board of Forestry and Fire Protection. "California Forest Pest Conditions 2023." https://cdnverify.bof.fire.ca.gov/media/0bhnv1vo/full-12-c-i-ca-forest-pest-conditions-report-2023_adamfk.pdf
[59] Board of Forestry and Fire Protection. "California Forest Pest Conditions 2023." https://cdnverify.bof.fire.ca.gov/media/0bhnv1vo/full-12-c-i-ca-forest-pest-conditions-report-2023_adamfk.pdf

may be greater amounts of stagnant surface water. The combination of stagnant water and expected warmer temperatures could lead to an increase in the abundance of certain types of mosquitoes and other pests.

Vulnerability

In the County, various people and resources are vulnerable to pest diseases due to the area's unique environment. Residents and visitors engaged in outdoor activities like hiking and camping face health risks from pests such as ticks and mosquitoes, which can carry diseases like Lyme disease and West Nile virus. Structures, including homes and historic buildings, particularly in wooded areas, may suffer damage from wood-boring pests such as termites and bark beetles that threaten their integrity. The local economy is heavily reliant on tourism, while agriculture and forestry play lesser roles. However, it faces risks from agricultural pests that can devastate crops and livestock, as well as infestations in forested areas that may deter tourists and impact local businesses. Additionally, natural resources such as native wildlife and plant species can be affected by invasive pests, disrupting delicate ecosystems like Mono Lake. Cultural resources, including indigenous sites that rely on specific local flora, may face threats from pest diseases that alter or diminish these critical materials. Finally, community activities, especially those in natural settings, could decline as health concerns over pest-related diseases emerge, potentially leading to reduced participation in outdoor recreation.

Impacts

Pest diseases can significantly impact the County, affecting various aspects of life and community. Health risks arise from vector-borne diseases, which can threaten residents and lead to anxiety and a decline in quality of life. Economically, agricultural losses due to pest infestations can devastate local farmers, while a decline in tourism—critical for the area's economy—can occur if pests deter visitors. The structural integrity of homes and historic sites may be compromised as pests cause damage, necessitating costly repairs and preservation efforts. Ecosystem disruptions can lead to biodiversity loss, impacting local wildlife and the environment, while traditional cultural practices may be threatened if natural resources are affected. These pest-related challenges can limit outdoor recreational activities and divert resources from public health initiatives, ultimately influencing community engagement and cohesion.

Changes in Development

The emergence of pest diseases could lead to significant development changes across various sectors. Primarily, the agricultural industry may experience reduced crop yields and quality, resulting in economic downturns for local farmers and suppliers dependent on these crops. This could prompt a shift in land use as farmers may need to transition to alternative crops or practices more resilient to pests, thereby altering the local agricultural landscape. Additionally, increased regulations on pesticide usage may arise in response to pest outbreaks, influencing farmers' land management strategies and operational practices. The ecological impacts could be profound, potentially disrupting local biodiversity as native species decline in the face of invasive pests. Furthermore, if areas are significantly affected, tourism dynamics could change as landscapes become less appealing, impacting associated businesses.

Overall, while some farmers may employ effective management practices to mitigate these issues, the overarching trend tends to suggest that vulnerability increases as pest diseases emerge and spread in a region.

Drought

Hazard Description

A drought is defined as a prolonged period of water shortage caused by extended periods of below-normal precipitation, which leads to a decline in available water supplies. Unlike other natural hazards, drought does not have a specific threshold for declaring its occurrence and is characterized by a slow onset that develops over multiple dry periods. Droughts can trigger severe water supply shortages that significantly affect domestic water rates and potentially lead to restrictions on water usage. Communities may struggle to meet basic needs, and agricultural operations, particularly those that grow water-intensive crops, may suffer. Water-stressed plants are at risk of weakening or dying, and severe drought conditions can pose significant human health risks.

The lack of precipitation during a drought not only affects immediate water availability but also causes soil to harden, become less permeable, and become more prone to erosion. This can lead to increased flooding when precipitation eventually occurs. Wildland vegetation dries out, increasing the risk of fires, while water-stressed plants become more vulnerable to disease and pests. Droughts can affect vast regions, sometimes extending statewide or covering multiple states, with impacts that vary based on local conditions such as water supply systems, soil types, and land uses.

The impacts of drought are not limited to the directly affected areas. Persistent droughts can also lead to significant drops in groundwater levels, resulting in issues such as overdraft, subsidence, saline intrusion, and degradation of water quality. Groundwater plays a vital role in the operations of Casa Diablo Geothermal Complex, which consists of four geothermal plants (MP I, MP II, PLES-I, and newly operational Casa Diablo IV), as it provides heat through the extraction of hot water or steam. However, drought can result in lowered water tables, degraded water quality, and even increased seismic activity. These issues can negatively impact local ecosystems and water supplies.[60]

Communities that rely on imported water from distant regions may face severe consequences if drought occurs at the water source. The recent appellate court ruling mandating that LADWP conduct environmental reviews before dewatering areas in the County highlights the ongoing conflict between urban water needs and local ecological concerns. Los Angeles relies on water from the Eastern Sierra, which includes the County, leading to concerns over how water extraction impacts local ecosystems,

[60] USGS, "Drought and Groundwater Levels," https://www.usgs.gov/water-science-school/science/drought-and-groundwater-levels; ScienceDirect, "Drought Impacts on the Water Quality of Freshwater Systems; Review and Integration," https://www.sciencedirect.com/science/article/abs/pii/S0012825214002086; Scholars Direct, "How Droughts Influence Earthquakes," https://scholars.direct/Articles/environmental-studies/aes-3-025.php?jid=environmental-studies.

especially amid persistent drought conditions exacerbated by atmospheric change.[61] The indirect effects of drought, such as unemployment, reduced tax revenues, increased food and energy costs, and reduced outdoor recreation opportunities, contribute to its extensive impact on people and economies beyond the affected region.

CASCADING HAZARDS

Droughts can lead to a variety of cascading hazards that exacerbate the impacts of drought and other natural hazards. The following are some of the hazards that can occur:

- **Wildfires:** Prolonged drought conditions have the potential to dry out vegetation, making it more flammable and increasing the risk and intensity of wildfires.
- **Flooding:** Dry soil caused by prolonged drought conditions, followed by heavy rains, can lead to increased runoff and flash flood occurrences.
- **Agricultural Losses:** Drought reduces crop yields and livestock productivity, leading to food shortages and economic losses.
- **Ecosystem Damage:** Drought conditions can lead to biodiversity loss, habitat degradation, and increased vulnerability to other hazards in natural ecosystems.
- **Health Risks:** Drought can exacerbate health issues such as respiratory problems due to dust and poor air quality.

Location

Drought is expected to impact both the unincorporated County and the Town. Although drought is considered a regional hazard, the County, with its wide range of climates, may experience varied drought conditions in different locations. No single part of the County or the Town is significantly more or less at risk of drought conditions, but certain areas may be more severely impacted by droughts due to geographic location.

A large portion of the County's water is sourced from groundwater wells that are susceptible to depletion, leading to lowered water tables, land subsidence, increased water costs, reduced surface water supplies, and concentrated contamination. Drought raises water quality concerns with these wells. The Owens Valley Groundwater Basin—which spans neighboring Inyo County, the Tri-Valley area, and communities such as Benton, Hammil, and Chalfant—is considered important by the Department of Water Resources. These areas rely on both groundwater and surface water supplies, with agricultural activities particularly dependent on groundwater. Although critical facilities are not directly affected by drought conditions, droughts may impact their operation, especially if they involve water.

[61] Mono County California, "Appellate Court Ruling Stops Long Valley Dewatering." https://monocounty.ca.gov/cao/page/appellate-court-ruling-stops-long-valley-dewatering

Extent

The Palmer Drought Severity Index (PDSI), also known as the Palmer Drought Index, is commonly used to measure drought conditions. Developed by Wayne Palmer in 1965, the PDSI assesses drought using recent precipitation and temperature data based on a supply and demand model of soil moisture. It is most effective for long-term calculations. Three other indices used to measure drought include the Palmer Hydrologic Drought Index (PHDI), the Crop Moisture Index (CMI), and the Keetch-Byram Drought Index (KBDI). The KBDI is primarily used to predict the likelihood of wildfire outbreaks due to drought conditions. The PDSI is frequently used for droughts with the goal of providing standardized moisture condition measurements, allowing for comparisons between locations and months.

Table 29 and Table 30 show the range and Palmer classifications of the PDSI and the US Drought Monitor intensity scale.

Table 29: Palmer Drought Severity Index Classification and Range

Range	Palmer Classification
4.0 or more	Extremely Wet
3.0 to 3.99	Very Wet
2.0 to 2.99	Moderately Wet
1.0 to 1.99	Slightly Wet
0.5 to 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-0.5 to -0.99	Incipient Dry Spell
-1.0 to -1.99	Mild Drought
-2.0 to -2.99	Moderate Drought
-3.0 to -3.99	Severe Drought
-4.0 or less	Extreme Drought

Table 30: US Drought Monitor Drought Intensity Scale

Range/Category	Description	PDSI Equivalent
D0	Abnormally Dry	-1.0 to -1.99
D1	Moderate Drought	-2.0 to -2.99
D2	Severe Drought	-3.0 to -3.99
D3	Extreme Drought	-4.0 to -4.99
D4	Exceptional Drought	-5.0 or less

Based on historical data, the County and the Town can expect to experience Exceptional Drought (D4) as a worst-case scenario. Figure 36 shows the drought conditions for the state of California during the week of

December 31, 2024. At the time of this plan update, the County was experiencing Abnormally Dry (D0) conditions in the northern portion of the County and Moderate Drought (D1) conditions in the southern portion of the County. Figure 37 shows drought trends in the County from 2000 to 2025. In the past 25-year span, Extreme Drought (D3) or worse has reoccurred approximately every 6 to 7 years. The previous Exceptional Drought happened from 2021-2022.

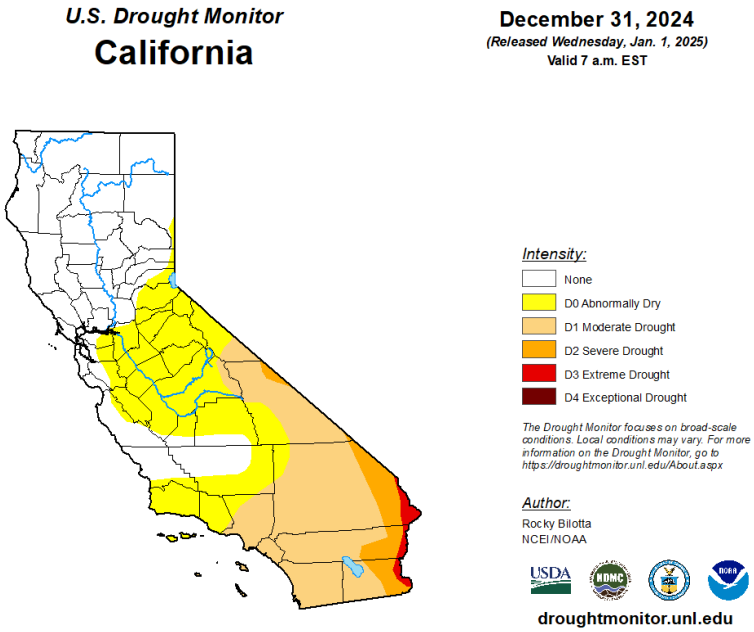


Figure 36: Drought Severity Across the State of California[62]

[62] U.S. Drought Monitor, "Drought Severity in California December 31, 2024," https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA.

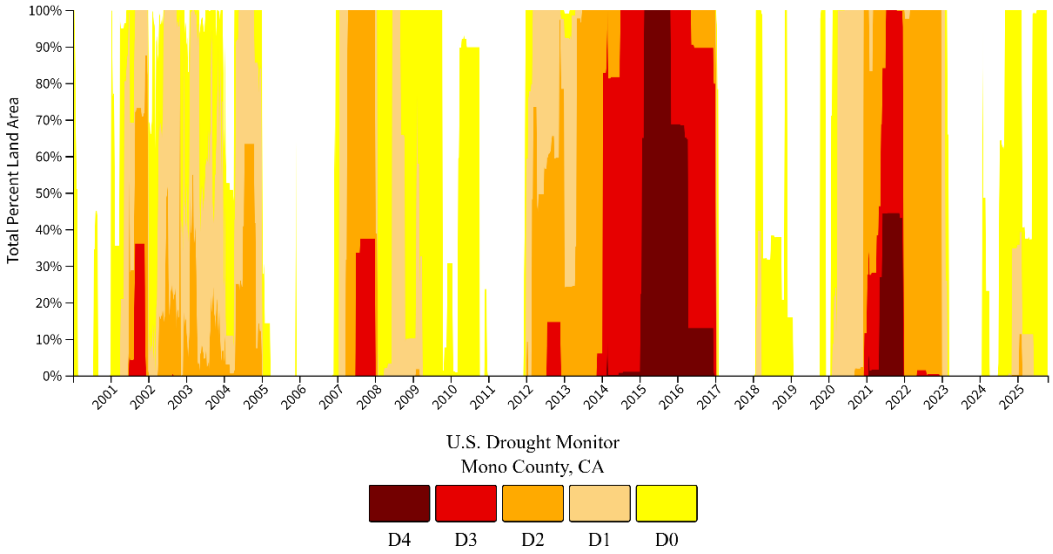


Figure 37: Historic Drought Conditions for Mono County, 2000–2025[63]

History of Previous Hazard Events

Droughts are a recurring aspect of California's climate, with many native species having developed survival strategies for such conditions. The state has a vast water supply network that mitigates drought impacts through large storage reservoirs and extensive pipelines, transferring water from regions with surplus supplies to those experiencing drought. However, this system primarily benefits California's urban areas.

Historical droughts in California took place from 1976 to 1977, 1986 to 1992, and 2007 to 2009. The most recent drought spanned from December 2011 to March 2017 and led to a state of emergency declaration by Governor Jerry Brown on January 17, 2014. By 2016, nearly all of the County was experiencing extreme drought conditions (D3), with parts of the western County, including the Town, facing exceptional drought (D4). Several groundwater wells dried up, prompting the drilling of new wells; for instance, four new wells were reported in Antelope Valley. Farmers in the Tri-Valley noted a drop of 5 to 6 feet in well water levels during this period. Although higher-than-average rainfall and snowpack in 2017 alleviated the most severe conditions of the recent drought, it will take years for local water systems to fully recover.

The National Centers for Environmental Information (NCEI) Storm Events Database identified no significant drought occurrences resulting in loss of life or property in the County planning area since the last plan update. Additionally, there have been no state or federal disaster declarations for the hazard of drought in the County since the previous plan update. This does not mean that drought has not occurred

[63] U.S. Drought Monitor. "Historical Conditions for Mono County." 2025. https://www.drought.gov/states/california/county/mono

but merely that there have been no significant drought events that have led to property/crop damage or injuries/fatalities within the County and the Town.

Table 31: USDA Drought Declarations for Mono County (2020-2024)[64]

Designation Number	Date of Disaster Designation	Drought Begin Date
S4758	8/24/2020	6/16/2020
S4819	10/14/2020	8/4/2020
S5146	4/8/2022	10/1/2021
S5155	4/8/2022	1/1/2022
S5208	5/31/2022	4/1/2022
S5371	3/17/2023	10/1/2022
S5379	3/17/2023	1/1/2023
S5428	6/5/2023	11/1/2022
S5943	3/26/2025	10/1/2024
S5950	3/26/2025	1/1/2025

Probability of Future Hazard Events

The NCEI Storm Events Database identified no significant drought occurrences resulting in loss of life or property within the County planning area since the last plan update; however, there have been significant drought events prior to this, including the 10 USDA declarations since the last plan update, resulting in a highly likely annual chance of occurrence. Since 1976, drought has occurred in 23 of the 49 years resulting in a 47% chance of annual drought occurrence.

CLIMATE CHANGE CONSIDERATIONS

In the County and the Town, research indicates that climate change will lead to decreased precipitation and an increase in drier days. Rising temperatures will cause more precipitation to fall as rain rather than snow, impacting the mountain snowpack that gradually melts and provides a consistent water supply during the summer and early autumn months before the rainy season begins. It is estimated that the snowpack in the County and nearby areas could diminish by over 50% in some locations due to climate change. This reduction in snowpack not only affects water availability but also has broader implications for agriculture, wildlife, and winter recreation. Earlier melting of snow due to warmer temperatures can lead to a shorter snowpack season and earlier peak runoff, disrupting the natural water cycle and reducing water storage in reservoirs and aquifers. The decrease in snowpack can also exacerbate drought conditions, making it difficult to manage water resources effectively.

[64] U.S. Department of Agriculture, Farm Service Agency, 2025, "Disaster Designation Information," https://www.fsa.usda.gov/resources/disaster-assistance-program/disaster-designation-information

Worsening drought conditions can also impact energy generation in the County. As water levels drop, the efficiency of the hydroelectric turbines declines, meaning that local dams produce less energy. In extreme drought situations, hydroelectric dams may not be able to produce any energy at all.

Figure 38 shows the current snow water equivalent, or amount of water contained in snow, in the planning area as of December 2024.

Additionally, forest ecosystems are impacted by climate change. As temperatures rise, the region is expected to experience more frequent and severe droughts, leading to widespread tree death in its forests.

Research suggests that forests with a history of recent droughts are likely to respond differently during subsequent dry spells. A notable finding is that forests exposed to a single drought event often suffer substantial tree mortality. The stress imposed by drought can weaken trees, making them more susceptible to pests and diseases, which can accelerate their decline and create a cascade of effects throughout the ecosystem.

Conversely, conifer forests local to the County, which have endured multiple drought events, demonstrate resilience. After the initial wave of tree mortality, these ecosystems may develop a form of adaptive response that enables them to better withstand future drought conditions. This phenomenon, known as the dampening effect, suggests that although they initially face major losses, repeated exposure to drought may lead to a more robust forest structure over time.[65] Drought-resistant conifer trees (pines) in the County include the Jeffrey pine, Pinyon pine, and Sierra Juniper.[66]

Additionally, climate change and drought influence dust emissions caused by local environmental changes, such as the drying of Owens Lake. The intensification of droughts and heatwaves reduces water flow to local lakes, as increased evaporation exposes more of the lakebeds, making them susceptible to wind erosion. Diminished snowpack further decreases runoff that traditionally replenishes these lakes with water. Mono Lake already produces significant dust, which may worsen to a condition similar to that of Owens Lake under future conditions.

As drought conditions persist, the exposure to previously submerged lakebeds leads to heightened dust emissions. Research shows that climate change may also be affecting wind speeds in the area, thereby increasing the ability to mobilize dust from these exposed areas. This dust is not merely a nuisance; it contains fine particulate matter that includes hazardous substances like arsenic, nickel, cadmium, and

[65] Norlen, C. A., & Goulden, M. L. (2023). "Recent Tree Mortality Dampens Semi-Arid Forest Die-Off During Subsequent Drought," *AGU Advances*, 4(3). https://doi.org/10.1029/2022av000810
[66] USDA, "Mono and Southeastern Great Basin."
https://www.fs.usda.gov/psw/publications/millar/psw_2015_millar004.pdf

agricultural pesticides.[67] When inhaled, these contaminants pose serious health risks, particularly to vulnerable populations, including children in nearby communities.[68]

The drying of Owens Lake, largely caused by human water diversions, has become a substantial source of PM10 pollution. The LADWP has historically used water-intensive dust control methods; however, climate change threatens the availability of water needed for these measures.[69] Discussions have been underway between LADWP and groups in the County to avoid the drying of Mono Lake and the air quality impacts that follow.[70]

[67] Evan, A. (n.d.). "Exhibit A: Scope of Work; Dust on the Horizon: Assessing Current and Projecting Future Health Risks from the Shrinking Salton Sea." https://ww2.arb.ca.gov/sites/default/files/2024-11/II.1%20-%20Salton%20Sea%20Dust%20-%20UCSD.pdf

[68] Evan, A. (n.d.). "Exhibit A: Scope of Work; Dust on the Horizon: Assessing Current and Projecting Future Health Risks from the Shrinking Salton Sea." https://ww2.arb.ca.gov/sites/default/files/2024-11/II.1%20-%20Salton%20Sea%20Dust%20-%20UCSD.pdf

[69] Environmental Protection Agency, "Air Actions, California." https://19january2017snapshot.epa.gov/www3/region9/air/owens/index.html#:~:text=Because%20of%20the%20make%2Dup,up%20on%20a%20regular%20basis.

[70] Sahagun, Louis. "Vexed by Dust Pollution, Officials Around Mono Lake Call on Los Angeles to Cease Water Diversions." *L.A Times*, November 6, 2021. https://www.latimes.com/california/story/2021-11-06/mono-lake-is-source-of-powder-fine-air-pollution

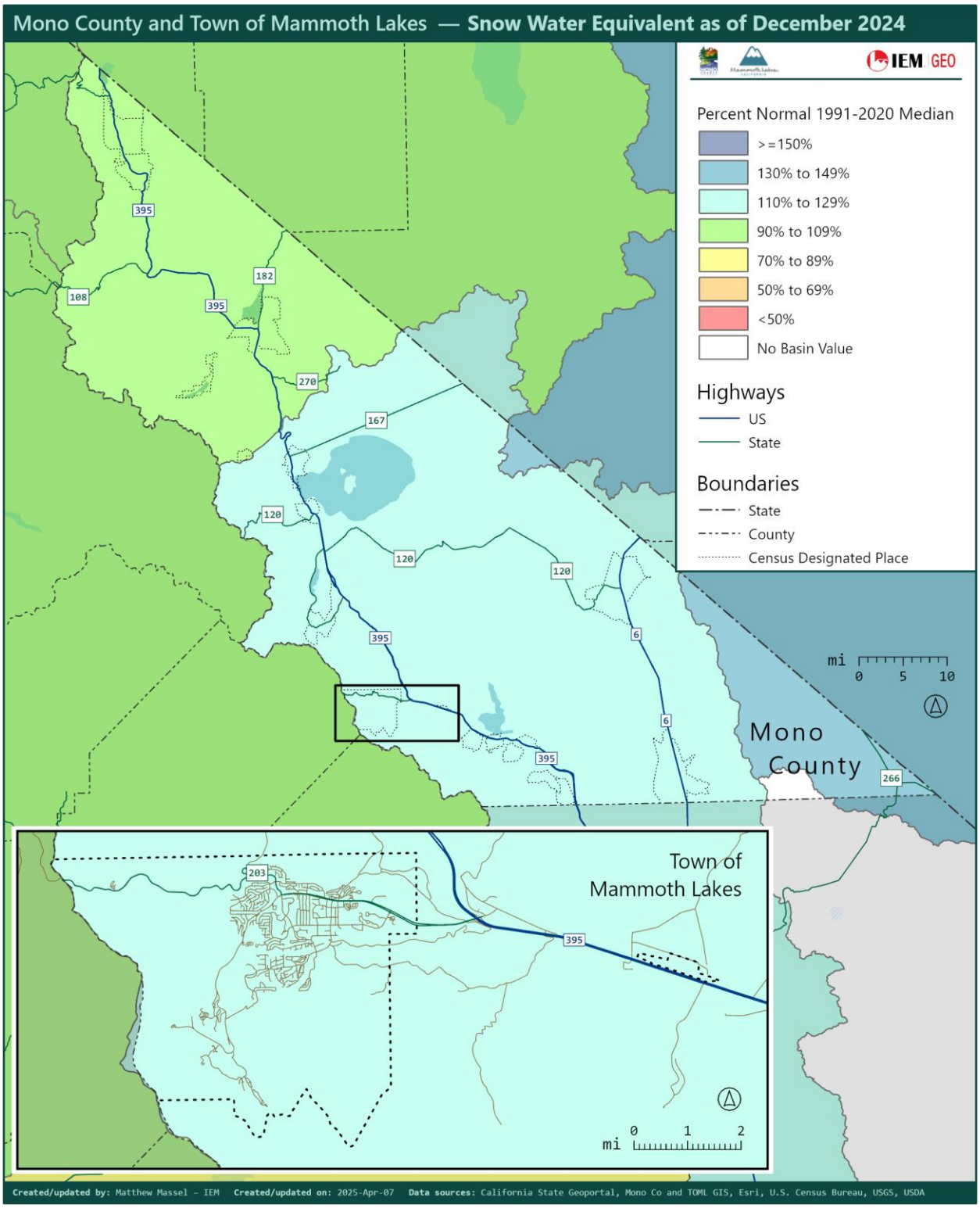


Figure 38: Mono County and Town of Mammoth Lakes – Snow Water Equivalent as of December 2024

Vulnerability

The County is highly vulnerable to drought due to its unique geographic and climatic conditions previously outlined. The County relies heavily on groundwater wells for its water supply. During droughts, these wells can potentially deplete faster than they are replenished, resulting in lower water tables and increased costs. Reduced surface water supplies can also further strain the water system.

Agriculture is particularly vulnerable to drought, along with livestock. The US Department of Agriculture's National Agriculture Statistics Service estimates that approximately $31,651,000 worth of crops could potentially be exposed to the impacts of drought.[71] Drought can also harm natural ecosystems, causing the loss of biodiversity and habitat degradation. This increases the region's vulnerability to wildfires and other natural hazards. The County is also vulnerable to the impacts of soil desiccation, which causes foundation damage as soils dry out, and to the wildland-urban interface (WUI), which is impacted through prolonged drought occurrences.

Several vulnerable populations in the County and the Town are susceptible to drought. The County is heavily reliant on tourism, and tourism-dependent communities are highly vulnerable to the impacts of drought, especially those near ski resorts, parks, and lakes. These communities can suffer economically from reduced tourist activity during times of drought. Outdoor workers, such as park rangers and landscaping personnel, are at higher risk of heat-related issues caused by drought. Agricultural workers, who rely heavily on water for crops and livestock, face job losses and reduced income during drought conditions. The elderly population is also more susceptible to heat-related illnesses and respiratory problems that drought can exacerbate.

Impacts

Droughts pose substantial risks in the County, influencing diverse aspects of the community. Health concerns arise due to potential water shortages and the associated stress on the population, which can create anxiety and reduce the quality of life for residents. Economically, the local agriculture and tourism industries, vital components of the area's economy, can suffer if drought conditions persist, deterring visitors and reducing crop yields. Infrastructure, including water supply systems and irrigation networks, faces the threat of severe strain and damage from prolonged droughts, necessitating expensive repairs and conservation efforts. Environmental impacts are also significant, as droughts can disrupt ecosystems, affect wildlife habitats, and alter landscapes. Cultural practices, particularly those connected to local water traditions and land use, may be threatened if significant natural landmarks and water sources are diminished or depleted. These drought-related challenges can also limit outdoor recreational activities and divert resources from other community initiatives, influencing overall community engagement and cohesion.

[71] U.S. Department of Agriculture, National Agriculture Statistics Service, "Quick Stats." https://quickstats.nass.usda.gov/results/95C6F7B4-8B29-345A-8081-F31CE86E92CE

Changes in Development

The availability and cost of infrastructure related to water, sewer, fire protection, and transportation systems influence development patterns throughout the County. Most of the land available for residential development requires septic systems and individual wells. Some areas of the County have small community water systems but still require individual septic systems; other areas have community sewer systems but require individual wells. Only four unincorporated communities, portions of Bridgeport, Lee Vining, June Lake and Crowley Lake, have both community water and sewer systems serving individual parcels. These parcels are typically ready for immediate development without additional infrastructure costs.[72]

The County is currently undertaking important initiatives to address the implications of drought through the formation of a Drought Relief Task Force and the creation of a Drought Resilience Plan (DRP). This proactive approach aims to mitigate the effects of drought, particularly focusing on water outages that affect private owners and State Small Well Systems (SSWS), which are defined as systems serving between 5 and 14 connections.

The Environmental Health staff has highlighted that while the DRP will specifically target the needs of SSWS and private well owners, it is crucial to recognize that larger public water systems (PWS) may also experience significant challenges during drought conditions. Systems such as the Mono County Water District, June Lake Public Utility District, and Big Pine Public Utility District likely possess established contingency plans to handle interruptions in water supply. However, smaller PWS, including Crowley Lake Mutual Water Company (MWC), Mountain Meadow MWC, and Lee Vining Public Utility District (PUD), may require tailored strategies to ensure a reliable emergency water supply.

To effectively prepare for potential water shortages, these smaller systems should consider developing contingency measures, such as forming Memorandums of Understanding (MOUs) with neighboring water suppliers. Such agreements could facilitate access to emergency water sources and ensure the establishment of emergency connections between their distribution networks, where feasible. Additionally, implementing plans for water delivery through trucking and enhancing storage capabilities will be vital for managing short-term needs during droughts. Furthermore, exploring options for providing bottled water could serve as an immediate solution to meet potable water requirements in times of crisis.

As development continues in the County, incorporating these considerations into the planning process will contribute to a more resilient water infrastructure, potentially decreasing vulnerability in the face of ongoing drought challenges.

[72] MonoCounty.gov, 2024, General Plan, "Countywide Issues, Opportunities, Constraints," https://www.monocounty.ca.gov/generalplan/countywide-issues-opportunities-constraints-2

Earthquake and Seismic Hazards

Hazard Description

The category of seismic hazards includes four different but related hazard types—fault rupture, ground shaking, liquefaction, and tectonic subsidence—all of which are consequences of earthquakes. Earthquakes themselves are caused by the movement of large pieces of the earth's crust, called tectonic plates. As these plates move against each other, they can become stuck, causing stress between the plates to build up until it eventually overcomes the friction holding them together. When this happens, the stress is released and the plates suddenly slip past each other, creating the shaking that is called an earthquake.

Earthquakes occur along boundaries called fault lines. These fault lines may be the actual border between plates, but they may also be borders between two sections of a single plate, created by the repeated process of accumulated and released stress. California sits on the boundary between the Pacific and North American tectonic plates. The motion between these plates occurs primarily on the San Andreas fault system and the Eastern California shear zone, a fault system that extends along the Eastern Sierra from the County south through Inyo County. About 10 millimeters per year of slip occurs on faults east of the Sierra Nevada. The eastern border of California from the Town heading north includes faults with poorly constrained or unknown slip rates, with multiple fault strands distributed over a wide area.

FAULT RUPTURE

Fault rupture is the actual movement of the ground's surface along a fault line when an earthquake occurs. This movement may be vertical, horizontal, or both, depending on the type of fault. Damage from fault rupture is limited to the area of the fault boundary itself, although depending on the amount of movement along the fault, the damage may be severe. Some earthquakes, known as blind thrust earthquakes, occur without causing visible surface rupture, although they may still cause substantial damage. The 1994 Northridge earthquake, one of the most damaging in California history, was a blind thrust earthquake.

GROUND SHAKING

Ground shaking is generally the most damaging of seismic-related hazards and is the specific hazard most commonly associated with earthquakes. The severity of ground shaking is affected by local geology, but in general, it is most severe closest to the site of the earthquake and decreases with distance. Ground shaking may occur in an up-and-down, side-to-side, or rolling motion, depending on the type of seismic waves produced by the earthquake.

LIQUEFACTION

Liquefaction occurs when loosely packed sand or silt is saturated with water and then shaken hard enough for it to behave temporarily like a fluid. This causes the soil to lose its strength, which may in turn

damage the structures built on or in it. Liquefaction risk depends primarily on the height of the groundwater table and the composition of the soil.

TECTONIC SUBSIDENCE

Subsidence occurs when the earth's surface sinks. Fault movement is one possible cause of subsidence. As noted in the Mono County Master Environmental Assessment (MEA, 2001), "The most dramatic tectonic subsidence occurs during earthquakes, when areas can drop suddenly." This type of subsidence has been observed in the County.

The County covers an area that is relatively young by geologic standards. It is located at a stress point where the earth's crustal plates are exerting opposite pressures against each other. This combination creates both "tectonic" earthquakes (e.g., land mass movement) and volcanic activity that can trigger earth shaking (e.g., magma chamber movement and lava dyke formations). Up-to-date information concerning earthquake activity in the County is available from USGS (www.usgs.gov). The primary seismic hazard in the County is strong to severe ground shaking generated by movement along active faults (MEA, 2001).

CASCADING HAZARDS

Cascading chains of hazard events can include many combinations of ground surface rupture, strong ground motion, landslide, liquefaction, and aftershocks, and their combined effects can significantly worsen the consequences compared with individual impacts of these hazard events. Cascading impacts of earthquakes of high magnitude, potentially resulting in the need for additional mitigation actions in the County and the Town, include the following:

- **Landslides:** Earthquakes in the mountain ranges can produce a cascading of geological disturbances including enormous landslides.
- **Utility failures and infrastructure failures:** These include leaks from nuclear power stations, power outages as hydroelectric dams are impacted, communication outages, dam failure and bridge collapses, and road closures due to ruptures or landslides.
- **Conflagration:** Fires related to earthquakes can cause catastrophic damage to structures in urban environments in the wildland urban interface. Impacts to propane could help spread fires.
- **Shortages of food, hydration, fuel, and medical supplies**: These result from supply chain disruption from road and rail closures, power and communication outages, etc.
- **Economic disruption**: These result from power and communications outages, damage to structures, supply chain disruptions, etc.

Participants and stakeholders also expressed concern with the impacts of isolation due to the earthquakes on the ability of the planning area to respond and recover from a subsequent hazard event. Worst case scenario, the County could experience multiple hazards at once, such as an earthquake and large winter storm event. Propane could be impacted by either the earthquake or storm, starting fires. If such a multi-hazard event were to occur, access routes out of the County may be out for a long period of time, and

planes would have difficulty accessing the area. Tourists would likely to be trapped, increasing the number of displaced people projected. The remoteness of the area and potential for isolation indicates that it would largely be local resources called upon to responded, and currently local resources could be quickly overwhelmed, indicating the importance of mitigating these concern.

Location

MONO COUNTY

California began extensive mapping of earthquake faults with the Alquist-Priolo Earthquake Fault Zoning Act of 1972. Mapping associated with the act has identified 11 named fault zones in the County: the Fish Slough, Hartley Springs, Hilton Creek, Mono Lake, and Round Valley fault zones, as well as many unnamed faults in the Volcanic Tableland in the Long Valley Caldera–Mono Lake area; the Antelope Valley and West Walker River fault zones in northern Mono County; the Robinson Creek fault zone in the Bridgeport area; the Silver Lake fault zone near June Lake; the White Mountains fault zone in the Tri-Valley area; and the Fish Lake Valley fault zone in the Oasis area. Additional faults outside the County could still have impacts in the County. Taken together, these faults can produce strong to severe ground shaking in virtually every populated area of the County. Figure 39 shows the Alquist-Priolo fault lines in the County. Note that there are other faults in the County that are not identified as Alquist-Priolo faults. Although state law does not require these faults to be mapped, their exclusion from these maps does not mean that they do not pose a risk. With the exception of the relatively small West Walker River and Silver Lake faults, all these fault zones have been analyzed as part of the Third Uniform California Earthquake Rupture Forecast (UCERF3), and the USGS has developed scenarios to explore the effects of a major earthquake on each fault.

The entire County, except for a small portion of the Sierra crest, is in an area where intense ground shaking is possible. Figure 39 through Figure 42 shows the likely affected areas and intensity of shaking that would occur during three different USGS earthquake scenarios. These scenarios represent earthquakes on the faults in the County that have the greatest likelihood of causing a major earthquake in the next 30 years, according to UCERF3. Additional USGS earthquake scenarios and UCERF3 probability projections for the County are discussed in greater detail below.

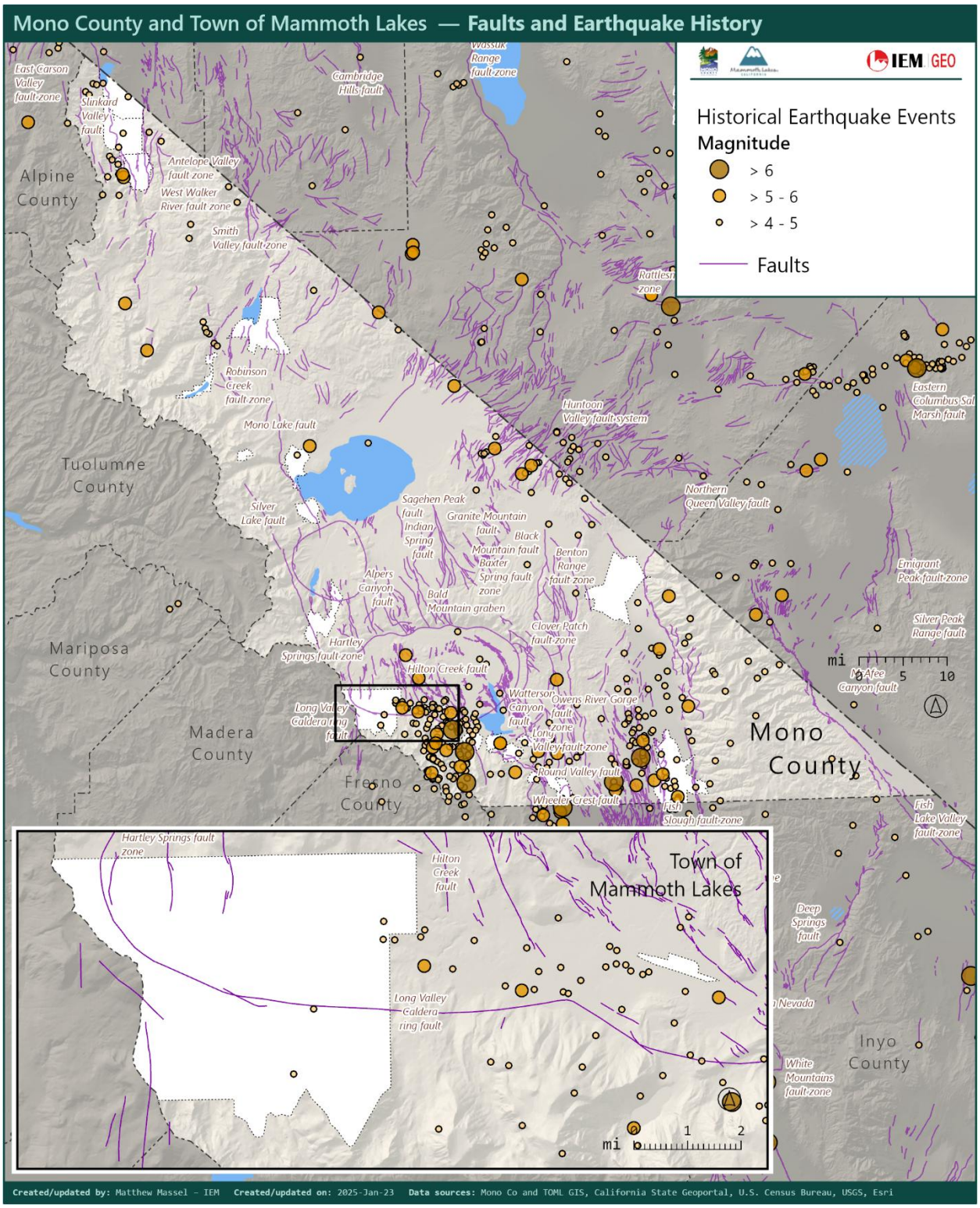


Figure 39: Mono County Alquist-Priolo Earthquake Faults and Historic Epicenters

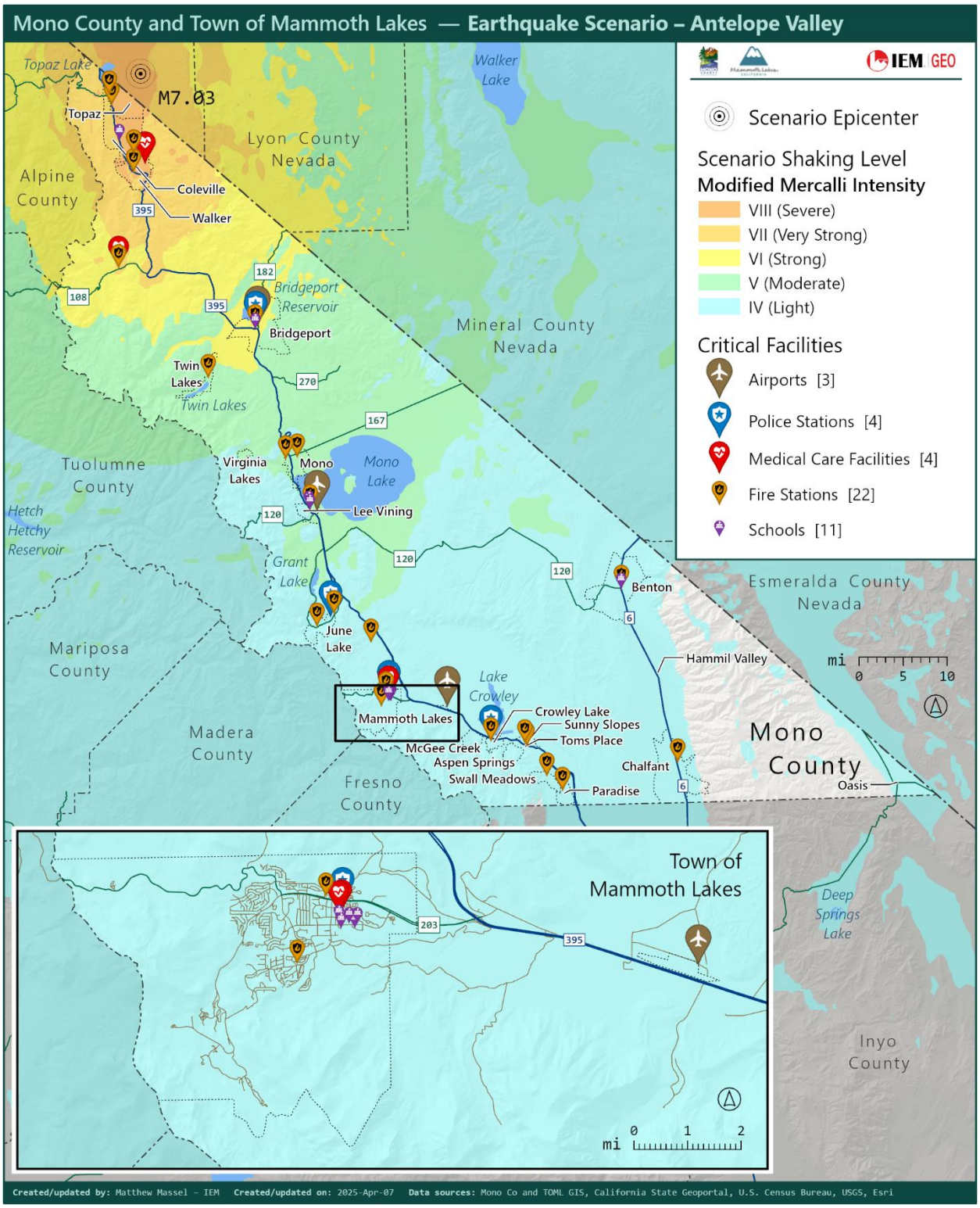


Figure 40: Antelope Valley Fault Shake Scenario

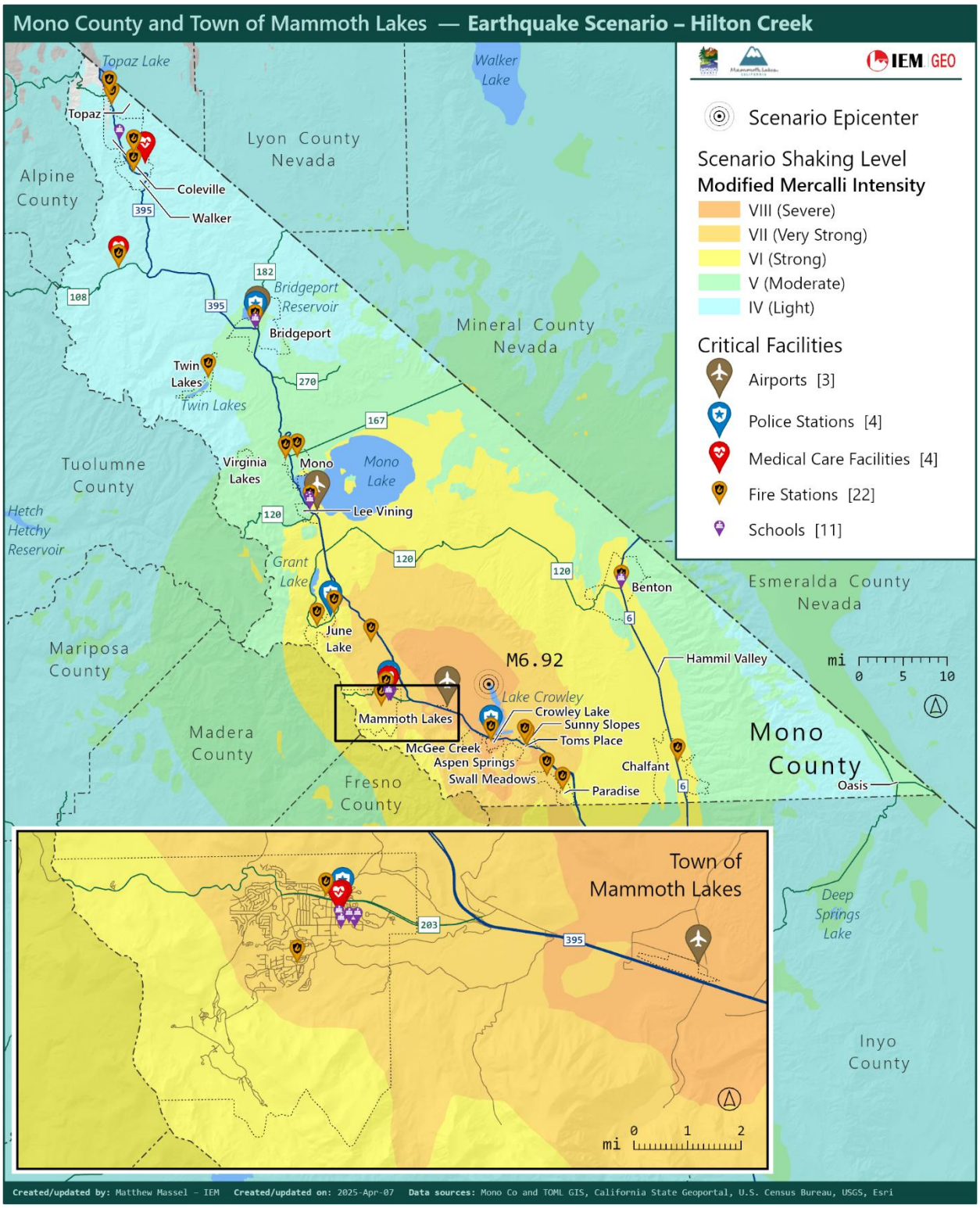


Figure 41: Hilton Creek Fault Shake Scenario

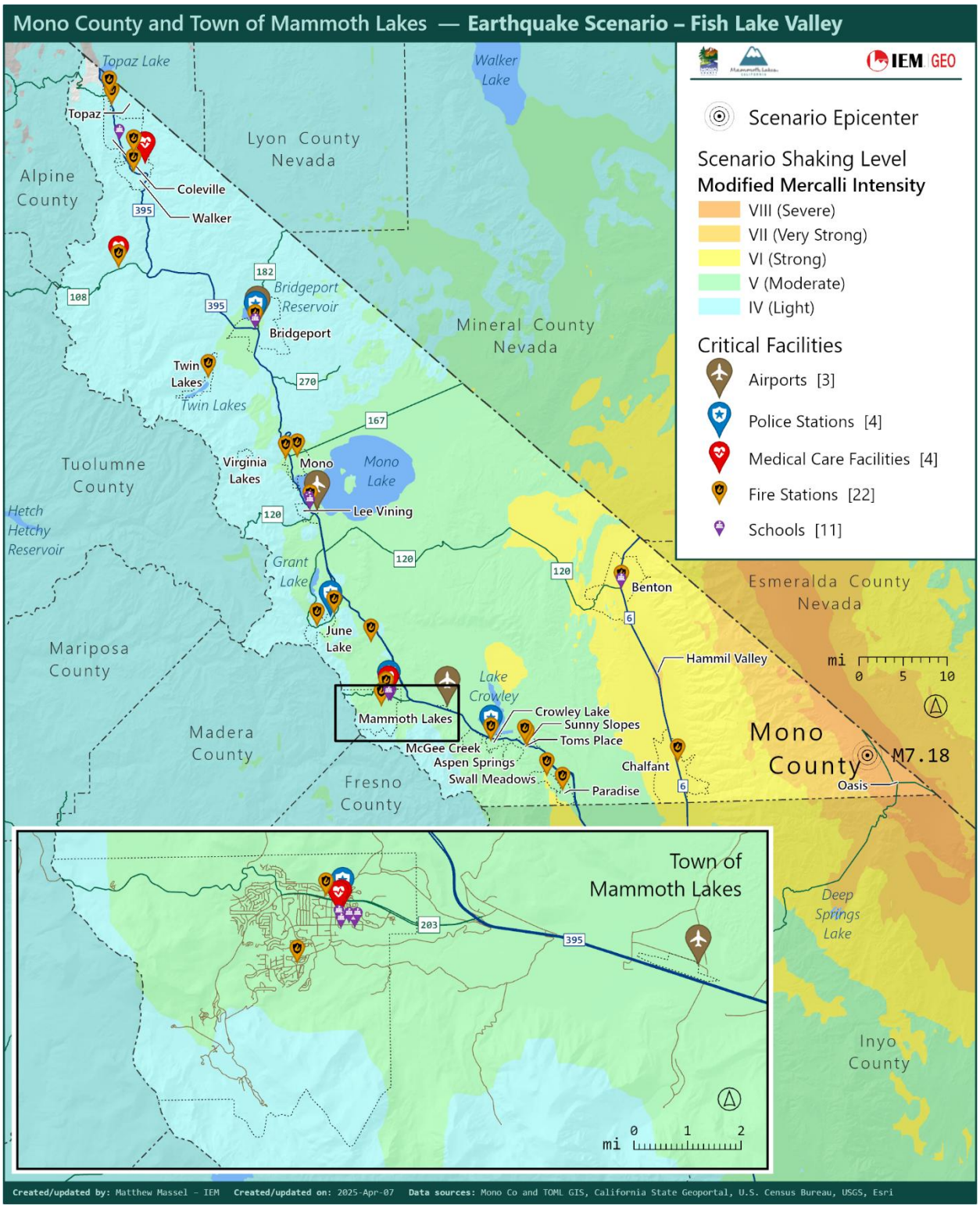


Figure 42: Fish Lake Valley Fault Shake Scenario

The Mono County MEA includes the following details about where seismic hazards have been observed in the County:

- Ground shaking: "In addition to tectonic movement, the Long Valley–Mammoth Lakes region has experienced many earthquakes caused by the movement of magma below the earth's surface."
- Ground failure: "Ground failure induced by ground shaking includes liquefaction, lateral spreading, lurching, and differential settlement, all of which usually occur in soft, fine-grained, water-saturated sediments typically found in valleys. During the 1980 Mammoth Lakes earthquake sequence, ground failure was prevalent at Little Antelope Valley, along margins of the Owens River in the upper Long Valley, along the northwest margins of Lake Crowley, and along Hot Creek Meadow."
- Tectonic subsidence: "During the May 1980 sequence of earthquakes near the Town, there were several locations near the Hilton Creek Fault where the ground surface dropped about four inches on the northeast side of fractures. Along the 'Mammoth Airport fault zone,' up to 12 inches of vertical offset on the east side of ruptures was observed."

The area at risk of fault rupture is limited to areas in the immediate vicinity of a fault. Table 32 shows the ownership and administration of lands affected by Alquist-Priolo fault zones in unincorporated areas of the County. In all, while the entire County is at risk from ground shaking, only about 56,846 acres are at direct risk of fault rupture from an Alquist-Priolo fault, or 2.8% of the County.

Table 32: Areas at Risk of Fault Rupture in Unincorporated Mono County by Ownership

Land Ownership or Administration Category	Acres in Hazard Zone	Percentage of Total Ownership	Percentage of Total Mono County Area
County	13	0.6%	<0.1%
Federal	47,125	2.7%	2.3%
Private	4,993	3.9%	0.2%
State	618	0.7%	<0.1%
Utilities	3,538	5.3%	0.2%
Right of way, unknown ownership/ administration	559	6.2%	<0.1%
TOTAL	**56,846**	**2.8%**	**2.8%**

Table 33 shows how much of the land in the Alquist-Priolo fault zones lies in each of the planning areas defined by the Mono County General Plan.

Table 33: Areas at Risk of Fault Rupture in Mono County Planning Areas

Planning Area	Acres in Hazard Zone	Percentage of Total Planning Area	Percentage of Total Mono County Area
Antelope Valley	2,256	7.5%	0.1%
Benton Valley	1,235	3.1%	0.1%
Bodie Hills	0	0.0%	0.0%
Bridgeport	2,774	5.4%	0.1%
Chalfant Valley	20,525	34.1%	1.0%
Hammil Valley	1,745	2.6%	0.1%
June Lake	3,477	6.6%	0.2%
Long Valley	940	5.2%	<0.1%
Mammoth Vicinity	11,325	10.3%	0.6%
Mono Basin	1,070	0.5%	<0.1%
Oasis	1,591	9.8%	0.1%
Sonora Junction	371	0.3%	<0.1%
Swauger Creek	0	0.0%	0.0%
Upper Owens	207	1.3%	<0.1%
Wheeler Crest	772	13.4%	<0.1%

The California Department of Conservation Seismic Hazard Program delineates areas prone to earthquake-related hazards, including liquefaction. Liquefaction zones identify where the stability of foundation soils must be investigated and countermeasures undertaken in the design and construction of buildings for human occupancy. Statutes require that counties and cities use these zones as part of their construction permitting process. Although no complete mapping is available for liquefaction risk in the County or Town, past events suggest that the valley areas in the County face an elevated risk of liquefaction, particularly areas around dry lake beds. These include the area of June Lake near Boulder Drive, Dream Mountain, and Bridgeport Valley and up through Lakeside Drive. In the Town, areas potentially subject to liquefaction are in the lower parts of the community, including Sherwin Meadows and areas in Old Mammoth.

MAMMOTH LAKES

Parts of the Hartley Springs Fault zone extend into the Town. In addition, the USGS earthquake scenarios discussed below show that a major earthquake on the Hilton Creek, Round Valley, or White Mountains faults could produce ground shaking in the Town that results in slight to considerable damage.

Table 34 shows how much of the land in Alquist-Priolo fault zones lies in the Town planning area.

Table 34: Areas at Risk of Fault Rupture in Mammoth Lakes

Planning Area	Acres in Hazard Zone	Percentage of Total Planning Area
Town Municipal Boundary	332	2.07%
Town Urban Limit	6	0.24%

Extent

Ground shaking is measured using either the moment magnitude scale (MMS, denoted as Mw or simply M) or the Modified Mercalli Intensity Scale. The MMS is a replacement for the Richter scale, which is still often referred to but is no longer actively used, as the Richter scale is not reliable when measuring large earthquakes (USGS 2014a). The weakest earthquakes measured by the MMS start at 1.0, with the numbers increasing with the strength of the earthquake. The strongest recorded earthquake, which struck Chile in 1960, measured 9.5 on the MMS (USGS 2015a). Like the Richter scale, the MMS is a logarithmic scale, meaning that the difference in strength between two earthquakes is much larger than the difference in their measurements. For example, a 6.0 Mw earthquake is 1,000 times stronger than a 4.0 Mw earthquake and about 1.4 times as strong as a 5.9 Mw event.

The Modified Mercalli Intensity Scale is based on the damage caused by the earthquake and how it is perceived rather than an actual measurement. When comparing multiple earthquakes, one event might have a higher Mercalli rating than another, even if it released less energy and thus was measured lower on the MMS. The Mercalli scale ranges from I (instrumental, rarely felt by people) to XII (catastrophic, total damage and lines of sight are distorted). Table 35 shows a general comparison between the MMS and the Modified Mercalli Intensity Scale. Note that there is some overlap toward the higher end of the Mercalli ratings, with certain intensities produced by multiple ranges of magnitude measurements.

As identified in Table 35, earthquake hazards are anticipated to affect both the unincorporated County and the Town.

Table 35: Comparison of MMS and the Modified Mercalli Intensity Scale

Magnitude (MMS)	Intensity	Description
1.0–3.0	I	Not felt except by very few persons under especially favorable conditions.
3.0–3.9	II	Weak: Felt only by a few persons at rest, especially on upper floors of buildings.
	III	Weak: Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.

Magnitude (MMS)	Intensity	Description
4.0–4.9	IV	Light: Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sounds. Sensation like a heavy truck striking building. Standing motor cars rocked noticeably.
	V	Moderate: Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0–5.9	VI	Strong: Felt by all, many frightened. Some heavy furniture moved, a few instances of fallen plaster. Damage slight.
6.0–6.9	VII	Very Strong: Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
7.0 and greater	VIII	Severe: Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
	IX	Violent: Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
	X	Extreme: Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

History of Previous Hazard Events

There have been no FEMA major disaster declaration or state proclamations for earthquake in Mono County since the last plan update. Earthquakes occur frequently in the Eastern Sierra in the County and particularly in the Long Valley area. The USGS Earthquake Catalog shows that earthquakes happen in the general vicinity weekly and almost daily, but most are under M 3 and are not felt by people. Since 1980, there have been 145 earthquakes of at least M 4.5 within 25 miles of the County, of which 94 had epicenters within the County borders. Of these, the largest measured M 6.3 on May 25, 1980, during a sequence of earthquakes near the Town. Among the 46 earthquakes that measured at least M 5.0, more than a third were related to the 1980 earthquake swarm and the 1986 Chalfant Valley earthquake, both of which are discussed below.

MAY 1980 MAMMOTH LAKES EARTHQUAKES

McJunkin and Bedrossian (1980) noted the following in California Geology magazine concerning the 1980 earthquakes in Long Valley:

On May 25, 1980 at 0933 Pacific Daylight Time (PDT) a magnitude 6.0 earthquake (all magnitudes are from Caltech Seismological Laboratory) occurred approximately 10.5 km east-southeast of Mammoth Lakes, California. During the next 16 minutes, four magnitude 4.1–5.0 shocks and one 5.5 shock occurred. This seismic activity was the beginning of an earthquake sequence that produced 72 magnitude 4.0–4.9 events, six magnitude 5.0–5.5 events and three events of magnitude 6.0–6.3 during the next 48 hours; thousands of magnitude <3.9 earthquakes were generated during this same time period. The largest earthquake in the sequence was magnitude 6.3 and occurred at 1245 (PDT) on May 25. Seismic activity after this event was fairly continuous for the next three days; however, most events were less than magnitude 5.0.

Damage from earthquake shaking was most pronounced in the Mammoth Lakes community and surrounding local areas. After the first event on May 25, Mammoth Lakes was without power until noon; during this period vital community services operated from auxiliary power supplies. Most damage to buildings was nonstructural and included broken windows and water mains, cracked plaster, and fallen chimneys. Damage to shelf stock and fixtures was moderate to severe in many stores, restaurants, and motels; in addition, extensive destruction to breakable contents in homes was commonly reported. Hot Creek Fish Hatchery and Mammoth Elementary School, east of US 395, also received considerable nonstructural damage from earthquake shaking. Initial damage losses to schools, other public buildings, and roads in the Mammoth Lakes region was estimated to be $2 million.

1986 CHALFANT VALLEY EARTHQUAKE

In an interview for the previous Hazard Mitigation Plan update, Dave Hill of the USGS Long Valley Observatory noted the following concerning the Chalfant Valley earthquake in 1986:

> The Chalfant Valley earthquake (M=6.4) occurred on July 21, 1986. It was preceded by a month-long foreshock sequence that began M=2.6 earthquake on July 3 and built up to a M~5.8 (as I recall) earthquake just 24 hours before the mainshock. The area had shown virtually no previous earthquake activity (since the mid-1970s anyway). The aftershock sequence was also rather energetic including three M>5.5 earthquakes (the largest was close to M~6). I think the associated damage was minimal aside from rock falls in the mountains and a number of mobile homes in the Chalfant area that were toppled from their (unstable) foundations. (Dave Hill, pers. comm.)

MONO COUNTY

There has not been a significant earthquake centered in the County since September 18, 2004, when three M 5.4 events were recorded about 15 miles east of Mono Lake in a 40-minute period. There have been two significant events with epicenters nearby in Nevada: February 13, 2013, in Esmeralda County, and December 28, 2016, in Mineral County.

The County has a very high earthquake risk, with 3,993 earthquakes since 1931. The USGS database shows that there is a 99.29% chance of a major earthquake within 50 km of the County in the next 50 years. The largest earthquake within 30 miles of the County was an M 6.1 in 1980.

Figure 43 presents a view of the number of earthquake incidents in the County by year that are more than M 2.5 between 1940 and 2020. The line graph indicates an increase in seismic activity between the year 2000 and 2020, with 5,500 earthquake events of M 2.5 or higher.

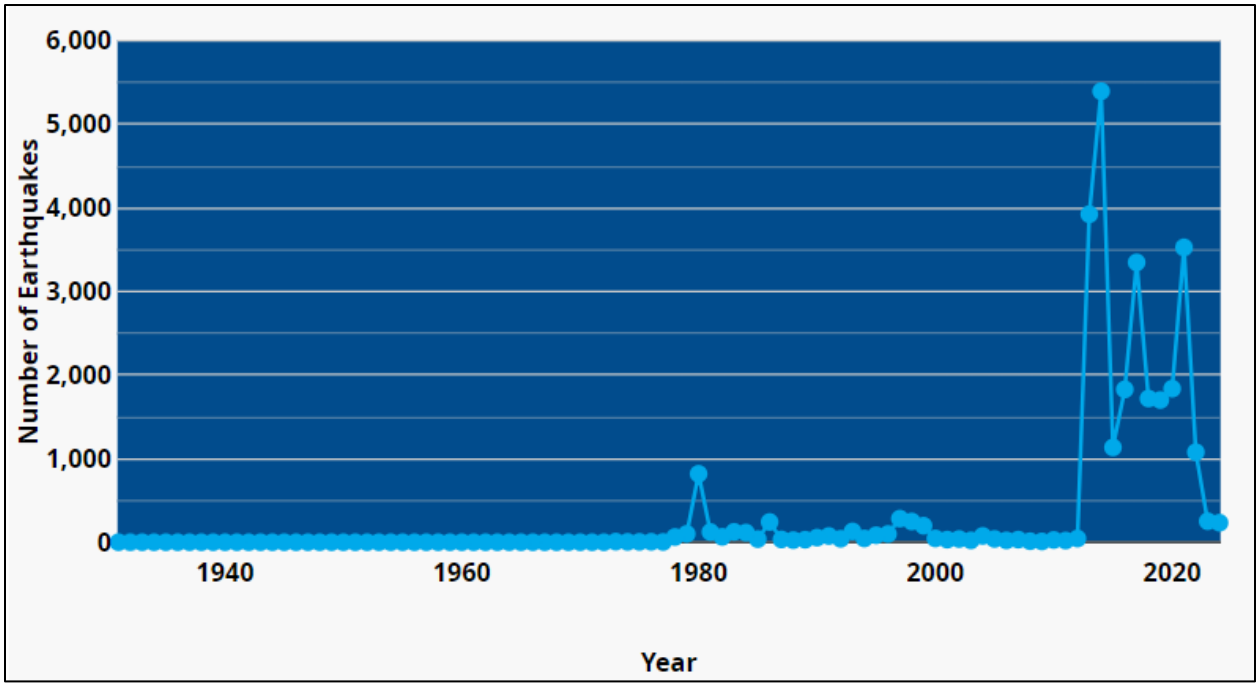


Figure 43: Earthquake Count for Mono County, California, 1940–2020[73]

MAMMOTH LAKES

Figure 44 shows recent earthquakes with magnitudes ranging from 1.5 to 3.6 in and near (0 km to 16 km) the Town between December 9, 2024, and January 9, 2025.

[73] HomeFacts.com, 2025, "Earthquake Count for Mono County California, 1940–2020," https://www.homefacts.com/earthquakes/California/Mono-County.html

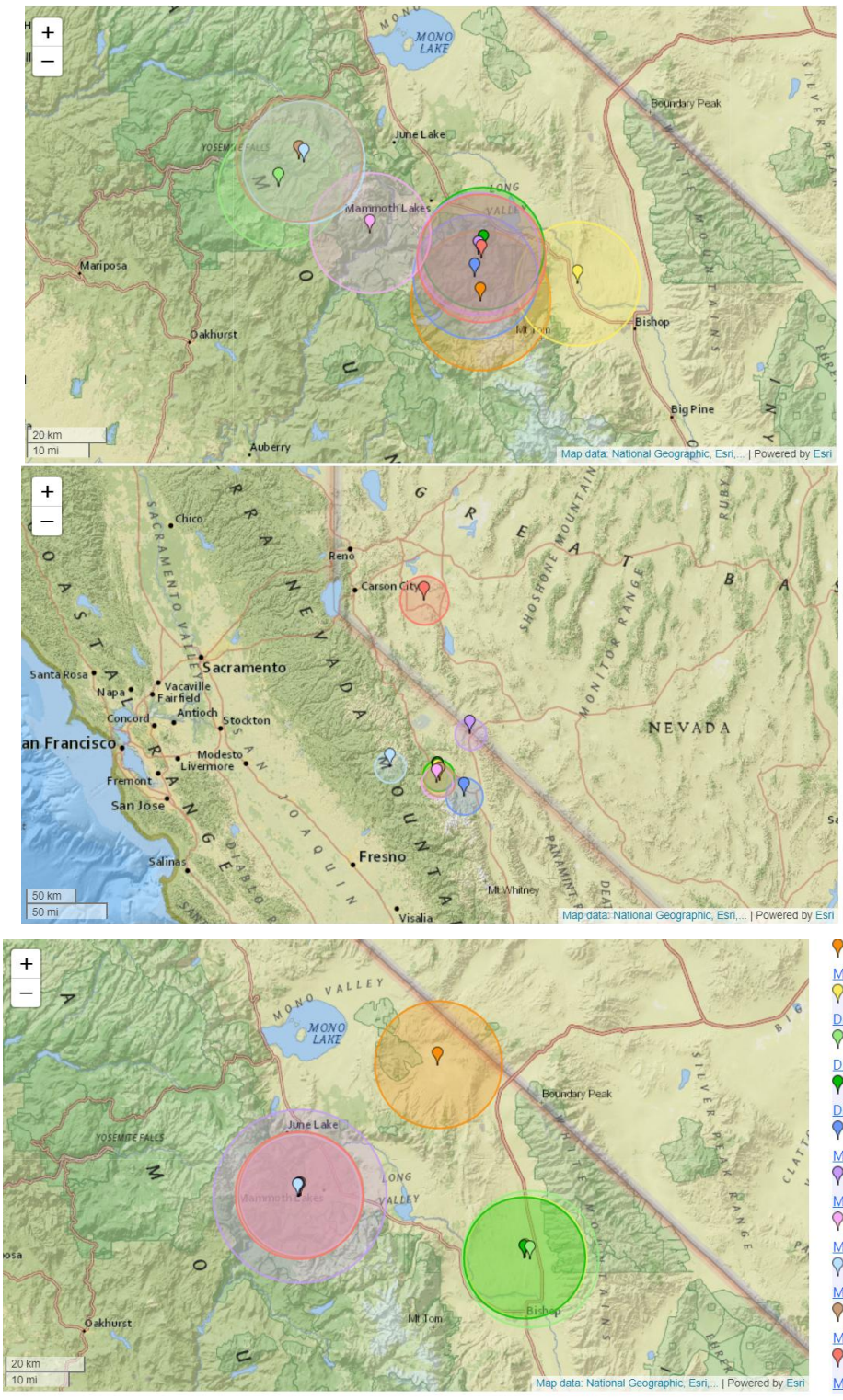


Figure 44: Earthquakes Recorded Near Mammoth Lakes, 12/9/2024–1/9/2025[74]

[74] Earthquaketrack.com, 2025, "Earthquakes Recently Recorded Near Mammoth Lakes California (Between 12/9/2024–1/9/2025)." https://earthquaketrack.com/us-ca-mammoth-lakes/recent

Probability of Future Hazard Events

Seismologists do not know when a large earthquake will hit the Eastern Sierra again, but they do know that one will occur. The County's location on and near many faults, including several capable of causing significant earthquakes, means that the County will continue to face threats from earthquakes and related hazards. Although the probability of a major earthquake may be harder to predict, the probability of an earthquake occurring is highly likely, as earthquakes are an annual occurrence.

The UCERF3 forecast, developed in 2014 by the Working Group on California Earthquake Probabilities and led by the USGS, provides estimates of the magnitude, location, and likelihood of fault rupture for more than 350 fault segments throughout the state. Table 36 lists faults in the region included in UCERF3, showing the probability of earthquakes of a particular magnitude in the next 30 years. Because the faults have multiple segments in the County, with different probabilities for each section, the full range of probabilities is shown. Depending on the magnitude and location of the earthquake, all of the County, including the Town, may be in the substantially affected area. Three faults—Antelope Valley, Fish Lake Valley, and Hilton Creek—have a greater than 1% chance of causing an M 6.7 or greater earthquake in the next 30 years. Faults not identified in the forecast can still cause significant earthquakes.

Table 36: UCERF3 30-Year Earthquake Probabilities by Fault

Fault	6.7+ Mw	7.0+ Mw	7.5+ Mw
Antelope Valley	1.9 to 2.4%	0.4%	-
Fish Lake Valley	2.3 to 2.7%	1.9 to 2.0%	1.7 to 1.8%
Fish Slough	0.3%	0.1 to 0.2%	< 0.1%
Hartley Springs	0.5 to 0.7%	0.2%	-
Hilton Creek	1.0 to 1.3%	0.4 to 0.6%	-
Round Valley	0.5 to 0.8%	0.6%	-
White Mountains	0.4 to 0.5%	0.2 to 0.4%	0.0 to 0.1%

Scientists have analyzed many earthquake scenarios for the Long Valley Caldera–Mono Lake area, which includes portions of the County and all of the Town. A significant earthquake in this area would likely be widely felt throughout the County and have potentially serious impacts. A joint study by the CGS and the USGS (USGS and CGS 2014) examined the potential consequences of significant earthquakes for the five faults in the area plus the nearby White Mountains fault, detailed below. Note that, while this discusses potential impacts on the County through ground shaking, several faults are in surrounding California counties or in Nevada:

- Fish Slough Fault, M 6.7: Strong ground shaking in an area centered on Fish Slough but including parts of the Chalfant Valley (along US 6) and northern Owens Valleys (along US 395 south of Bishop), extending up to 23 km from the fault trace (where the fault meets the ground surface). Severe perceived shaking and moderate to heavy potential damage limited to the southern part of the fault

near Bishop and along US Route 6 in Chalfant Valley. Maximum shaking in the Bishop area, where loose near-surface soil amplifies the shaking.

- Hartley Springs Fault, M 6.7: Strong ground shaking in the Long Valley Caldera and the highlands between Long Valley and Mono Lake, extending up to 28 km from the fault trace. Severe perceived shaking and moderate to heavy potential damage limited to small areas northeast of June Lake Junction and smaller area near the Town.
- Hilton Creek Fault, M 6.5: Strong ground shaking in the southern Long Valley Caldera and upper Rock Creek areas, extending up to 22 km from the fault trace. Severe perceived shaking and moderate to heavy potential damage about 12 km from the fault in the hanging wall regions and 4 km in the footwall regions. Maximum shaking east of the fault and around Crowley Lake.
- Mono Lake Fault, M 6.7: Strong ground shaking in the Mono Basin and Conway Summit areas, extending up to 32 km from the fault trace. Severe perceived shaking and moderate to heavy potential damage about 17 km from the fault in the hanging wall regions and 6 km in the footwall regions.
- Round Valley Fault, M 7.0: Strong ground shaking in the southern Long Valley, Round Valley, and Bishop Creek areas, extending up to 35 km from the fault trace into the foothills of the White Mountains. Severe perceived shaking and moderate to heavy potential damage about 23 km from the fault in the hanging wall regions and 8 km in the footwall regions. Maximum shaking near the fault, particularly to the east.
- White Mountains Fault, M 7.35: Strong ground shaking throughout the Chalfant and northern Owens River Valleys, extending up to 40 km from fault trace into the Long Valley Caldera and the Town. Severe perceived shaking and moderate to heavy potential damage about 15 km on either side of the fault. Maximum shaking extends farther on the western valley side.

The full details for each of these scenarios are available in the joint report document.

Besides the potential earthquake scenarios related to the Long Valley Caldera–Mono Lake area, scientists have analyzed the following scenarios for faults elsewhere in the County, as depicted on USGS ShakeMaps:

- Antelope Valley Fault, M 7.0: This rupture would produce severe perceived shaking (Mercalli intensity VIII) in Topaz, Coleville, and Walker, with strong shaking (Mercalli intensity VI) as far away as Bridgeport.
- Fish Lake Valley Fault, M 7.2: This rupture would produce severe perceived shaking in Oasis, with strong shaking as far away as Chalfant Valley and Crowley Lake.
- Robinson Creek Fault, M 7.1: This rupture would produce severe perceived shaking in Bridgeport, with strong shaking as far away as Mono Lake, Walker, and Coleville.

Liquefaction/ground failure is likely to occur, especially during an earthquake that produces strong ground shaking in areas of soft, fine-grained, water-saturated sediments typically found in valleys. Liquefaction/ground failure can damage structures overlaying these soils or structures in the path of the

failure. Infrastructure in the soils, such as water conveyance, also can be damaged, resulting in loss of service in the area.

CLIMATE CHANGE CONSIDERATIONS

The 2023 Enhanced California State Hazard Mitigation Plan states that the potential direct impacts of climate change on earthquake probability are unknown. Climate change can increase the risk of cascading hazards related to earthquakes, including landslides. Rising air temperatures can facilitate soil breakdown, allowing more water to penetrate soils and affecting erosion rates, sediment control, and the likelihood of landslides. Climate change may also increase the probability of more frequent, intense rainstorms. This can result in more significant erosion, higher sediment transport in rivers and streams, and a higher probability of landslides, primarily from higher water content.[75]

California's Fourth Climate Change Assessment, Sierra Nevada Regional Report, states that the Sierra Nevada region is vulnerable to many hazards, including earthquakes. As more people move into the Sierra Nevada, climate change is going to be an increasingly important consideration, and wise planning and development can go a long way toward reducing greenhouse-gas emissions and accommodating and adapting to changes in climate and the landscapes. Climate change is already challenging the safety and sustainability of Sierra Nevada communities, and its impacts will be even more severe if communities and development are not designed from the start in ways that minimize hazards through thoughtful land-use planning and parcel-level design. Not only will climate change cause or exacerbate some of these hazards directly, but without proper planning and implementation, it may degrade the capabilities to respond and recover from even those hazards that are not climate mediated.[76]

The likelihood, size, and severity of seismic events are not expected to be directly impacted by climate change. It is possible that anticipated changes in precipitation levels and storm intensity may affect groundwater aquifer levels, which could expand or contract areas of potential liquefaction in the planning area. Since the field of climate change science is dynamic, the Planning Team will review and summarize new research that occurs on this topic during the next update cycle.

Vulnerability

When an earthquake damages buildings and infrastructure, the people in and around them are in danger. Individuals and families can suffer injury and death during and following an earthquake. Debris and damage can trap people in buildings, creating unknown survival conditions, depending on the extent of building damage and the resources available. When buildings collapse, roads crack, or bridges suffer damage, injuries to those in the vicinity can range from minor to extensive to the point of permanent disability or death. Following a severe earthquake with extensive damage, entire communities can become

[75] 2023 Enhanced California State Hazard Mitigation Plan, 2024, "Earthquake, Climate Change Impacts." https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf

[76] Cal-Adapt.org, 2025, "California's Fourth Climate Change Assessment, Sierra Nevada Region Report." https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

homeless and emergency services can be stressed beyond capacity. This type of devastation can have lasting effects on people's physical, emotional, and mental well-being.

Hazus was used to estimate the vulnerable structures and impacts. Given that the entire planning area may experience an earthquake event, it can be assumed that all buildings and people are at risk. Table 37 shows the population and building value data for this planning area.

Table 37: Regional Population and Building Value Data

County	Population	Building Value (millions of dollars)		
		Residential	Non-Residential	Total
Mono	13,195	$3,293	$1,083	$4,377

Impacts

The Sierra Nevada region's transportation and energy infrastructures were developed to accommodate its highly variable climatic conditions but are frequently challenged by natural events such as earthquakes.[77]

Most earthquake-related property damage and deaths are caused by the failure and collapse of structures due to ground shaking. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (in mountain regions and along hillsides), and liquefaction. According to USGS data, damage caused by an earthquake begins at a level of ground shaking (peak ground acceleration, or PGA) of approximately 10% of the force of gravity (0.1 g, or 10% g). Below this level, damage is typically very slight, except in unusually vulnerable facilities. Damage from ground shaking at 10% g to 20% g tends to be minor to moderate, with only unusually poor buildings subject to potential collapse. Events ranging from 20% g to 50% g may cause significant damage in some modern buildings and very high levels of damage (including collapse) in poorly designed buildings. Events over 50% g may cause higher levels of damage in many buildings, even those designed to resist seismic forces.

When an earthquake damages buildings and infrastructure, the people in and around them are in danger. Individuals and families can suffer injury and death during and following an earthquake. Debris and damage can trap people in buildings, creating unknown survival conditions, depending on the extent of building damage and the resources available. When buildings collapse, roads crack, or bridges suffer damage, injuries to those in the vicinity can range from minor to extensive to the point of permanent disability or death. Following a severe earthquake with extensive damage, entire communities can become homeless and emergency services can be stressed beyond capacity. This type of devastation can have lasting effects on people's physical, emotional, and mental well-being.

[77] Cal-Adapt.org, 2025, "California's Fourth Climate Change Assessment, Sierra Nevada Region Report." https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

Earthquakes can have immediate and long-term impacts on health. The immediate impacts include trauma-related deaths and injuries from building collapse and trauma-related deaths and injuries from secondary effects, such as burns from fires. Long-term health effects from earthquakes can include conditions such as posttraumatic stress disorder (PTSD), depression, and severe anxiety. Earthquakes strike with no warning, putting those in impacted areas in danger. Because of the unpredictable nature of earthquakes, it is normal for people to experience emotional distress. Overwhelming anxiety, trouble sleeping, and other depression-like symptoms are common responses to these types of disasters.

Long-term impacts on the community from an earthquake may include displacement, disruption of government services, economic impacts, and health risks due to increased airborne particulate matter or contamination of water or soils from hazardous materials spills or releases of sewage. The severity and duration of these impacts depend on the severity of the earthquake and the damage to infrastructure and buildings across the region. People relocating outside the region after an earthquake could cause an extended loss of revenue for local governments and have economic impacts because of a reduced workforce.

In the event of an earthquake, electrical power lines on the national power grid are likely to be damaged and cause extended power outages and potential fires. Downed telecommunications towers would disrupt communications systems throughout the County. Road debris (i.e., downed trees and powerlines and other structural debris) could block roads, and cracks in roads from the earthquake's impact could limit access of emergency responders.

ANTELOPE VALLEY SCENARIO: MAGNITUDE 7.03

IMPACTS ON POPULATIONS

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates that 0 households (of a population of 13,195) will be displaced by the earthquake, so none will seek temporary shelter in public shelters.

Hazus estimates the number of people who will be injured or killed by the earthquake (see Table 38). The casualties are broken down into four severity levels that describe the extent of the injuries:

- Severity Level 1: Injuries will require medical attention, but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

Table 38: Antelope Valley Scenario – Casualties

Level 1	Level 2	Level 3	Level 4
0	0	0	0

IMPACTS ON STRUCTURES

Hazus estimates that about 14 buildings will be at least moderately damaged, but no building will be damaged beyond repair (see Table 39).

Table 39: Expected Building Damage by Occupancy in the Antelope Valley Scenario

	None	Slight	Moderate	Extensive	Complete
Agriculture	137.27	6.57	1.13	0.04	0.00
Commercial	643.69	8.84	1.44	0.02	0.00
Education	20.75	0.22	0.02	0.00	0.00
Government	17.71	0.27	0.02	0.00	0.00
Industrial	106.42	1.35	0.23	0.00	0.00
Other Residential	1679.30	68.88	10.75	0.06	0.00
Religion	30.88	0.97	0.14	0.00	0.00
Single Family	7662.81	40.84	0.35	0.00	0.00
TOTAL	**10,299**	**128**	**14**	**0**	**0**

The damage estimates to essential facilities are shown in Table 40. Before the earthquake, the region had 17 hospital beds available for use. On the day of the earthquake, the model estimates that only 10 hospital beds (64.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 71.00% of the beds will be back in service. By 30 days, 79.00% will be operational.

Table 40: Expected Damage to Essential Facilities in the Antelope Valley Scenario

Classification	Total	Number of Facilities		
		At Least Moderate Damage >50%	Complete Damage > 50%	With Functionality > 50% on Day 1
Hospital	4	1	0	3
Schools	11	0	0	9
Emergency Operations Centers	0	0	0	0
Police Stations	4	0	0	4

Classification	Total	Number of Facilities		
		At Least Moderate Damage >50%	Complete Damage > 50%	With Functionality > 50% on Day 1
Fire Stations	22	3	0	18

DEBRIS GENERATION

Hazus estimates the amount of debris that would be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to move the debris.

The model estimates that less than 1 ton of debris will be generated, 59% of which will be Brick/Wood and the remainder will be Reinforced Concrete/Steel.

IMPACTS TO INFRASTRUCTURE

Hazus estimates that there would be minimal damage to transportation and utility infrastructure. Assets are expected to remain functional (see Table 41).

Table 41: Expected Damage to the Transportation Systems in the Antelope Valley Scenario

System	Component	Number of Locations				
		Locations/ Segments	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Segment	40	0	0	40	40
	Bridges	47	0	0	47	47
	Tunnels	1	0	0	1	1
Railway	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	0	0	2	2
Ferry	Facilities	0	0	0	0	0

System	Component	Number of Locations				
		Locations/ Segments	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Port	Facilities	0	0	0	0	0
Airport	Facilities	3	0	0	3	3

IMPACTS TO THE ECONOMY

The total economic loss estimated for the earthquake is $6.45 million, which includes building- and lifeline-related losses, based on the region's available inventory.

Building-Related Losses

Building losses are broken into two categories: direct building losses and business interruption losses. Direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. Business interruption losses are the losses associated with the inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were $4.60 million, of which 5% were related to the business interruption of the region. By far, the largest loss was sustained by residential structures, which made up over 45% of the loss (see Table 42).

Table 42: Building-Related Economic Loss Estimates in the Antelope Valley Scenario

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Totals
Income Losses	Wages	0.0000	0.0065	0.0219	0.0010	0.0055	0.0349
	Capital Related	0.0000	0.0027	0.0264	0.0005	0.0016	0.0312
	Rental	0.0029	0.0341	0.0299	0.0007	0.0012	0.0688
	Relocation	0.0021	0.0309	0.0261	0.0047	0.0161	0.0799
	Subtotal	**0.0050**	**0.0742**	**0.1043**	**0.0069**	**0.0244**	**0.2148**
Capital Stock Losses	Structural	0.0562	0.0917	0.0579	0.0150	0.1051	0.3259
	Non-Structural	0.5488	0.8099	0.5315	0.1656	0.4445	2.5003
	Content	0.2488	0.2547	0.3568	0.1083	0.3188	1.2874
	Inventory	0.0000	0.0000	0.0652	0.0150	0.1922	0.2724
	Subtotal	**0.8538**	**1.1563**	**1.0114**	**0.3039**	**1.0606**	**4.3860**

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Totals
	TOTAL	**0.86**	**1.23**	**1.12**	**0.31**	**1.09**	**4.60**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages (see Table 43 and Table 44).

Table 43: Transportation System Economic Losses in the Antelope Valley Scenario

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segment	2592.8650	0.0000	0.00
	Bridges	41.0324	0.2984	0.73
	Tunnels	2.3940	0.0000	0.00
	Subtotal	**2636.2914**	**0.2984**	
Railway	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Light Rail	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Bus	Facilities	4.2505	0.0527	1.24
	Subtotal	**4.2505**	**0.0527**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Airport	Facilities	15.9000	0.5298	3.33
	Runways	17.7387	0.0000	0.00
	Subtotal	**33.6387**	**0.5298**	
	TOTAL	**2,674.18**	**0.88**	

Table 44: Utility System Economic Losses in the Antelope Valley Scenario

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	92.9477	0.0000	0.00
	Subtotal	**92.9477**	**0.0000**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	55.7686	0.0000	0.00
	Subtotal	**55.7686**	**0.0000**	
Natural Gas	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	37.1791	0.0000	0.00
	Subtotal	**37.1791**	**0.0000**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Electrical Power	Facilities	1131.1367	0.9685	0.09
	Subtotal	**1131.1367**	**0.9685**	
Communications	Facilities	0.1180	0.0000	0.00
	Subtotal	**0.1180**	**0.0000**	
	TOTAL	**1,317.15**	**0.97**	

FISH LAKE VALLEY SCENARIO: MAGNITUDE 7.18

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates that 0 households (of a population of 13,195) will be displaced by the earthquake, so none will seek temporary shelter in public shelters.

Hazus estimates the number of people that will be injured and killed by the earthquake (see Table 45).

Table 45: Fish Lake Valley Scenario – Casualties

Level 1	Level 2	Level 3	Level 4
0	0	0	0

IMPACTS TO STRUCTURES

Hazus estimates that about 20 buildings will be at least moderately damaged—a negligible percentage—and no building will be damaged beyond repair (see Table 46).

Table 46: Expected Building Damage by Occupancy in the Fish Lake Valley Scenario

	None	Slight	Moderate	Extensive	Complete
Agriculture	140.58	4.08	0.33	0.04	0.00
Commercial	646.47	6.90	0.63	0.02	0.00
Education	20.98	0.02	0.00	0.00	0.00
Government	17.96	0.04	0.00	0.00	0.00
Industrial	105.65	2.20	0.15	0.00	0.00
Other Residential	1624.90	115.08	18.91	0.06	0.00
Religion	31.56	0.41	0.03	0.00	0.00
Single Family	7630.93	72.87	0.20	0.00	0.00
TOTAL	**10,219**	**202**	**20**	**0**	**0**

The damage estimates to essential facilities are shown in Table 47. Before the earthquake, the region had 17 hospital beds available for use. On the day of the earthquake, the model estimates that only 16 hospital beds (100.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 100.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

Table 47: Expected Damage to Essential Facilities in the Fish Lake Valley Scenario

Classification	Total	Number of Facilities		
		At Least Moderate Damage >50%	Complete Damage > 50%	With Functionality > 50% on Day 1
Hospital	4	0	0	4
Schools	11	0	0	11
Emergency Operations Centers	0	0	0	0
Police Stations	4	0	0	4
Fire Stations	22	0	0	22

DEBRIS GENERATION

The model estimates that less than a ton of debris will be generated, of which 77.0% will be Brick/Wood and the remainder will be Reinforced Concrete/Steel.

IMPACTS TO INFRASTRUCTURE

Hazus estimates that there would be minimal damage to transportation and utility infrastructure. Assets are expected to remain functional (see Table 48).

Table 48: Expected Damage to Transportation Systems in the Fish Lake Valley Scenario

System	Component	Number of Locations				
		Locations/ Segments	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Segment	40	0	0	40	40
	Bridges	47	0	0	47	47
	Tunnels	1	0	0	1	1
Railway	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	0	0	2	2
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	3	0	0	3	3
		4	0	0	4	4

IMPACTS TO THE ECONOMY

The total economic loss estimated for the earthquake is $44.24 million, which includes building- and lifeline-related losses, based on the region's available inventory.

BUILDING-RELATED LOSSES

The total building-related losses were $5.03 million, of which 3% were related to the business interruption of the region. By far, the largest loss was sustained by residential structures, which made up over 68% of the loss (see Table 49).

Table 49: Building-Related Economic Loss Estimates in the Fish Lake Valley Scenario

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Totals
Income Losses	Wages	0.0000	0.0110	0.0133	0.0006	0.0008	0.0257
	Capital Related	0.0000	0.0047	0.0168	0.0004	0.0002	0.0221
	Rental	0.0056	0.0435	0.0172	0.0005	0.0003	0.0671
	Relocation	0.0015	0.0453	0.0095	0.0016	0.0028	0.0607
	Subtotal	**0.0071**	**0.1045**	**0.0568**	**0.0031**	**0.0041**	**0.1756**
Capital Stock Losses	Structural	0.1338	0.1322	0.0293	0.0111	0.0324	0.3388
	Non-Structural	1.2023	1.0469	0.5085	0.1611	0.1291	3.0479
	Content	0.5018	0.3145	0.3357	0.1040	0.1032	1.3592
	Inventory	0.0000	0.0000	0.0234	0.0153	0.0705	0.1092
	Subtotal	**1.8379**	**1.4936**	**0.8969**	**0.2915**	**0.3352**	**4.8551**
	TOTAL	**1.85**	**1.60**	**0.95**	**0.29**	**0.34**	**5.03**

TRANSPORTATION AND UTILITY LIFELINE LOSSES

There are no losses computed by Hazus for business interruption due to lifeline outages (see Table 50 and Table 51).

Table 50: Transportation System Economic Losses in the Fish Lake Valley Scenario

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segment	2592.8650	0.0000	0.00
	Bridges	41.0324	0.0160	0.04
	Tunnels	2.3940	0.0000	0.00
	Subtotal	**2636.2914**	**0.0160**	
Railway	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Light Rail	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Bus	Facilities	4.2505	0.0974	2.29
	Subtotal	**4.2505**	**0.0974**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Airport	Facilities	15.9000	0.3796	2.39
	Runways	17.7387	0.0000	0.00
	Subtotal	**33.6387**	**0.3796**	
	TOTAL	**2,674.18**	**0.49**	

Table 51: Utility System Economic Losses in the Fish Lake Valley Scenario

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	92.9477	0.0000	0.00
	Subtotal	**92.9477**	**0.0000**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	55.7686	0.0000	0.00
	Subtotal	**55.7686**	**0.0000**	
Natural Gas	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	37.1791	0.0000	0.00
	Subtotal	**37.1791**	**0.0000**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Electrical Power	Facilities	1131.1367	38.7179	3.42
	Subtotal	**1131.1367**	**38.7179**	
Communications	Facilities	0.1180	0.0004	0.34

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
	Subtotal	**0.1180**	**0.0004**	
	TOTAL	**1,317.15**	**38.72**	

HILTON CREEK SCENARIO – MAGNITUDE 6.92

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates that 1 household (of a population of 13,195) will be displaced by the earthquake, but no one will seek temporary shelter in public shelters.

Hazus estimates the number of people that will be injured and killed by the earthquake (see Table 52).

Table 52: Hilton Creek Scenario – Casualties

Level 1	Level 2	Level 3	Level 4
2	**0**	**0**	**0**

IMPACTS TO STRUCTURES

Hazus estimates that about 268 buildings will be at least moderately damaged. This is over 3.00% of the buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair (see Table 53).

Table 53: Expected Building Damage by Occupancy in the Hilton Creek Scenario

	None	Slight	Moderate	Extensive	Complete
Agriculture	131.52	11.72	1.71	0.05	0.00
Commercial	488.10	133.58	31.56	0.76	0.00
Education	19.43	1.35	0.22	0.00	0.00
Government	16.24	1.52	0.24	0.00	0.00
Industrial	77.76	23.54	6.51	0.19	0.00
Other Residential	1189.91	413.96	150.37	4.77	0.00
Religion	26.38	4.67	0.94	0.01	0.00
Single Family	5938.18	1694.20	71.59	0.02	0.00
TOTAL	**7,888**	**2,285**	**263**	**6**	**0**

The damage estimates to essential facilities are shown in Table 54. Before the earthquake, the region had 17 hospital beds available for use. On the day of the earthquake, the model estimates that only 11 hospital beds (66.00%) are available for use by patients already in the hospital and those injured by the

earthquake. After one week, 82.00% of the beds will be back in service. By 30 days, 96.00% will be operational.

Table 54: Expected Damage to Essential Facilities in the Hilton Creek Scenario

Classification	Total	Number of Facilities		
		At Least Moderate Damage >50%	Complete Damage > 50%	With Functionality > 50% on Day 1
Hospital	4	1	0	3
Schools	11	0	0	11
Emergency Operations Centers	0	0	0	0
Police Stations	4	1	0	3
Fire Stations	22	3	0	17

DEBRIS GENERATION

The model estimates that 4,000 tons of debris will be generated, of which 60.00% will be Brick/Wood and the remainder will be Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 160 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

IMPACTS TO INFRASTRUCTURE

Hazus estimates that there would be minimal damage to transportation and utility infrastructure. Assets are expected to remain functional (see Table 55).

Table 55: Expected Damage to Transportation Systems in the Hilton Creek Scenario

System	Component	Number of Locations				
		Locations/ Segments	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Segment	40	0	0	40	40
	Bridges	47	0	0	47	47
	Tunnels	1	0	0	1	1
Railway	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0

System	Component	Number of Locations				
		Locations/ Segments	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	0	0	2	2
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	3	1	0	3	3
		4	0	0	4	4

IMPACTS TO THE ECONOMY

The total economic loss estimated for the earthquake is 456.02 (millions of dollars), which includes building- and lifeline-related losses, based on the region's available inventory.

BUILDING-RELATED LOSSES

The total building-related losses were $74.63 million, of which 9% were related to the business interruption of the region. By far, the largest loss was sustained by residential structures, which made up over 68% of the loss (see Table 56).

Table 56: Building-Related Economic Loss Estimates in the Hilton Creek Scenario

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Totals
Income Losses	Wages	0.0000	0.3381	1.0968	0.0273	0.0545	1.5167
	Capital Related	0.0000	0.1435	1.2346	0.0159	0.0156	1.4096
	Rental	0.2271	0.9178	0.5642	0.0108	0.0147	1.7346
	Relocation	0.4805	0.4794	0.5766	0.0705	0.1329	1.7399
	Subtotal	**0.7076**	**1.8788**	**3.4722**	**0.1245**	**0.2177**	**6.4008**
Capital Stock Losses	Structural	3.0447	1.3505	1.0154	0.2300	0.2509	5.8915
	Non-Structural	20.7236	10.9902	7.2259	1.6212	1.9147	42.4756

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Totals
	Content	8.7134	3.2358	4.5177	1.0361	1.2920	18.7950
	Inventory	0.0000	0.0000	0.7016	0.1716	0.1920	1.0652
	Subtotal	**32.4817**	**15.5765**	**13.4606**	**3.0589**	**3.6496**	**68.2273**
	TOTAL	**33.19**	**17.46**	**16.93**	**3.18**	**3.87**	**74.63**

TRANSPORTATION AND UTILITY LIFELINE LOSSES

There are no losses computed by Hazus for business interruption due to lifeline outages (see Table 57 and Table 58).

Table 57: Transportation System Economic Losses in the Hilton Creek Scenario

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segment	2592.8650	0.0000	0.00
	Bridges	41.0324	0.5107	1.24
	Tunnels	2.3940	0.0169	0.71
	Subtotal	**2636.2914**	**0.5276**	
Railway	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Light Rail	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Bus	Facilities	4.2505	0.5184	12.20
	Subtotal	**4.2505**	**0.5184**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Airport	Facilities	15.9000	2.3473	14.76

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
	Runways	17.7387	0.0000	0.00
	Subtotal	**33.6387**	**2.3473**	
	TOTAL	**2,674.18**	**3.39**	

Table 58: Utility System Economic Losses in the Hilton Creek Scenario

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	92.9477	0.0000	0.00
	Subtotal	**92.9477**	**0.0000**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	55.7686	0.0000	0.00
	Subtotal	**55.7686**	**0.0000**	
Natural Gas	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	37.1791	0.0000	0.00
	Subtotal	**37.1791**	**0.0000**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Electrical Power	Facilities	1131.1367	377.9801	33.42
	Subtotal	**1131.1367**	**377.9801**	
Communications	Facilities	0.1180	0.0163	13.81
	Subtotal	**0.1180**	**0.0163**	
	TOTAL	**1,317.15**	**378.00**	

Changes in Development

Earthquakes usually occur without warning and can impact areas a great distance from their point of origin. The damage depends on the extent and duration of the shaking, population density, and the construction of buildings and infrastructure in the area shaken by the quake. Some areas may be more vulnerable than others based on soil type, the age of the buildings, and the building codes in place.

The County has established the following requirements for structures:

- International Building Code (IBC), Chapter 16, Section 1613, amended: The seismic design for structures in the County shall be based on the response parameters and equations of Chapter 16. See ASCE [American Society of Civil Engineers] 7-16 as referenced in the IBC.
- International Residential Code (IRC), Chapter 3 for single-family residential structures: Use Category D2.
- Mono County Municipal Code Building Regulations Chapter 15.04.030 adopts the following building codes: 2022 California Building Code, (California Code of Regulations Title 24, Part 2), 2022 California Residential Code (California Code of Regulations Title 24, part 2.5) and 2022 California Historical Building Code (California Code of Regulations Title 24, Part 8).

Besides California building codes and the IBC, the Mono County General Plan's Safety Element policies establish a goal to avoid the exposure of people and improvements to unreasonable risks of damage or injury from earthquakes and other geologic hazards. The objective of the policy is to direct development to occur in a manner that reduces the risks of damage and injury from seismic and other geologic hazards to acceptable levels. The Safety Element policy states the following:

- **Policy 1.A1:** To mitigate risk from seismic hazards such as surface fault rupture and other geologic hazards, regulate development near active faults, seismic hazard zones, and other geologic hazards consistent with the provisions of the Alquist-Priolo Special Studies Zone Act and the Seismic Hazard Mapping Act.
- **Policy 1.A.2:** Identify and mitigate seismic/geologic hazards to existing structures and ensure that new construction is designed to withstand seismic/geologic events.

The presence of significant natural hazards affects development. Natural hazards in the County include fault zones, volcanic hazard areas, steep slopes, debris-reflow areas, and avalanche-prone areas. Certain areas of the County continue to experience development pressures: Antelope Valley from the Gardnerville/Carson City area, Chalfant from the Bishop area, and the Long Valley communities from the Mammoth area. Although the Countywide growth rate over the next 20 years will probably be close to that projected by the State Department of Finance (between .55% and .80% annually) and the unincorporated area will probably continue to house slightly less than 50% of the County population (42% in 2010), the population distribution in the unincorporated areas may shift over that time frame.[78] The expansion of existing communities or the development of new communities is currently limited by land ownership. Mono Local Agency Formation Commission policies discourage the designation of land for urban expansion before there is a demonstrated need for such expansion; these policies also promote the expansion of existing communities instead of the development of new communities.[79]

[78] Mono County.ca.gov, 2024, Mono County General Plan "Countywide Issues/Opportunities/Constraints," https://www.monocounty.ca.gov/generalplan/countywide-issues-opportunities-constraints-2.
[79] Ibid.

Energy Shortage and Energy Resilience

Hazard Description

An energy shortage is defined as an abrupt interruption in the availability of utility services. A utility failure represents any occurrence in which vital utilities or services are rendered inoperable. A utility failure may be caused by electrical blackouts, equipment malfunctions or damage, or an unexpected surge in demand.

Moreover, interruptions in energy services may also be planned for system repairs or maintenance. Southern California Edison (SCE) currently implements extensive public safety outage management programs in areas with extreme fire risks. Communities north of Walker Canyon on Hwy 395 (Walker, Coleville, Topaz) received electrical service from Liberty Utilities (based out of Nevada), which also conducts its own public safety outage management program. The threat of wildfires in California is real and growing. With one-quarter of SCE's service area in high-risk fire areas, the implementation of the PSPS, in which SCE temporarily shuts off power to neighborhoods during dangerous weather conditions to prevent the electric system from becoming a source of ignition, is crucial. These safety shutoffs are a measure of last resort to keep the communities in the County safe by preventing wildfires. These types of sustained outages are temporary and typically occur when high-fire areas are experiencing adverse weather or public safety is at risk.[80]

Propane, also known as liquefied petroleum gas (LP gas, or LPG), is an alternative fuel derived from natural gas processing and petroleum refining. It is a fossil fuel that's found naturally, alongside natural gas and oil. Propane is separated from natural gas during processing, often using refrigeration—so, contrary to popular belief, propane isn't made from natural gas but is extracted from it. Propane is also extracted from heated crude oil using a distillation tower. Once it is isolated, it is pressurized to be stored as a liquid in the cylinders and tanks seen in cages at retail locations nationwide. Propane is a valuable energy source for homes and businesses in the County and the Town.

Table 59: National Propane Gas Association Data of Usage in California (2021)[81]

2021 Propane Demand (Gallons)	2021 Retail Propane Accounts	2021 Heated Homes (Primary)
546,000,000	791,579	449,072

[80] Southern California Edison Annual Electric Reliability Report, 2023, "Appendix A: Definitions." https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf

[81] National Propane Gas Association, 2025, "2021 Propane Industry's Economic Impact Report, Propane Education & Research Council (PERC), 2023; 2021 Annual Retail Propane Sales Report, PERC, 2023; Source: House Heating Fuel: 2021, American Community Survey, U.S. Census Bureau, (2021)." https://www.npga.org/wp-content/uploads/2024/04/California_2024.pdf

Power outages are defined as interruptions to electric services. They fall in four different categories:

- **Unplanned outages:** Also known as repair outages, these outages occur without warning or notification of service interruption.
  - **Sustained Outages:** A subcategory of unplanned outages where the outage duration is greater than 5 minutes.
  - **Momentary Outages:** A subcategory of unplanned outages where the outage duration is equal to or less than five minutes.
- **Planned outages:** Also known as maintenance outages, these occur with notifications prior to interruption of service.

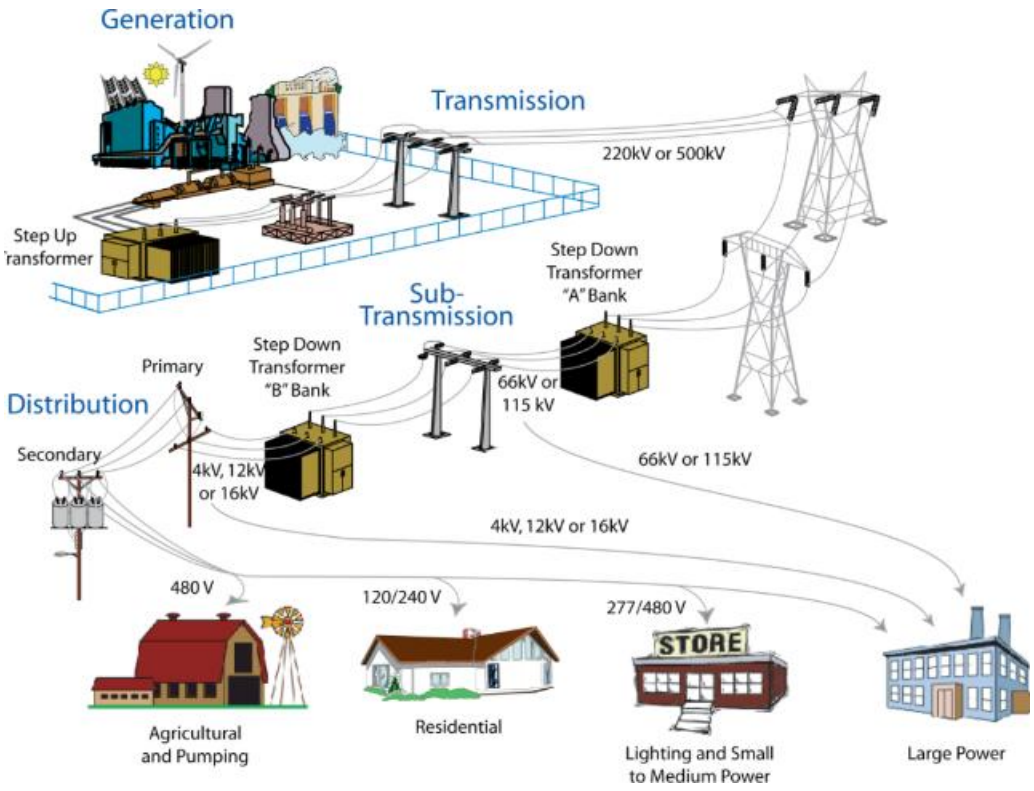


Figure 45: Southern California Edison Electrical Grid[82]

Utility disruptions can be limited by diversifying utility networks. For example, a well-maintained emergency generator can automatically supply power to life-saving machines if power goes out at a hospital, but a microgrid with renewable sources might offer more co-benefits. In addition, diverse

[82] Southern California Edison, 2024, "Circuit Reliability Review-Mammoth Lakes." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

supplies of clean water, electricity, and broadband build resilience by making it less likely that all networks and services will be disrupted, allowing communities to meet their daily needs.

Energy resilience is defined as the ability to operate building energy services, such as heating, cooling, ventilation, critical plug loads, and shelter, during and in response to a major disruption. It can be defined by two central functions shown in Table 60.

Table 60: Two Functions of Energy Resilience[83]

Passive Survivability	Grid Resilience
The ability to maintain safe indoor conditions in the event of extended energy outage or loss of energy supply. In practice, passive survivability enables safe indoor thermal conditions, relying on building design measures that require no energy. As a measure of a building's thermal performance, passive survivability offers an integrated assessment of both energy efficiency and resilience.	Building energy technologies that provide efficiency and grid flexibility services. These technologies can provide grid services during peak demand periods. Demand load reductions alleviate energy supply and grid constraints, thereby decreasing the risk of power system failures.

Energy resilience may also encapsulate secondary benefits, including improved comfort, safety, and health. Together, these benefits contribute to the broader resilience of a community.

Various building technologies and materials can contribute to improved energy resilience. An enhanced building envelope, such as energy-efficient wall insulation or windows, can help maintain safe conditions for occupants for a longer period of time during a heatwave or cold snap. On-site generation and energy storage systems can be critical strategies for providing emergency power for essential equipment during an extended outage. Fuel-switching technology could support long-term energy resilience by enabling residents to adopt safer and more reliable heating technologies as they become available. In addition, grid-interactive technologies like demand-responsive controls and appliances, occupancy sensors, and building energy-management systems can mitigate strain on the electric grid. When deployed at scale, these technologies can potentially prevent a loss of power from occurring in the first place. The inclusion of strong resilience measures in energy codes, as well as existing-buildings programs like building performance standards (BPS), can help ensure that new construction and major renovation projects leverage their potentially life-saving resilience benefits.[84]

[83] Office of Energy Efficiency and Renewable Energy, 2025, "Building Energy Codes Program, Energy Resilience." https://www.energycodes.gov/energy-resilience#:~:text=Energy%20resilience%20is%20the%20ability%20to%20operate%20building,two%20central%20functions%20shown%20in%20the%20table%20below

[84] Ibid.

CASCADING HAZARDS

Depending on the cause, a power outage or other energy emergency can cause cascading impacts—most significantly, wildland fires—if an outage is caused by a downed line or other physical damage. Also, propane gas cascading hazards include wildfire ignition, structural explosions, and impacts on air quality and health conditions due to exposure to hazardous gas releases.

Location

ENERGY SOURCES FOR MONO COUNTY

The County utilizes multiple energy sources to meet its needs, including electricity, propane, geothermal power, and hydroelectric power. Details of each type of power source are discussed throughout the profile as it relates to energy shortages and energy resilience. The County is ranked #785 out of 2,161 US counties nationwide and #34 out of 55 California counties in terms of total annual net electricity generation. There are nine power plants and four electric utility companies, with annual generation of 785.9 GWh, and 2.9 million MMBtu.[85] Figure 46 provides monthly net electricity generation data in megawatt hours, from 0 to 120,000, during the years 2001 to 2024. Figure 47 shows net electricity generation by fuel source: geothermal and water.

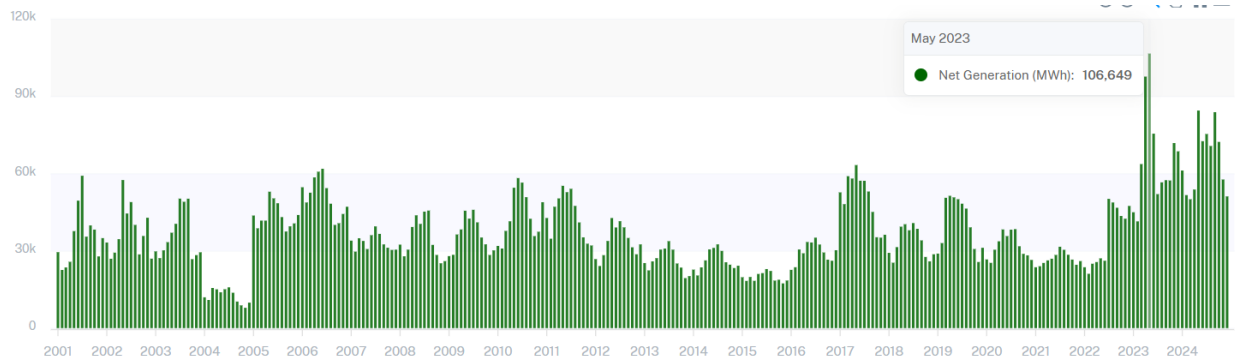


Figure 46: Monthly Net Generation for Mono County in Megawatt Hours (2001 to 2024)[86]

[85] GridInfo, "Summary of Electricity Activity in Mono County," 2025, https://www.gridinfo.com/california/mono-county.
[86] GridInfo, "Monthly Net Generation for Mono County in Megawatt Hours (2001-2024)," 2025, https://www.gridinfo.com/california/mono-county.

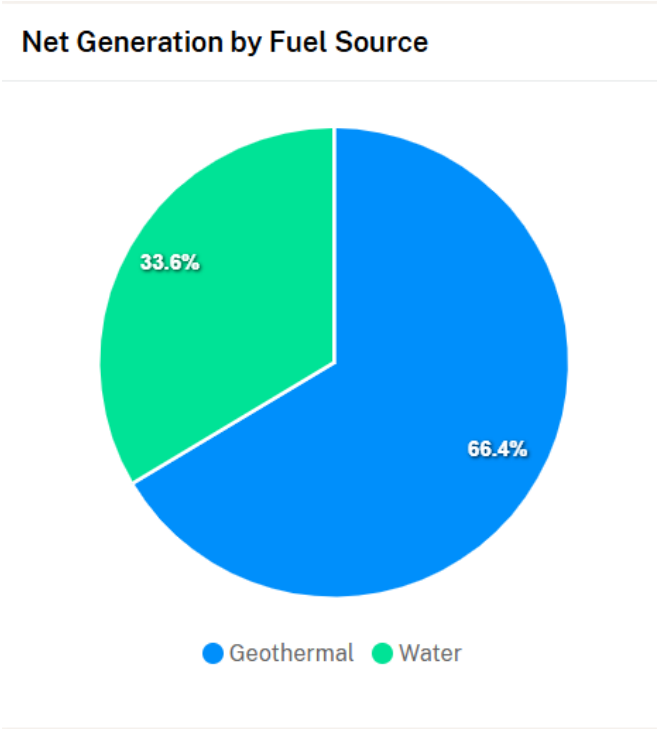


Figure 47: Net Generation by Fuel Source[87]

Table 61 provides information on the geothermal and water power plants located in the County. Table 62 lists the location of electrical power plants by city.

Table 61: Power Plants in Mono County[88]

Power Plants	Utility Name	Generation (GWh)	Consumption	Fuel Types
CD4	CD4	276.9	1.0 M MMBtu	Geothermal
Mammoth G3	Ormat Nevada Inc.	103.1	386.0 k MMBtu	Geothermal
Upper Gorge	Los Angeles Department of Water and Power	99.9	371.0 k MMBtu	Water
Middle Gorge	Los Angeles Department of	90.9	340.2 k MMBtu	Water

[87] GridInfo, "Net Generation by Fuel Source in Mono County," 2025, https://www.gridinfo.com/california/mono-county.

[88] GridInfo, "Power Plants in Mono County," 2025, https://www.gridinfo.com/california/mono-county. Data is based on the last 12 months since December 2024.

Power Plants	Utility Name	Generation (GWh)	Consumption	Fuel Types
	Water and Power			
Mammoth G2	Ormat Nevada Inc.	82.3	307.3 k MMBtu	Geothermal
Mammoth G1	Ormat Nevada Inc.	59.6	222.0 k MMBtu	Geothermal
Rush Creek	Southern California Edison Co.	43.0	146.9 k MMBtu	Water
Poole	Southern California Edison Co.	22.8	82.8 k MMBtu	Water
Lundy	Southern California Edison Co.	7.3	26.0 k MMBtu	Water

Table 62: Electricity Generation for Cities Located in Mono County[89]

City	Net Generation	# of Power Plants
June Lake	43.0 GWh	1
Lee Vining	30.1 GWh	2
Mammoth Lake	522.0 GWh	4

Energy emergencies can affect any part of the planning area. Both rural and populated areas are known to experience power outages during winter and windstorms that can last from several hours to several weeks. The overall effects of a widespread energy emergency would be concentrated in population centers, but the condition is likely to be present throughout the entire planning area. SCE and Liberty Utilities are the electric utility providers for the planning area. The County is designated as District 85 in the Rurals Region. Figure 48 to Figure 52 show the location of all distribution circuits in the Town and the County.

[89] GridInfo, "Electricity Generation for Cities Located in Mono County," 2025, https://www.gridinfo.com/california/mono-county.

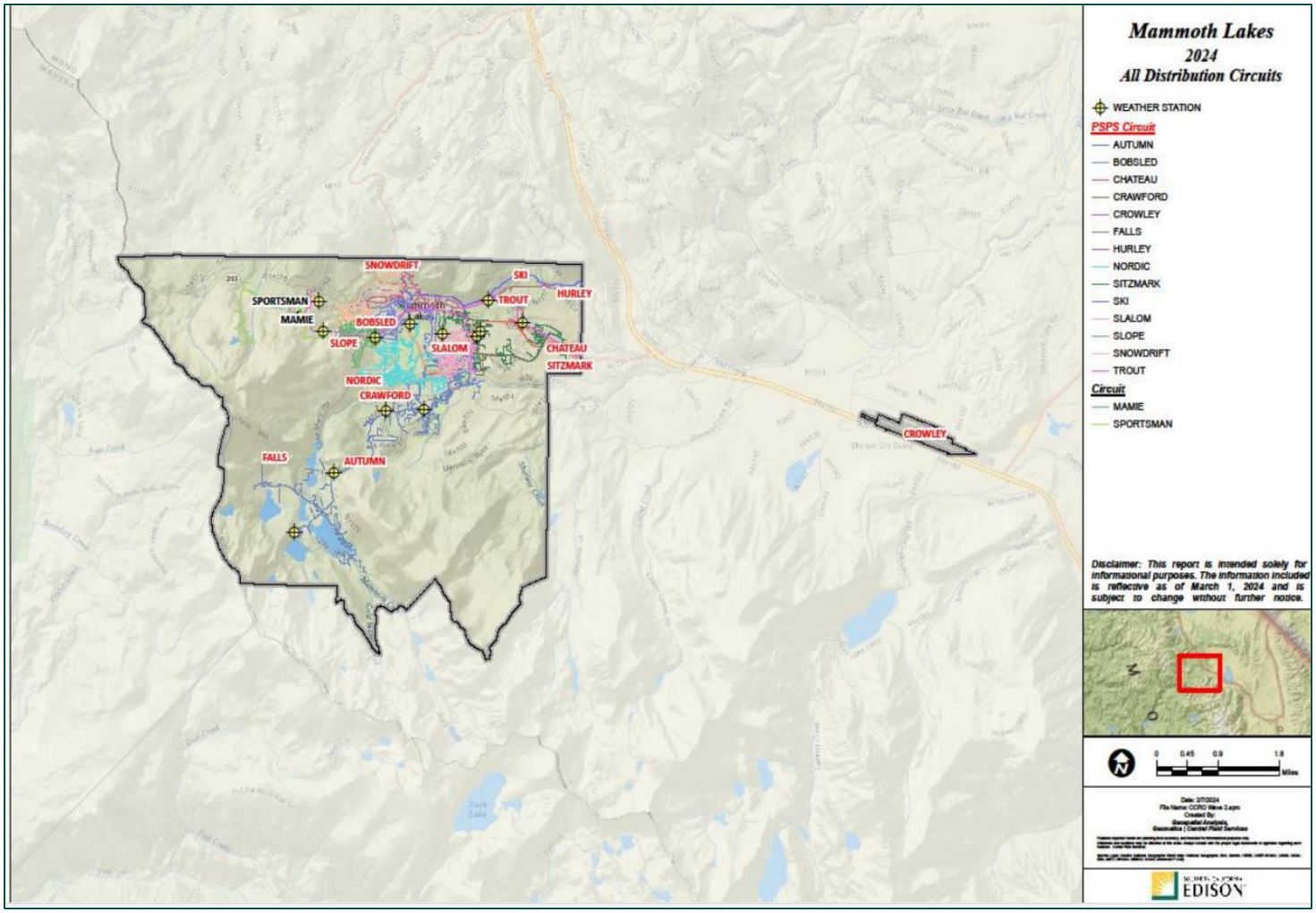


Figure 48: Southern California Edison – Mammoth Lakes Map of All Distribution Circuits[90]

[90] Southern California Edison, 2024, "Circuit Reliability Review-Mammoth Lakes." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

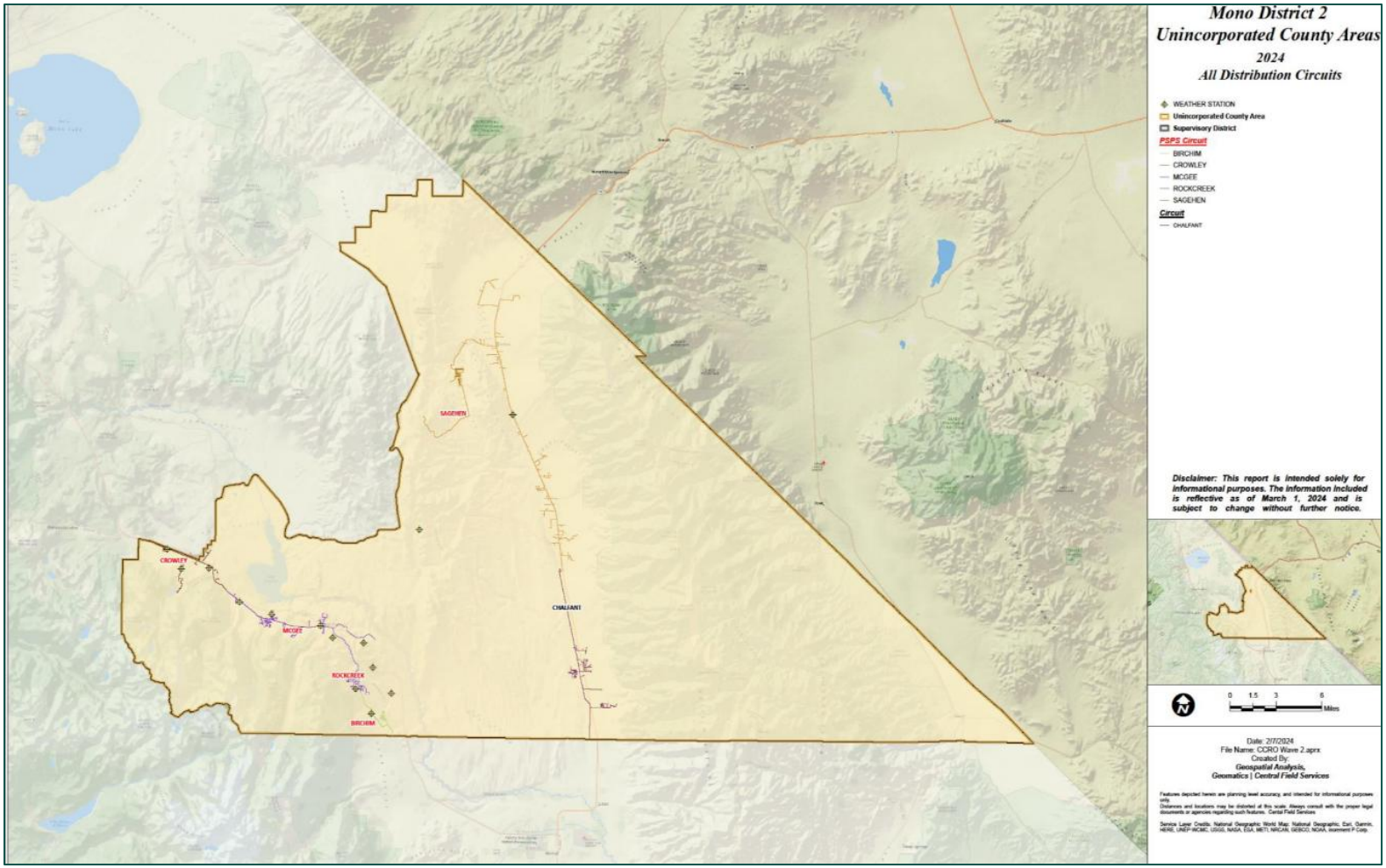


Figure 49: Mono District 2 Unincorporated County Areas – 2024 All Distribution Circuits[91]

[91] Southern California Edison, 2024, "Circuit Reliability Review-Mono District 2 Distribution Circuits Map." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

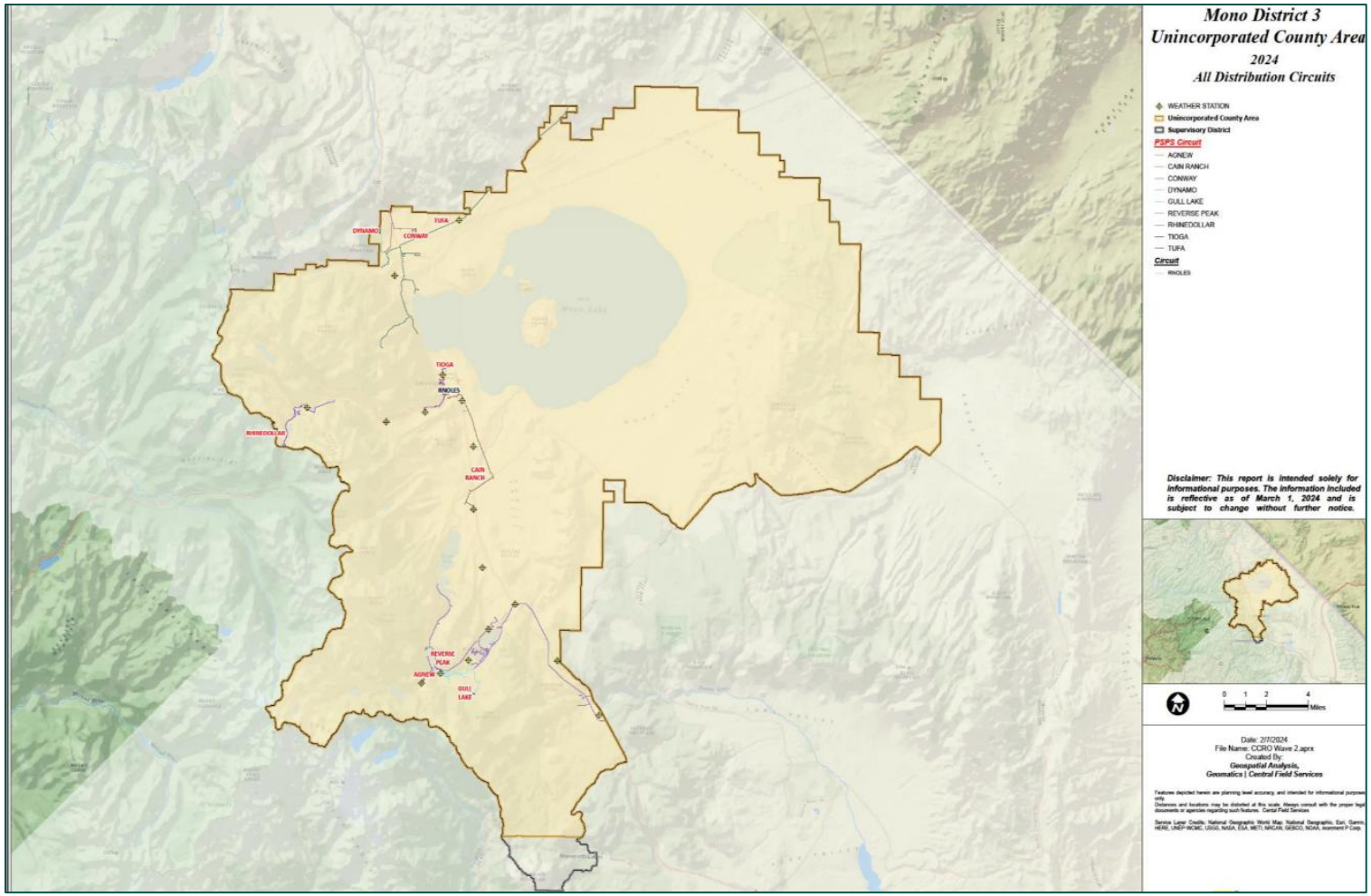


Figure 50: Mono District 3 Unincorporated County Areas – 2024 All Distribution Circuits[92]

[92] Southern California Edison, 2024, "Circuit Reliability Review-Mono District 3 Distribution Circuits Map." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

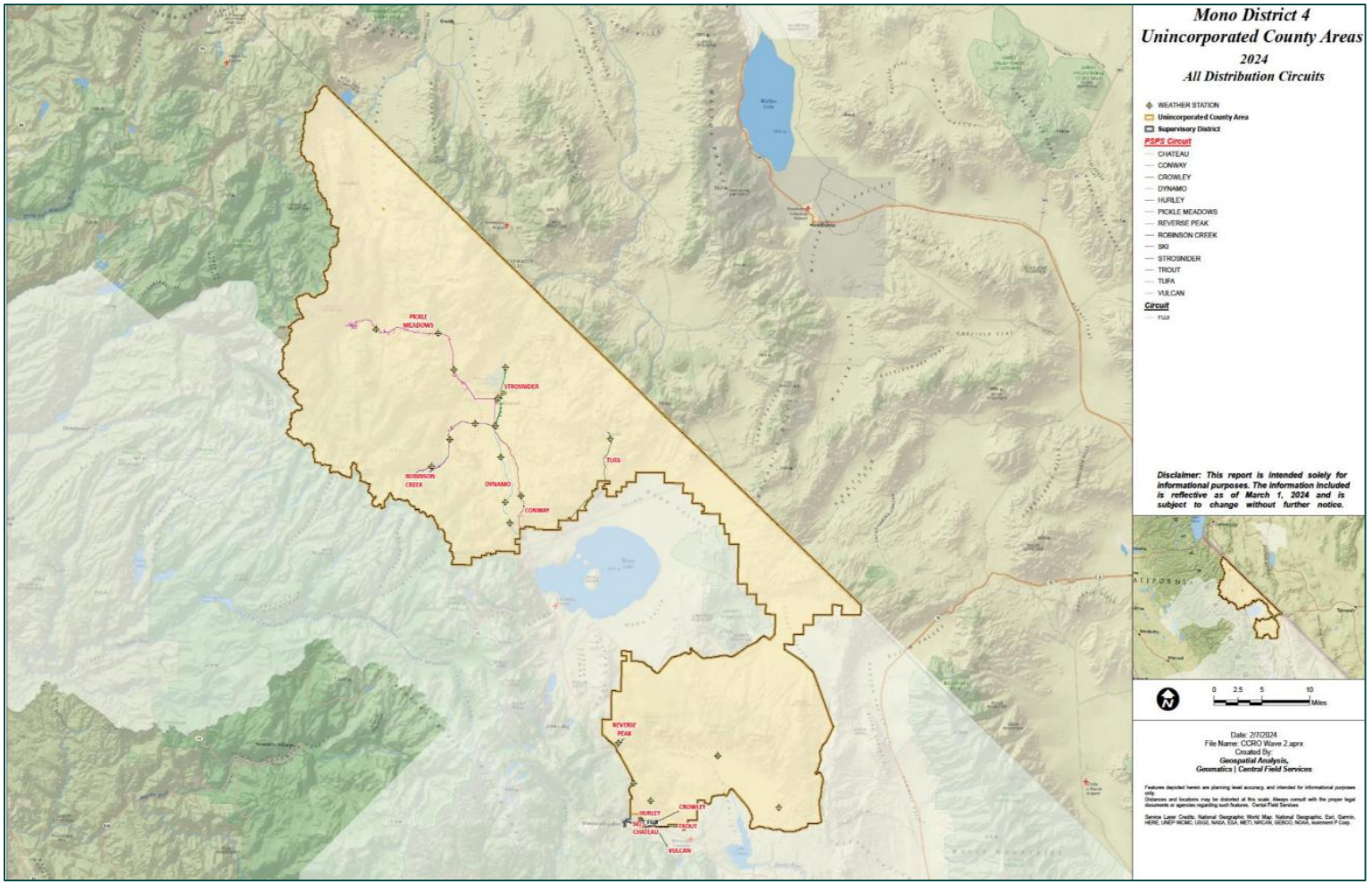


Figure 51: Mono District 4 Unincorporated County Areas – 2024 All Distribution Circuits[93]

[93] Southern California Edison, 2024, "Circuit Reliability Review-Mono District 4 Distribution Circuits Map." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

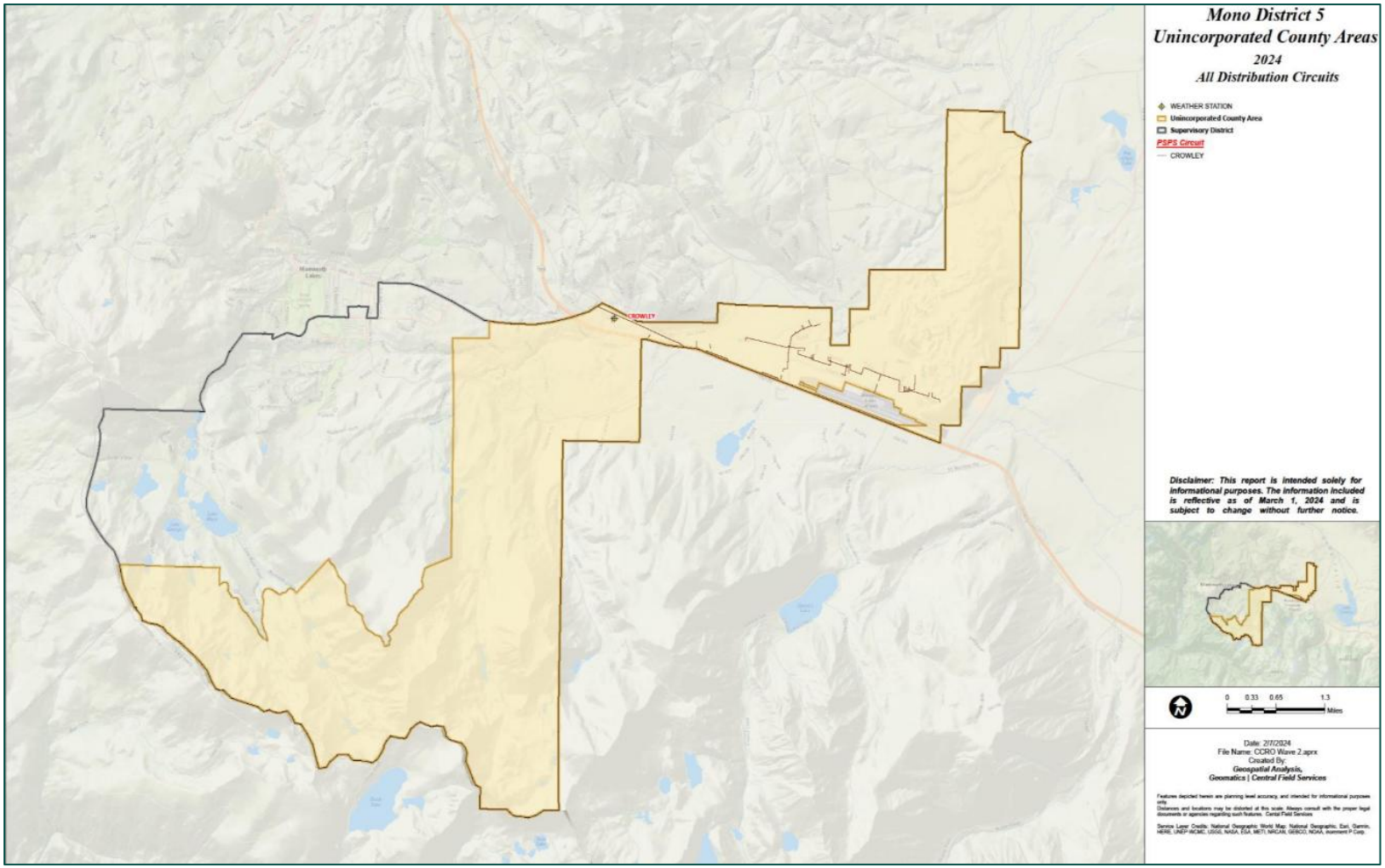


Figure 52: Mono District 5 Unincorporated County Areas – 2024 All Distribution Circuits[94]

[94] Southern California Edison, 2024, "Circuit Reliability Review-Mono District 5 Distribution Circuits Map." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

Extent

The overall magnitude and potential severity of impacts from energy shortages is considered moderate in the County. Typical energy emergency events are handled at the regional level, and economic impacts could affect the entire County. In a worst-case scenario, an energy emergency could require federal support, impact critical facilities, disrupt services for several days, and have national economic impacts. According to the California Energy Commission, multiple alternative energy sources are in place, which may reduce the extent of energy shortages by providing other options in the event of a failure.[95]

Figure 53 below shows district indices from 2014 to 2023 for planned and unplanned outages in the Bishop/Mammoth District (including all of Mono County Rural Region 35). District reliability indices are calculated using the local district area as the number of total customers served within the respective district. The district indices are denoted with a lowercase "d" to differentiate between system indices and district indices (e.g., dSAIDI, dSAIFI, dMAIFI, and dCAIDI).

The graphs show a steady increase in System Average Interruption Duration (SAIDI) in the Bishop/Mammoth District between 2019 and 2023. They also indicate a steady increase in System Average Interruption Frequency (SAIFI) in the same timeframe. From 2021 to 2023, there was a decrease in Momentary Average Interruption Frequency (MAIFI), and from 2019 and 2023, there was a decrease in Sustained Customer Interruptions (CAIDI).

[95] California Energy Commission, 2025, "Developing Renewable Energy." https://www.energy.ca.gov/about/core-responsibility-fact-sheets

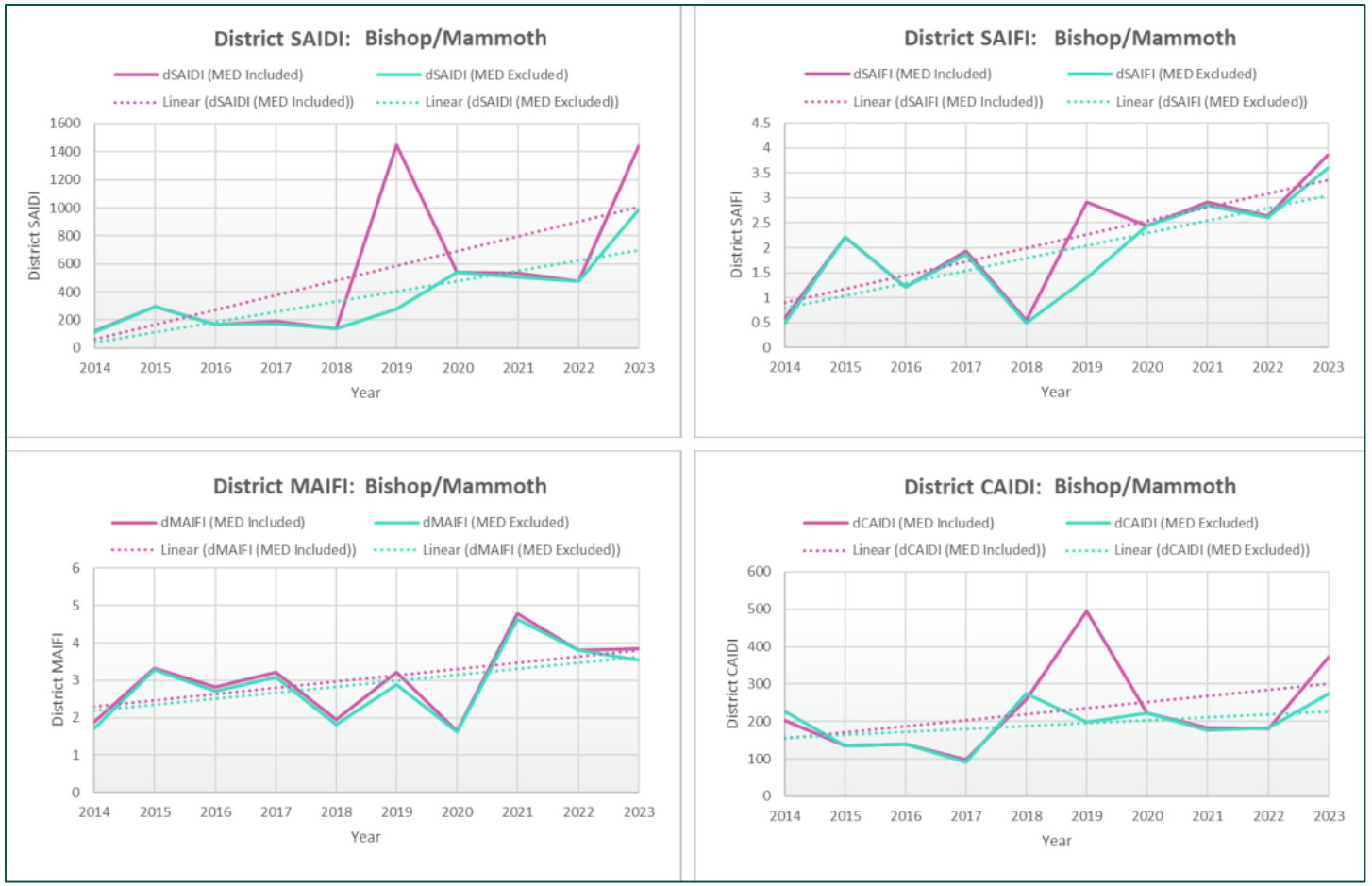


Figure 53: District Indices for Planned and Unplanned Outages in Bishop/Mammoth, 2014–2023[96]

[96] Southern California Edison Annual Electric Reliability Report, 2023, "Section 2: District Reliability Indices for the Last 10 Years." https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf

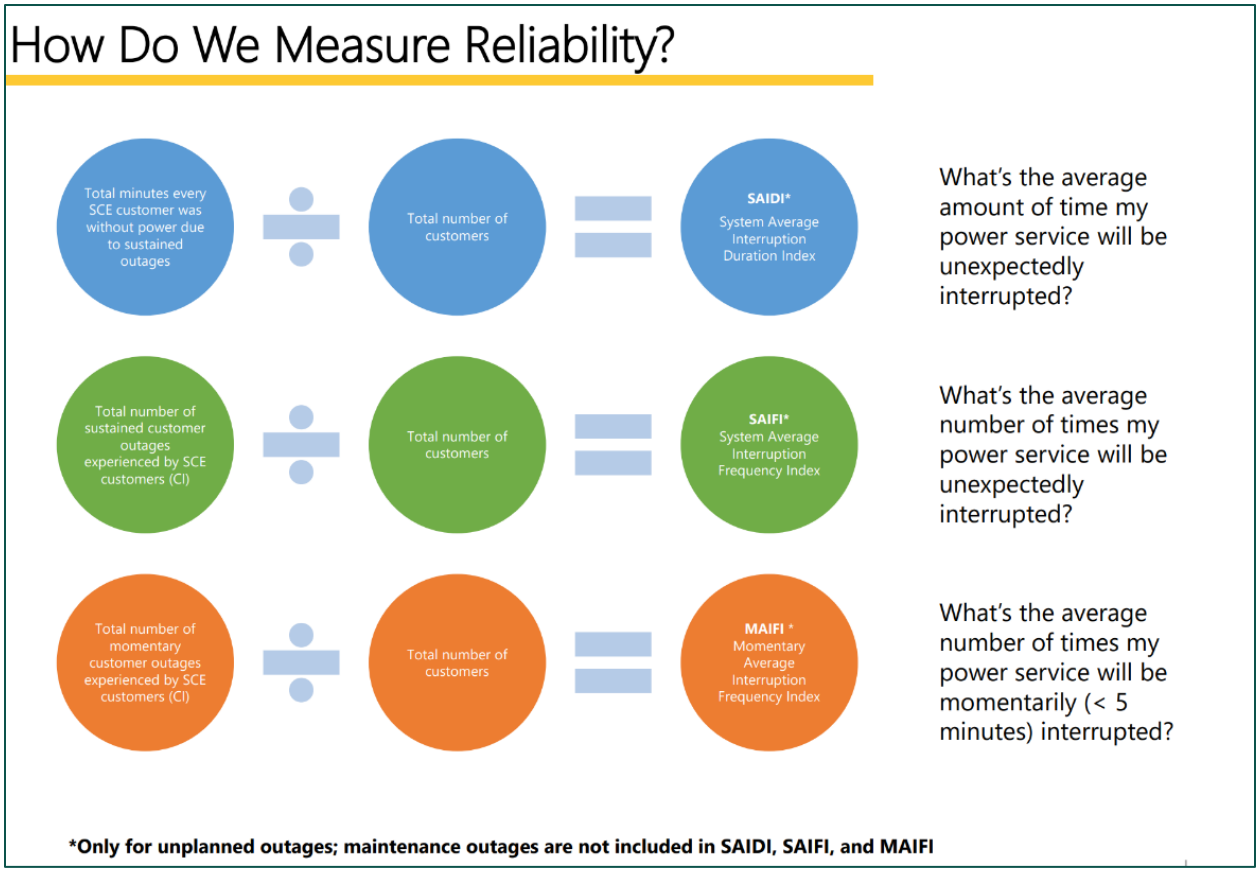


Figure 54: Measuring Reliability[97]

- **SAIDI:** The System Average Interruption Duration Index measures the amount of time on average a customer was without power in a year due to sustained interruptions (measured in minutes per customer). For purposes of calculating daily system SAIDI, any interruption spanning multiple calendar days is accrued to the day on which the interruption began. Statistically, days with a daily system SAIDI greater than a threshold value indicate that the energy delivery system experienced stresses beyond that normally expected (such as severe weather). Events are excluded based on the "2.5 beta method." According to Institute of Electrical and Electronic Engineers Standard 1366, days are excluded from a given year's indices if their SAIDI exceeds 2.5 times the standard deviation of the natural logarithm of daily SAIDI over the previous five-year period. **SAIDI = sum of all sustained customer interruption durations/total number of customers served.**
- **SAIFI:** The System Average Interruption Frequency Index measures the number of times an average customer is without power in a year due to service interruptions lasting more than five minutes (measured in interruptions per customer). **SAIFI = sum of total quantity of sustained customer interruptions/total number of customers served.**

[97] Southern California Edison, 2024, "Circuit Reliability Review-Mammoth Lakes-Measuring Reliability." https://edisonintl.sharepoint.com/:b:/t/Public/Misc/ESLoYK1v9MJLofMW81dNwQgBhXU6URYQnkN0cz7UJsnUvQ?e=0qYyJb

- **MAIFI:** The Momentary Average Interruption Frequency Index measures the number of times an average customer is without power in a year due to service interruptions lasting five minutes or less (measured in interruptions per customer). SCE calculates MAIFI at the individual outage event. **MAIFI = sum of total quantity of momentary customer interruptions/total number of customers served.**
- **CAIDI:** The Customer Average Interruption Duration Index measures the average time required to restore service for a sustained outage. **CAIDI = sum of all sustained customer interruption durations/sum of total quantity of sustained customer interruptions.**

History of Previous Hazard Events

Table 63 summarizes the number of planned outages per month for 2023 in the Bishop/Mammoth District (including Mono County District 36) from the Southern California Edison Annual Electric Reliability Report 2023. Planned outages on the same day and circuit may potentially be condensed into one outage event due to the methodology used to link outages using meter data. The information on the number, date, and location of planned outages for 2023 was provided under seal in a separate report to the Directors of Energy Division and the Safety Enforcement Division on the same day this report was submitted.[98]

The Southern California Edison Annual Electric Reliability Report for 2023 and 2024 includes the Historical 10 Largest Unplanned Outage Events in the Last 10 Years based on SAIDI for each year from 2015 to 2024. However, the County is not included in the list of impacted counties.[99]

Figure 55 shows the major event days (MEDs) for 2023, along with the number of customers without service for specific intervals, the cause, and location. The County is represented in the rural region data. A MED is defined as a day in which the daily system SAIDI exceeds a threshold value known as TMED. **TMED** is the calculated threshold value used to determine a major event day. SCE's TMED value is calculated at the beginning of each year using SCE's daily SAIDI values from the prior five years. SCE's TMED value for 2023 was 2.15 minutes.[100]

[98] Southern California Edison Annual Electric Reliability Report, "Section 2: District Reliability Indices for the Last 10 Years-Planned Outages-Bishop/Mammoth," 2023, https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf
[99] Southern California Edison Annual Electric Reliability Report, "Historical 10 Largest Unplanned Outage Events in the Last 10 Years," 2024, https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202024%20FINAL.pdf.
[100] Southern California Edison Annual Electric Reliability Report, 2023, "Section 7: Summary List of Major Event Days," https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf

Table 63: Number of Planned Outages for Bishop/Mammoth District (2023)[101]

District	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Bishop/ Mammoth	13	6	14	16	12	18	31	29	25	23	20	12	219

[101] Southern California Edison Annual Electric Reliability Report, 2023. "Section 2: District Reliability Indices for the Last 10 Years-Planned Outages-Bishop/Mammoth." https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf

Cause	OH Equipment, Operation, Unknown, UG Equipment, Vegetation Blown	OH Equipment, Operation, UG Equipment, Unknown, Toppled Poles	Avalanche, Vegetation Blown	OH Equipment, Operation, Unknown, Vegetation Blown	OH Equipment, Toppled Poles, Weather	PSPS
Region Location	Metro East, Metro West, North Coast, Rural	Metro East, Metro West, Rural, North Valley	Rural	North Coast, Rural, San Jacinto, San Joaquin	Desert, Rural	Desert, North Coast, Orange
Outage Date	02/24/2023	02/25/2023	02/28/2023	03/01/2023	08/20/2023	10/29/2023
Outage Duration	**Number of Customers Impacted for Each Duration Period**					
0 to 1 hour	239,933	185,674	18,392	196,862	215,776	42,649
1 to 5 hours	39,736	28,651	7,942	24,370	69,726	21,539
5 to 10 hours	2,528	10,317	1,312	2,774	5,237	11,880
10 to 15 hours	1,402	1,934	86	4,154	4,133	2,353
15 to 20 hours	934	561	21	1,138	2,094	643
20 to 24 hours	673	397	0	79	537	11
1 to 2 days	651	1,009	160	489	904	1,823
2 to 3 days	17	218	221	248	1,855	8
3 to 4 days	262	8	282	41	2	0
4 to 5 days	146	0	356	32	0	29
5 to 6 days	1	0	122	0	0	0
6 to 7 days	0	0	654	0	0	0
>= 7 days	16	22	3	31	230	0
Total	286,299	228,791	29,551	230,218	300,494	80,935

Figure 55: Summary of Major Event Days for 2023

Probability of Future Hazard Events

Due to the sporadic history of occurrences, the broad range of potential causes, the unpredictability of these causes, and the improvements in energy supply systems after previous failures, the overall probability of future energy shortages and outage events is considered highly likely.

The frequency of these events can be reduced in the future. Utility providers are consistently looking for ways to improve reliability performance, such as reducing restoration times by improving processes for operational response, lessening customer impact through real-time outage diagnostics, replacing aging and poorly performing infrastructure, installing new equipment such as covered conductors in high fire risk areas, and enhancing circuitry via automation and equipment that expedite identification of the faulted location and improve both isolation and restoration.[102]

CLIMATE CHANGE CONSIDERATIONS

The probability of energy emergencies may increase because of climate change. The 2023 Enhanced California State Hazard Mitigation Plan states that conditions for wildfires and extreme temperature are expected to become more common in the future as the climate changes. This will likely increase the probability of PSPS events each year. Under certain severe weather conditions, utility service providers shut off power to help prevent wildfire and keep communities safe. A combination of dry vegetation and high winds can uproot trees, blow branches onto aboveground power lines, or create sparks if power lines contact one another, requiring a PSPS.[103]

Another way that climate change could affect the odds of an energy outage is through increased demand. As temperatures rise and extreme heat events become more frequent, there is an increased demand for power to keep cool, which could cause widespread power outages. Extreme weather events due to climate conditions could further increase the risk of weather-related equipment damage.

Cal-Adapts Fourth Climate Change Assessment-Sierra Nevada Region Report states that the Sierra Nevada region's energy infrastructure was developed to accommodate its highly variable climatic conditions, but it is frequently challenged by natural events, including earthquakes, storms, and floods. Climate changes may lead to higher maintenance and repair costs, disruptions of economic services, interruptions of critical lifelines, and ultimately a decline in the overall quality of life for Californians.[104]

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[102] Southern California Edison Annual Electric Reliability Report, 2023, "Executive Summary," https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf

[103] 2023 Enhanced California State Hazard Mitigation Plan, 2024, "Public Safety Power Shutoff, Climate Change Impacts." https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf

[104] Cal-Adapt.org, 2025, "California's Fourth Climate Change Assessment, Sierra Nevada Region Report." https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

Vulnerability

Populations with disabilities or limited mobility face heightened vulnerability during prolonged power outages. Inaccessible infrastructure due to power failures, such as access to ramps, elevators, or accommodations for visual or hearing impairments, can hinder their ability to evacuate, access emergency services, or receive timely information during incidents. Prolonged power outages can cause health emergencies and increased demand for emergency medical services, especially in the County, where vulnerable people may be exposed to extreme winter weather conditions.

Research suggests that power outages have significant health consequences ranging from carbon monoxide poisoning, temperature-related illness, gastrointestinal illness, and mortality to all-cause, cardiovascular, respiratory, and renal disease hospitalizations, especially for individuals relying on electricity-dependent medical equipment. Nonetheless, the studies are limited, and more work is needed to more clearly define the relevant exposures and outcomes. Such research will consider modifying factors, such as socioeconomic and other vulnerabilities, and how community resilience can minimize the adverse impacts of widespread major power outages.

Impacts

Energy shortages may impact any of the following services:

- **Power to homes and businesses:** Prolonged power outages can lead to economic hardships for homes and businesses, as household perishable goods are lost and businesses must shutter their doors due to lack of power.
- **Loss of Life:** Prolonged power outages, specifically during severe winter weather events, can lead to loss of life. Individuals reliant on medical devices powered by electricity, with no backup power, could risk loss of life when life-sustaining equipment are rendered inoperable. Also, if emergency medical services agencies lose access to communications due to prolonged power outages, they may not be able to reach people in life-threatening situations in time.
- **Drinking water:** Many homes and businesses draw their water from wells operated by electrical pumps and cannot access the water source during power outages.
- **Wastewater or stormwater systems:** These systems experience operational disruption during prolonged power outages, which can lead to sewage system disruptions in homes and other critical facilities that cannot properly access those systems.
- **Telecom and information technology:** As more communities now rely on these systems to maintain communication with the outside world, any disruption of these systems due to prolonged power outages can have a serious impact.

The Energy community lifeline, which focuses on providing power and fuel to the affected community, is critical to the recovery process. In a disaster, communities can be left without access to necessities such as power and fuel. The Energy lifeline is important for ensuring that medical facilities, critical infrastructure and facilities, transportation, communications, food, hydration, and shelter lifelines can operate effectively,

and people have the resources they need to survive. In addition, utility failures such as power outages, can disrupt daily routines and activities. They can cause transportation delays, canceled trips, and difficulties commuting to work, school, or other important engagements. They can also disrupt access to essential services, such as clean water, electricity, healthcare facilities, and communication networks, compromising people's health, safety, and quality of life.

Changes in Development

Because this hazard was not profiled in the prior plan, there is no specific record of prior development changes. However, it can be assumed through discussions with the plan participants and the stakeholders that energy resiliency was a concern five years ago and continues to be a concern today. Recent energy resilience efforts to create alternative energy sources and upgrade existing systems provide opportunities to decrease vulnerability.

The County has significant renewable energy resources within its boundaries, including geothermal, hydroelectric, biomass, solar, and wind. Issues have arisen and will continue to arise regarding whether these resources should be developed, and, if development does occur, how assurances can be made that it will not cause significant adverse effects on the environment. In addition, the impacts of long-distance transmission corridors associated with regional energy development projects are a growing concern.

Considerations of air quality impacts and public health and safety are extremely important for the use of these resources, as well as potential impacts to visual, biological, and water resources. Through its permitting authority, the County imposed a detailed monitoring program that has yielded several years of data establishing less than significant impacts from the geothermal extraction activities of this project. Recently, a replacement plant was approved to increase efficiency, and a new plant was approved on adjacent USFS lands, over which the County had limited authority.

Recently, interest in small-scale and residential geothermal applications through underground systems has been increasing. These systems are compatible with green building design and greenhouse gas reduction measures, which the County encourages and are regulated by the California Building Code.

Energy conservation can save consumers money, reduce air pollution and greenhouse gas emissions from fossil fuel generation and burning, improve the use of resources, and reduce the need for energy production and transmission facilities. It is to the benefit of the County and its residents to pursue energy conservation and to use readily available alternative energy resources when such use is environmentally acceptable.

AMERIGAS PROPANE TANK FARM PROPOSED PROJECT

As the Town continues to grow, AmeriGas Propane is committed to growing with it. AmeriGas has committed to providing a safe, and efficient pipeline with sufficient storage to ensure they have enough propane to keep the community in service during prolonged winter storm. They are currently in the early stages of communications with MMSA and AmeriGas leadership discussing the potential of constructing a new tank farm located at the MMSA Ski Garage that would supply propane to the future MMSA

Expansion project, as well as back feed their existing Franchise Line. This would double the storage capacity and allow AmeriGas to keep up with future growth plans throughout the Town. AmeriGas intends to include the Town and Mammoth Lakes Fire District for their contribution to ensure their concerns and questions regarding this collaborative project are addressed and community goals and objectives of reducing hazard risk are achieved through this collaboration.

MONO COUNTY AND THE EASTSIDE BIOMASS PROJECT

The County and the Eastside Biomass Project Team evaluated the feasibility of a bioenergy facility using locally available forest waste biomass and local labor and supporting the regional economy. TSS Consultants was selected as the prime contractor to complete this feasibility study and concluded that there is sufficient biomass feedstock to sustainably supply a thermal-only project.

The Eastside Biomass Project Team consists of representatives from the Inyo National Forest, the Town, Mammoth Lakes Fire Protection District, the County, GC Forest Products, Inc., and the MMSA. The Sierra Nevada Conservancy, SCE, and the Great Basin Unified Air Pollution Control District participate regularly and provide technical guidance. The project is a strategic step toward developing economic uses for forest biomass material generated from forest management and hazardous fuels treatment activities within the central County/Town area.[105]

THE MAMMOTH GEOTHERMAL COMPLEX

The Mammoth Geothermal Complex consists of four geothermal power stations located at Casa Diablo Hot Springs, about 3 miles (4.8 km) east of Mammoth Lakes, California. The complex is owned by Ormat and operated by its subsidiary Mammoth Pacific. Casa Diablo IV became operational at the end of 2021. As of July 14, 2022, Ormat announced that commercial operations at Casa Diablo IV had begun. The Mammoth Geothermal Complex is situated at the base of a large resurgent dome near the center of the Long Valley Caldera. The dome was formed from the swelling or rising of the caldera floor due to movement in the magma chamber beneath it. The geothermal heat produced from the magma chamber below the dome causes groundwater to boil and turn to steam, creating fumaroles such as those seen in Fumarole Valley and along Hot Creek about 5 miles (8 km) to the northeast. The geothermal complex utilizes this heat to power its binary cycle power generators.[106]

SOUTHERN CALIFORNIA EDISON HYDROELECTRIC PROJECTS – RUSH CREEK PROJECT RELICENSING

SCE has generation assets, and hydro reservoirs in the Eastern Sierra continue to provide and will support energy resilience in the County in the future. This includes projects undergoing relicensing, in various

[105] Mono County Government, 2025, "Renewable Energy Project: Reusing Woody Biomass." https://www.monocounty.ca.gov/planning/page/renewable-energy-project-utilizing-woody-biomass
[106] Wikipedia, 2025, "Mammoth Geothermal Complex," https://en.wikipedia.org/wiki/Mammoth_Geothermal_Complex.

stages of relicensing with the Federal Energy Regulatory Commission, which are critical to supplying generation to the County.

SOUTHERN CALIFORNIA EDISON GRID HARDENING MITIGATION PROJECT IN MONO COUNTY

SCE is currently conducting grid hardening mitigation projects in the County, such as the Lake Mary Road up to Tamarack Lodge undergrounding project, and targeting projects continue in the Town as well. The Town worked with SCE to expedite equipment storage permitting, allowing SCE to contract storage space for undergrounding project equipment and supplies. They are also looking toward local government regulations that will expedite right-of-way permitting to end bottlenecks in the project timeline.

SOUTHERN CALIFORNIA EDISON INCENTIVE PROGRAMS

SCE's Self-Generation Incentive Program offers rebates and incentives to eligible residential and business customers who generate their own power. It also provides battery-storage incentives to help customers in high fire risk areas store their self-generated power for later use.

SCE's microgrids consist of various generation resources that can be disconnected from the broader electric grid to provide local energy needs. They typically include solar panels, batteries, and traditional combustion generators in combinations tailored to a customer's specific needs. By working with a developer, businesses can find a microgrid solution that works for their needs.

Epidemic/Pandemic

Hazard Description

Public health measures for managing infectious diseases in the modern era are rooted in the 19th-century identification of microorganisms as the causative agents behind numerous serious diseases, such as cholera and tuberculosis. Disease control has significantly improved through advancements in sanitation and hygiene, the discovery of antibiotics, and the implementation of universal childhood vaccination programs. Scientific and technological progress has been pivotal in these domains and underpins contemporary disease surveillance and control frameworks. Scientific research has also enhanced our understanding of the dynamic relationship between humans and microbes. As of January 1, 2000, a total of 60 infectious diseases were officially designated as notifiable at the national level, necessitating regular, frequent, and timely reporting of individual cases to facilitate disease prevention and control efforts.[107]

Influenza, a seasonal acute respiratory illness, is caused by the influenza virus. Globally, there are four types: A, B, C, and D. Types A and B regularly circulate among humans, causing seasonal epidemics. Type A is further classified based on surface proteins, specifically hemagglutinin and neuraminidase, with

[107] Centers for Disease Control and Prevention. "Summary of Notifiable Diseases – United States, 2000." https://www.cdc.gov/mmwr/preview/mmwrhtml/mm4953a1.htm

subtypes H1N1 and H3N2 currently affecting humans. Historically, only influenza A has caused pandemics. Type B is divided into lineages, with B/Yamagata and B/Victoria currently in circulation. Type C is less common and results in relatively mild illness and is not considered a significant public health concern. Type D does not infect humans and is mainly found in cattle.

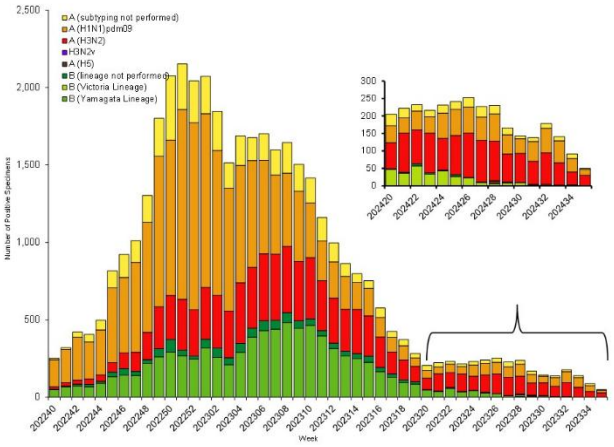


Figure 56: Influenza Positive Tests for 2023–2024 Flu Season[108]

COVID-19, an acute respiratory illness, is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease emerged in late 2019 and rapidly spread across the globe, leading to widespread morbidity and mortality. The primary mode of transmission is via respiratory droplets from infected individuals, but airborne transmission and contact with contaminated surfaces also contribute to the spread.[109]

COVID-19 infection typically begins with the virus entering the respiratory tract, where it binds to the angiotensin-converting enzyme 2 (ACE2) receptor, facilitating viral entry into host cells. The incubation period ranges from 2 to 14 days, with a median of approximately 5 days. Symptoms of COVID-19 vary in severity, from asymptomatic or mild cases (including fever, cough, and fatigue) to severe cases (such as pneumonia, acute respiratory distress syndrome, and multi-organ failure). Certain populations, including the elderly and those with underlying health conditions, are at higher risk for severe outcomes.[110]

Respiratory syncytial virus (RSV) is a common and highly contagious respiratory virus that primarily affects infants, young children, and older adults. RSV infections typically occur seasonally, peaking in the fall and winter months, and can range from mild cold-like symptoms to severe respiratory distress, particularly in high-risk populations such as premature infants, individuals with underlying health conditions, and the

[108] Centers for Disease Control and Prevention. "Influenza Activity in the United States during the 2023–2024 Season and Composition of the 2024–2025 Influenza Vaccine." https://www.cdc.gov/flu/whats-new/flu-summary-2023-2024.html

[109] Al-Qahtani, A. A. 2020. "Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2): Emergence, History, Basic and Clinical Aspects. *Saudi Journal of Biological Sciences* 27(10): 2531–2538. DOI: 10.1016/j.sjbs.2020.04.033

[110] Bakhshandeh, B., et al., 2021. "Variants in ACE2; Potential Influences on Virus Infection and COVID-19 Severity. *Infection, Genetics and Evolution* 90. DOI: 10.1016/j.meegid.2021.104773.

elderly. The virus spreads through respiratory droplets from coughs and sneezes, as well as through direct contact with contaminated surfaces. RSV infects the lower respiratory tract, leading to inflammation of the small airways (bronchiolitis) and pneumonia in severe cases. Unlike influenza and COVID-19, RSV lacks a widely available vaccine for the general population, although monoclonal antibody treatments are available for high-risk infants.

Infectious diseases, also referred to as communicable or transmissible diseases, are caused by pathogenic microorganisms, including bacteria, viruses, parasites, and fungi. When these diseases spread easily from person to person, they can lead to significant impacts. Notable examples of infectious diseases include COVID-19, influenza, avian influenza ("bird flu"), malaria, meningococcal meningitis, smallpox, and tuberculosis. An infectious disease outbreak can occur as a primary event or as a secondary consequence of another disaster. The spread of influenza in February 2017 in the United States and COVID-19 worldwide in 2020 illustrate the widespread impacts of these diseases.[111]

In addition to their direct impact on human health, infectious diseases can also affect social, economic, and healthcare systems. The COVID-19 pandemic led to unprecedented global economic disruption, with widespread job losses, business closures, and significant strain on healthcare systems. It also highlighted the importance of public health infrastructure, research, and international collaboration in managing and mitigating the effects of infectious disease outbreaks. The pandemic underscored the need for effective communication and public education to ensure compliance with health measures and to combat misinformation. This ongoing challenge necessitates continued investment in public health preparedness and response strategies to better equip societies to handle future infectious disease threats.[112]

[111] Baral et al. 2021. "The Relationship Between Global Burden of Influenza from 2017 to 2019 and COVID-19: Descriptive Epidemiological Assessment." https://pubmed.ncbi.nlm.nih.gov/33522974/
[112] Public Health 360. "Understanding Infectious Diseases: Causes, Transmission, Prevention, and Global Impact." https://www.publichealth360.com/2024/10/understanding-infectious-diseases.html

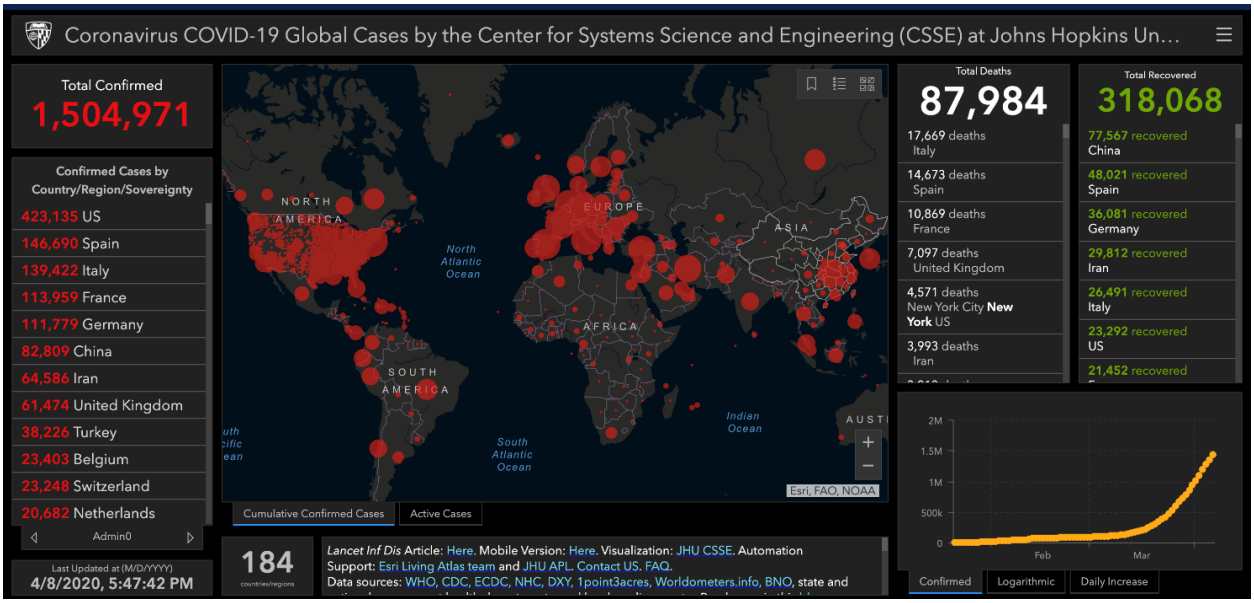


Figure 57: Global Cases of COVID-19[113]

CASCADING HAZARDS

Pandemics and epidemics can lead to a variety of cascading hazards that can impact various sectors and aspects of society The following are some of the hazards that can occur:

- **Social Unrest and Civil Disturbance:** Prolonged economic hardship, unemployment, and mistrust in authorities can lead to protests, riots, and civil disobedience.
- **Breakdown of Critical Infrastructure:** Workforce shortages in essential sectors (e.g., utilities, transportation, emergency services) due to illness or quarantine can lead to power outages, delayed emergency response, or transport disruptions. Maintenance of water, sewer, and waste management systems may suffer.
- **Political Instability and Governance Challenges:** Governments may face criticism over pandemic response, potentially leading to loss of public trust, policy failures, or leadership turnover. Misinformation and politicization of public health can undermine coordinated response.
- **Increase in Domestic Violence and Crime:** Stress, unemployment, and confinement during lockdowns can result in higher rates of domestic violence, child abuse, and property crime. Law enforcement agencies may also face staffing shortages, reducing capacity to respond.
- **Long-Term Public Health Impacts:** Delayed or canceled routine care and screenings can result in surging health problems post-pandemic. Persistent symptoms among survivors can affect the labor force and healthcare demand.

[113] Johns Hopkins University. "Coronavirus COVID-19 Dashboard." https://coronavirus.jhu.edu/map.html

- **Housing Insecurity and Homelessness:** Job losses and economic decline may lead to evictions, foreclosures, and increased homelessness especially in high-cost areas.

Location

A pandemic is a global disease outbreak that would impact both the unincorporated areas of the County and the Town. Densely populated areas like the Town would foster the spread of diseases faster than less densely populated areas of the County.

Table 64: Geographic Impacts of Epidemics and Pandemics

Classification	Geographic Impact
Epidemic	Local or Community
Pandemic	National or Global

Extent

An epidemic disease is characterized as one affecting many individuals simultaneously and spreading from person to person in a locality where the disease is not permanently prevalent. The World Health Organization (WHO) further specifies that an epidemic occurs at the level of a region or community. Epidemics can have substantial impacts on public health, healthcare systems, and societal functioning. The rapid spread of infectious diseases during an epidemic can overwhelm medical facilities, lead to shortages of essential medical supplies, and necessitate the implementation of public health measures such as quarantine, isolation, and social distancing. Additionally, the economic repercussions of an epidemic can be significant, with disruptions to local economies, loss of productivity, and increased healthcare costs. Understanding the dynamics of epidemic spread and implementing effective prevention and control strategies are crucial for mitigating these adverse effects and protecting public health.

A pandemic is defined as a global epidemic that meets three criteria outlined by the World Health Organization (WHO):

- The pathogen must infect and cause significant illness in humans.
- Humans lack immunity to the pathogen.
- The pathogen spreads efficiently from person to person and persists within human populations.[114]

The term "pandemic" describes a microbe capable of spreading worldwide, indicating that the disease has affected individuals on nearly every continent. Throughout history, numerous diseases have triggered pandemics, which have profound economic and societal impacts on communities. The response to and recovery from a pandemic are typically prolonged processes. A severe pandemic can lead to high levels of

[114] Kelly, Heath. 2011. "The Classical Definition of a Pandemic Is Not Elusive." *Bulletin of the World Health Organization* 89(7): 540–541. World Health Organization. http://dx.doi.org/10.2471/BLT.11.088815

morbidity and mortality, extensive social disruption, and substantial economic losses. These impacts may include the closure of schools and businesses, interruptions to public transportation, and disruptions in delivery services. Unlike physical assets, people are the primary entities affected by this hazard.

The magnitude and scope of an infected population are influenced by the ease of disease transmission, the methods through which it spreads, and the frequency of interaction between infected and healthy individuals.

Based on historical data, the County and the Town can expect to experience pandemics as a worst-case scenario. Figure 58 documents the influenza conditions for the United States for the week ending December 21, 2024. At that time, the state of California was experiencing a very high rate of influenza activity.

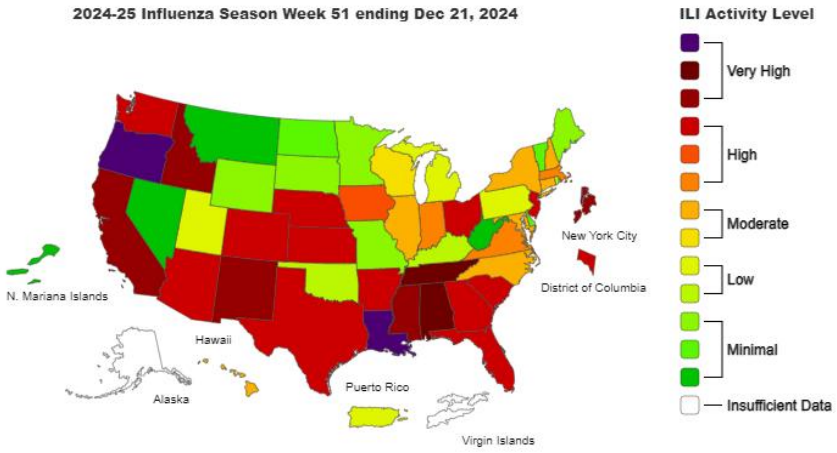


Figure 58: Weekly Influenza Surveillance Report for the United States, Week Ending December 21, 2024[115]

History of Previous Hazard Events

Typically, seasonal influenza occurs from October to February each year. The 2022–2023 influenza season began earlier than usual in both the United States and California, resulting in increased symptomatic illness and hospitalizations among children. The last major influenza pandemic occurred in 2009, when a new strain of influenza A (H1N1) emerged. In a typical influenza season, influenza can affect 5%–20% of the population.[116]

As mentioned earlier, COVID-19 is caused by the SARS-CoV-2 virus. Although primarily a respiratory illness, it can affect various parts of the body. Symptoms can range from mild to severe.[117] On January 30,

[115] Centers for Disease Control and Prevention. "A Weekly Influenza Surveillance Report Prepared by the Influenza Division." https://www.cdc.gov/fluview/surveillance/usmap.html
[116] Centers for Disease Control and Prevention. "2009 H1N1 Pandemic." https://archive.cdc.gov/www_cdc_gov/flu/pandemic-resources/2009-h1n1-pandemic.html
[117] Centers for Disease Control and Prevention. "Coronavirus Disease (COVID-19)." https://www.who.int/news-room/fact-sheets/detail/coronavirus-disease-%28covid-19%29

2020, COVID-19 was recognized as a public health emergency of international concern by the World Health Organization, which later declared it a global pandemic on March 11, 2020. In the United States, a national emergency was declared on March 13, 2020, and the public health emergency declaration concluded on May 11, 2023. Outside of the COVID-19 federal and state disaster declarations, there have been no emergency declaration regarding epidemics or pandemics in Mono County.

In June 2023, Mono County Public Health reported an uptick in local COVID-19 cases, emphasizing the importance of testing and isolation to mitigate community spread. Residents and visitors were advised to stay home when sick, wear masks in public if symptomatic, and ensure they were up-to-date with COVID-19 vaccinations.[118] Earlier, in July 2022, the County entered the "high" COVID-19 community transmission level, with cases increasing to 27.7 per week per 100,000 individuals. The Health Department recommended additional public health protocols, including indoor masking, maintaining physical distance, and frequent handwashing to slow community spread.[119]

As of early August 2024, the County, including the Town, experienced a significant level of COVID-19 infections, mirroring trends observed throughout California. Unlike other parts of California, the County was seen as a destination people wanted to travel *to* during the pandemic due to its more rural nature. As people sought to escape the cities, they brought with them COVID-19 and the challenge of housing and caring for additional visitors. Due to the widespread use of at-home testing and underreporting, precise case numbers were challenging to ascertain. Local health facilities reported common COVID-19 infections, with some hospitalizations, though severe cases fortunately remained uncommon in the area. Notably, data from wastewater surveillance in the Town was unavailable during this period due to an ongoing transition in the testing program.[120]

Throughout the pandemic, the Mono County Health Department collaborated with the Mammoth Community Water District to implement wastewater-based epidemiology. This initiative aimed to monitor disease trends in the community by regularly testing wastewater, providing valuable insights into the prevalence of COVID-19 and other pathogens.

During the winter months, a surge in respiratory illnesses created a significant strain on healthcare systems, particularly in pediatric care. The simultaneous rise of COVID-19, influenza, and RSV led to what became known as the "tridemic." Influenza, which typically peaks between October and February, began earlier than usual during the 2022–2023 season, resulting in an increase in symptomatic illness and hospitalizations. RSV, a common virus that primarily affects young children and older adults, also saw a sharp rise, further exacerbating the burden on hospitals. Meanwhile, COVID-19, though no longer at its

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[118] Mono County Public Health. "Mono County Health Department Reports Uptick in Local COVID-19 Cases." https://monocounty.ca.gov/public-health/page/mono-county-health-department-reports-uptick-local-covid-19-cases?

[119] Mono County Public Health. "Mono County Enters High COVID-19 Community Transmission Level." https://www.monocounty.ca.gov/public-health/page/mono-county-enters-high-covid-19-community-transmission-level?

[120] Mono County Public Health. "Coronavirus (COVID-19)." https://monocounty.ca.gov/public-health/page/coronavirus-covid-19?

initial pandemic levels, continued to circulate, adding to the medical surge. The impact of these three illnesses occurring simultaneously placed significant pressure on emergency medical services, particularly in rural and high-altitude regions where access to specialized pediatric care was limited. Snowstorms and adverse weather conditions further complicated patient transfers, making it difficult to transport critically ill individuals to facilities equipped to handle severe respiratory cases. The combination of these factors highlighted the need for robust emergency planning, increased healthcare capacity, and improved coordination for future respiratory illness surges.

Probability of Future Hazard Events

The likelihood of future pandemics and epidemics in the County and the Town, similar to other regions, can be shaped by numerous factors. Providing an exact probability without detailed data and modeling on a specific event is challenging; however, when considering the multitude of potential types of diseases out there, the chances of future occurrences are considered highly likely due to previous occurrences. When including regularly occurring diseases, like influenza and RSV, the annual chance of occurrence is 100% as at least some portion of the population will contract these diseases on a yearly basis.

CLIMATE CHANGE CONSIDERATIONS

Climate trends may influence COVID-19 transmission depending on how the virus adapts to seasonal changes. Research suggests that COVID-19 spreads more easily in cooler, less humid environments, so fluctuations in temperature could affect its transmission. The COVID-19 pandemic also had environmental impacts, as restrictions on travel and various economic activities led to reductions in air pollution and greenhouse gas emissions within weeks of implementation.

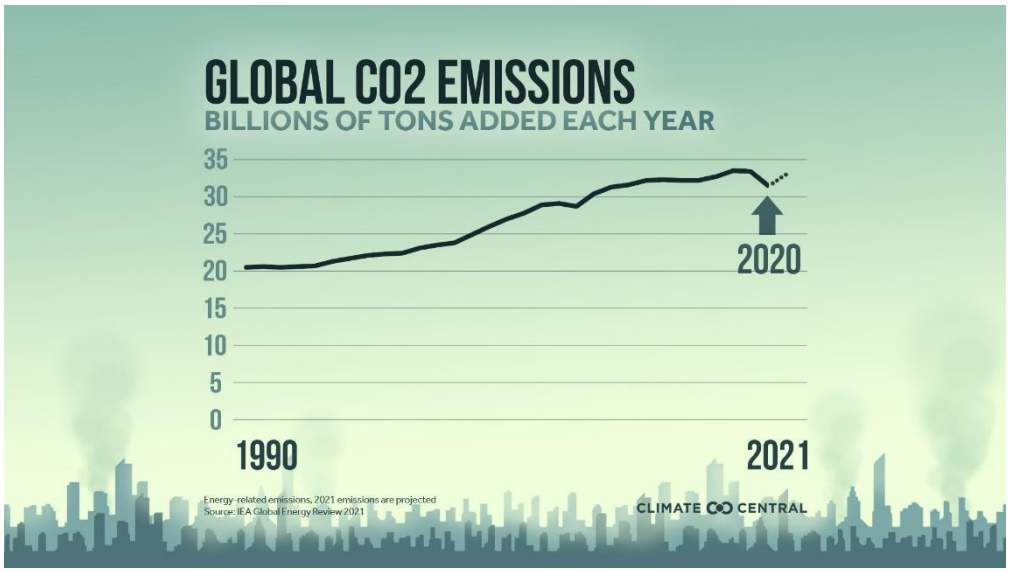


Figure 59: Global CO_2 Emissions, 1990–2020[121]

Similarly, influenza may be affected by climate trends. As a seasonal illness, influenza's transmission and the timing of its seasons could be influenced by changes in temperature.[122] Typically, vaccines are developed based on the strains circulating in the southern hemisphere for the northern hemisphere and vice versa. For example, the 2022–2023 influenza season began early in California before many individuals received their vaccines.[123]

Vulnerability

The County and the Town are susceptible to pandemics and epidemics due to various factors. The region's remote location can complicate the swift deployment of medical resources and personnel during a health crisis. As a popular tourist destination, the influx of visitors heightens the risk associated with disease transmission. During the COVID-19 pandemic, the planning area also served as a destination for urban populations seeking to reduce their risk. Limited healthcare facilities and resources in the area can strain the local healthcare system during an outbreak, and visitors are not always accounted for while funding medical systems. Climate change also further exacerbates this vulnerability by influencing the spread of vector-borne diseases and affecting public health preparedness. Economic disparities in the region can impact access to healthcare and vaccination increasing the community's overall risk and vulnerability.

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[121] Climate Central. "Covid-19 and Climate Change." https://www.climatecentral.org/climate-matters/covid-19-and-climate-change

[122] Lane, M. A., Walawender, M., Carter, J., Brownsword, E. A., Landay, T., Gillespie, T. R., ..., & Kraft, C. S. 2022. Climate Change and Influenza: A Scoping Review." *The Journal of Climate Change and Health* 5. https://doi.org/10.1016/j.joclim.2021.100084

[123] Alcala, E. 2024. *Advancements in Influenza Glycobiology: Impacts in Influenza a Virus Evolution, Fitness, and Vaccine Development* (master's thesis, University of Missouri-Columbia).

Healthcare resources in the region are limited, with only a small number of hospitals and clinics serving a geographically dispersed population. These facilities can quickly become overwhelmed during a large-scale outbreak. The isolation of the County also presents additional logistical challenges in evacuating critically ill patients during emergencies. Mountain passes, such as US 395, may become impassable due to severe weather, especially in winter, delaying patient transport to larger hospitals in neighboring counties or regions. Limited air ambulance availability and weather-dependent flight conditions add further complexity to emergency medical evacuations during pandemics or epidemics.

The County's experience during the COVID-19 pandemic highlighted significant challenges related to healthcare capacity and access, particularly given its small population, rural geography, and limited medical infrastructure. The County has only one hospital—Mammoth Hospital—which provides critical care to both residents and visitors but operates with a limited number of inpatient beds (17) and restricted intensive care resources. During peak infection periods, patient surges placed considerable strain on staff and resources, necessitating coordination with regional partners and, at times, patient transfers to facilities in neighboring counties, such as Inyo or Fresno. The pandemic underscored the County's reliance on regional healthcare networks for surge capacity, specialty care, and supply chain support.

Several key lessons emerged from this experience. First, the pandemic demonstrated the importance of strengthening local healthcare system resilience, including ensuring adequate surge capacity, emergency stockpiles, and flexible staffing models during public health crises. Second, interagency coordination—between local public health, emergency management, and state and federal partners—proved critical for maintaining communication, distributing vaccines, and managing scarce resources. Third, the event emphasized the value of telemedicine and remote care delivery in rural areas like the County, where access to specialized care is often limited by geography and weather. Finally, the COVID-19 response reinforced the need for community-level preparedness and public health education, particularly in addressing misinformation and ensuring that vulnerable populations, such as seniors, seasonal workers, and low-income residents, receive timely healthcare and support.

Vaccine hesitancy has long been a concern for public health, and it saw a significant rise during the COVID-19 pandemic. Numerous infectious diseases, such as hepatitis A, are entirely preventable through vaccination, while others like influenza and COVID-19 see reduced transmission, severity, and spread thanks to vaccines. By employing vaccines as an essential tool for public health to help prevent and control disease outbreaks, communities are able to develop herd immunity to common illnesses.

Different populations are particularly vulnerable to communicable diseases, and recognizing these groups is vital for public health interventions. Infants and young children, whose immune systems are still developing, are more prone to infections, especially in close-contact environments like daycare centers and schools, which facilitate disease transmission.

The elderly, especially those with pre-existing health conditions or weakened immune systems, also constitute a vulnerable group. Age-related immune decline makes them more susceptible to infectious diseases, and the severity of illnesses can be higher. Long-term care facilities and nursing homes, which house many elderly individuals, further heighten the risk of disease outbreaks.

People with compromised immune systems, including those with HIV/AIDS, cancer, organ transplants, or autoimmune diseases, are significantly vulnerable as well. These conditions reduce their ability to combat infections, making them more susceptible to communicable diseases. Therefore, stringent infection control measures and targeted prevention strategies are crucial for this group.

Homeless populations also face increased susceptibility to communicable diseases due to factors like crowded living conditions, limited access to healthcare, poor nutrition, and higher substance abuse rates. These circumstances facilitate the spread of infections such as tuberculosis, hepatitis, and respiratory illnesses, within homeless communities.

Impacts

Epidemics and pandemics present significant threats to the County, impacting various facets of the community. Widespread illness or fatalities can induce substantial health concerns, leading to heightened anxiety and diminished quality of life for residents. Economically, the local tourism sector, a crucial economic pillar, may experience declines as potential visitors are dissuaded by health risks. The strain on infrastructure, such as healthcare facilities and historic sites, can lead to closures and necessitate costly interventions and preservation efforts. Pandemics can cause profound environmental disturbances, disrupting ecosystems, altering wildlife habitats, and modifying landscapes due to changes in human activity and resource utilization. Cultural practices, especially those involving community gatherings and traditional events, may be at risk if significant landmarks and venues are affected or restricted. These pandemic-related challenges can hinder outdoor recreational activities and redirect resources away from other community initiatives, affecting overall community participation and cohesion.

Changes in Development

Building codes in the County and the Town influence development during pandemics and epidemics by enforcing regulations that ensure public health and safety. The California Building Code and California Residential Code mandate specific design and construction standards to minimize the spread of infectious diseases. These include requirements for ventilation systems, sanitation facilities, and the use of materials that are easy to clean and maintain. During the COVID-19 pandemic, these codes proved especially important as indoor air quality, touch-free fixtures, and space configurations that allow for physical distancing became critical factors in reducing viral transmission. Local authorities and developers adapted buildings to include enhanced HVAC systems with improved filtration, increased access to handwashing stations, and modifications to support isolation and remote operations when necessary.

Extreme Heat

Hazard Description

While there is no universally agreed upon definition for extreme heat, it generally refers to a period of time in which the high temperature significantly exceeds normal conditions. A commonly used definition

in California declares that an extreme heat day is any day in which the maximum temperature is higher than all but 2% of historical high temperatures. Cal-Adapt defines an extreme heat day or warm night as a day in a year when the daily maximum/minimum temperature exceeds the 98th historical percentile of daily maximum/minimum temperatures based on observed historical data from 1961–1990 between April and October.[124] Heat waves are characterized as durations of sustained, extreme heat.

CASCADING HAZARDS

Extreme heat events may result in additional cascading hazards, including energy shortages and wildfire. Very high temperatures may reduce the effectiveness of power infrastructure and drain resources due to more extensive needs for energy to cool homes and facilities, leading to an increased risk of blackouts. Propane, which is used by many homes in the County, can also explode. High temperatures can dry out plants, increasing the probability and impacts of wildfires.

Location

Extreme heat affects small portions of the County, generally in areas of altitudes below 5,000 feet, such as in the Tri-Valley area, which includes the communities of Benton, Hammil, and Chalfant. In the Tri-Valley area, where extreme heat impacts the unincorporated County, the extreme heat threshold is approximately 97°F. No other developed areas of the County experience annual extreme heat thresholds over 90°F.

Temperatures in the Town rarely exceed 80°F. The extreme heat threshold for the Town is approximately 81°F, which is generally not a risk to human health or infrastructure.

Extreme heat is a factor not just of temperature but also of humidity, as high humidity can make already hot conditions feel even hotter; however, since humidity rarely exceeds 50% throughout the County, it is not considered a factor in the risk of extreme heat in this plan.

Extent

The heat index, also known as the apparent temperature, is what the temperature feels like to the human body when relative humidity is combined with the air temperature. This has important considerations for the human body's comfort. When the body gets too hot, it begins to perspire or sweat to cool itself off. If the perspiration is not able to evaporate, the body cannot regulate its temperature. Evaporation is a cooling process. When perspiration is evaporated off the body, it effectively reduces the body's temperature. When the atmospheric moisture content (i.e., relative humidity) is high, the rate of evaporation from the body decreases. In other words, the human body feels warmer in humid conditions. The opposite is true when the relative humidity decreases because the rate of perspiration increases. The body actually feels cooler in arid conditions. There is direct relationship between the air temperature and

[124] Cal-Adapt.org. "Extreme Heat Days & Warm Nights." 2025. https://cal-adapt.org/tools/extreme-heat/.

relative humidity and the heat index, meaning as the air temperature and relative humidity increase (or decrease), the heat index increases (or decreases).[125]

Table 65 shows the National Weather Service's rating scale for the heat index at low humidity levels. Figure 60 presents the National Weather Service Heat Index, with implications of the likelihood of heat disorders as a result of prolonged heat exposure or strenuous activity.

Table 65: Heat Index Rating Scale

Heat Index	Category	Description
80°F to 90°F	Caution	Fatigue is possible with prolonged exposure or physical activity.
90°F to 103°F	Extreme caution	Sunstroke, heat cramps, and heat exhaustion are possible with prolonged exposure or physical activity.
103°F to 124°F	Danger	Sunstroke, heat cramps, and heat exhaustion are likely. Heatstroke is possible with prolonged exposure or physical activity.
125°F or higher	Extreme danger	Heatstroke risk is extremely high with continued exposure

[125] National Weather Service. "What Is the Heat Index?," 2025, https://www.weather.gov/ama/heatindex.

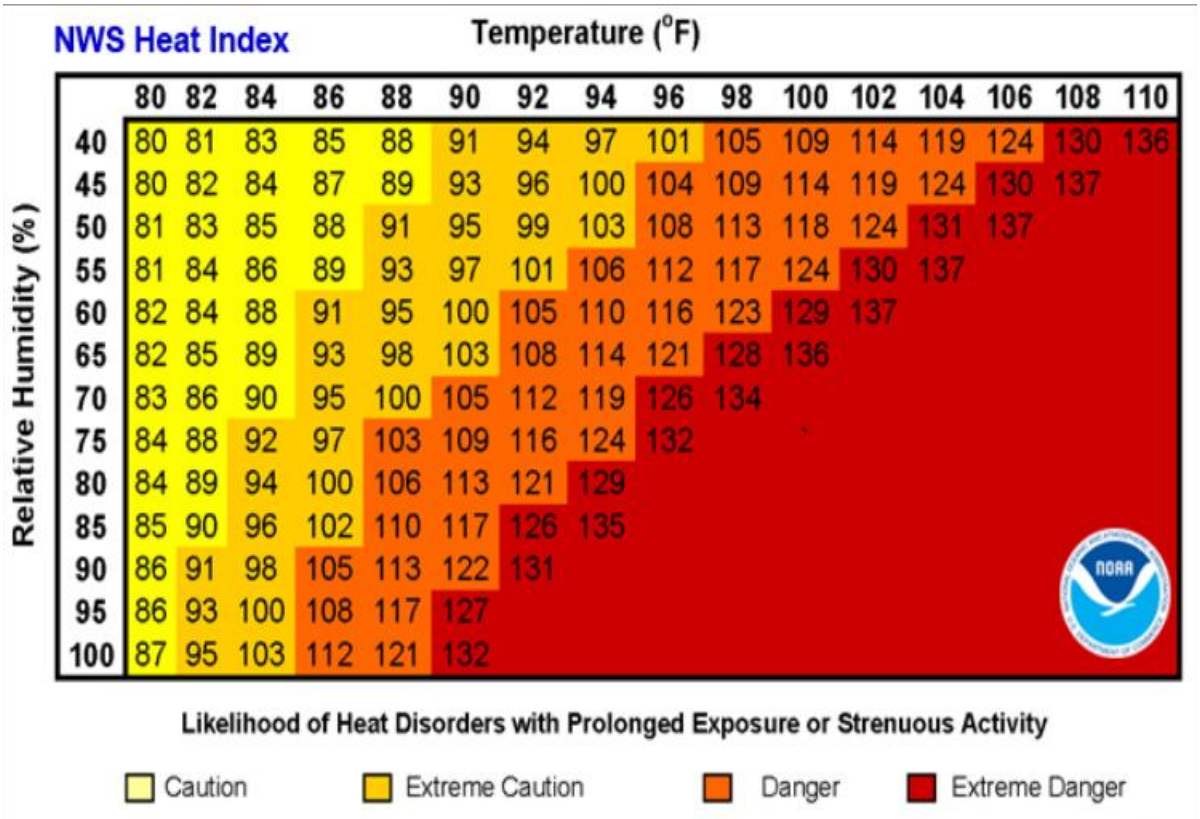


Figure 60: National Weather Service Heat Index[126]

History of Previous Hazard Events

There were no FEMA Major Declarations for Extreme Heat since the last plan update. The National Center for Environmental Information has no reported incidents of extreme heat since the last plan update. However, other data sources indicate there have been extreme heat events in recent years.

On **August 31, 2022,** Governor Gavin Newsom proclaimed a State of Emergency statewide as a result of a significant heat wave that hit California, bringing temperatures in excess of 100°F throughout the state and additional forecasts to brought record temperatures 10–20 degrees above normal throughout the state, exceeding 110°F in some areas (the "Extreme Heat Event"). As a result of the Extreme Heat Event, on August 30, 2022, the National Weather Service issued Excessive Heat Warnings and Excessive Heat Watches within the state in effect beginning on August 31, 2022, through September 6, 2022. The Extreme Heat Event put significant demand and strain on California's energy grid. It was a West-wide event, meaning that energy demand was high across the region and California would have to limit ability to import energy from out of state. The California Independent System Operator issued a Heat Bulletin forecasting high electric demand during the Extreme Heat Event that would stress the energy grid, with

[126] Ibid.

peak load for electricity projected to reach its highest level of the year, exceeding 48,000 megawatts on September 5, 2022.

Locally, a weather station in Benton, at the north end of the Tri-Valley, has been reporting daily temperature data since 1994. Annually, this station has recorded 434 days when the maximum temperature exceeded 97°F, or an average of 17.9 days per year. From 2019 to 2024, there have been seven occasions where the temperature exceeded 97°F for at least 5 consecutive days. The most severe heat wave lasted 14 days, with temperatures peaking at 104°F on July 28, 2016.

Figure 61 provides a graph from the National Weather Service of monthly climate normal for the Town of Bridgeport from 1991 to 2020.[127] The graph indicates total precipitation normal (bar graph in bold green), mean minimal temperature normal in Fahrenheit (blue on line graph), mean maximum temperature normal in Fahrenheit (red on line graph), mean average temperature normal in Fahrenheit (brown on line graph). From the reported temperatures, July is the month with the highest temperatures from 80°F to 85°F.

[127] National Weather Service. NOWData-NOAA Online Weather Data. "Monthly Climate Normals (1991-2020) – Bridgeport, CA." 2025. https://www.weather.gov/wrh/Climate?wfo=rev.

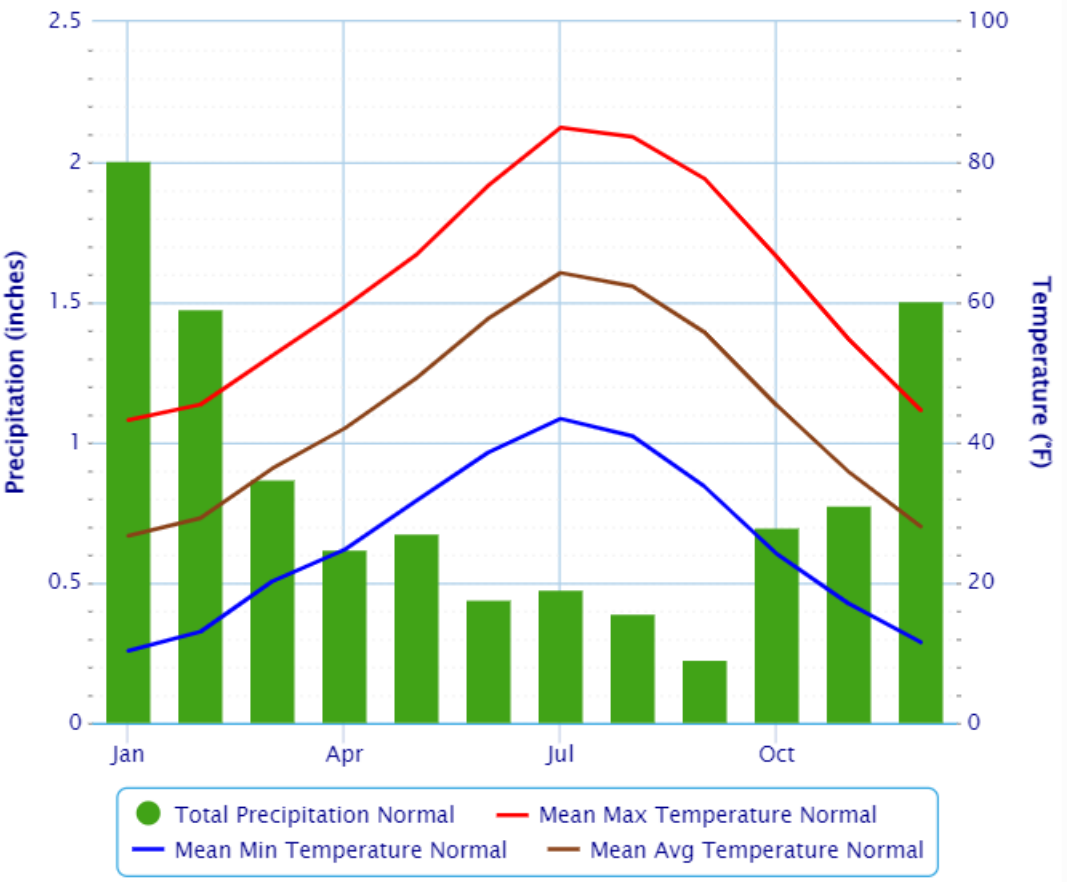


Figure 61: Monthly Climate Normals for Bridgeport, CA (1991–2020)[128]

Figure 62 provides a graph from the National Weather Service of monthly climate normal for the Town of Lee Vining from 1991 to 2020. From the reported temperatures, July is the month with the highest temperatures of 85°F to 87°F. The National Weather Service reports only included extreme heat observations reported for Bridgeport and Lee Vining from 1991 to 2020 as the most recent collected data for the County. The National Weather Service NOWData-NOAA Online Weather Data provided for the County represents all location data available at the time of this writing.

[128] Ibid.

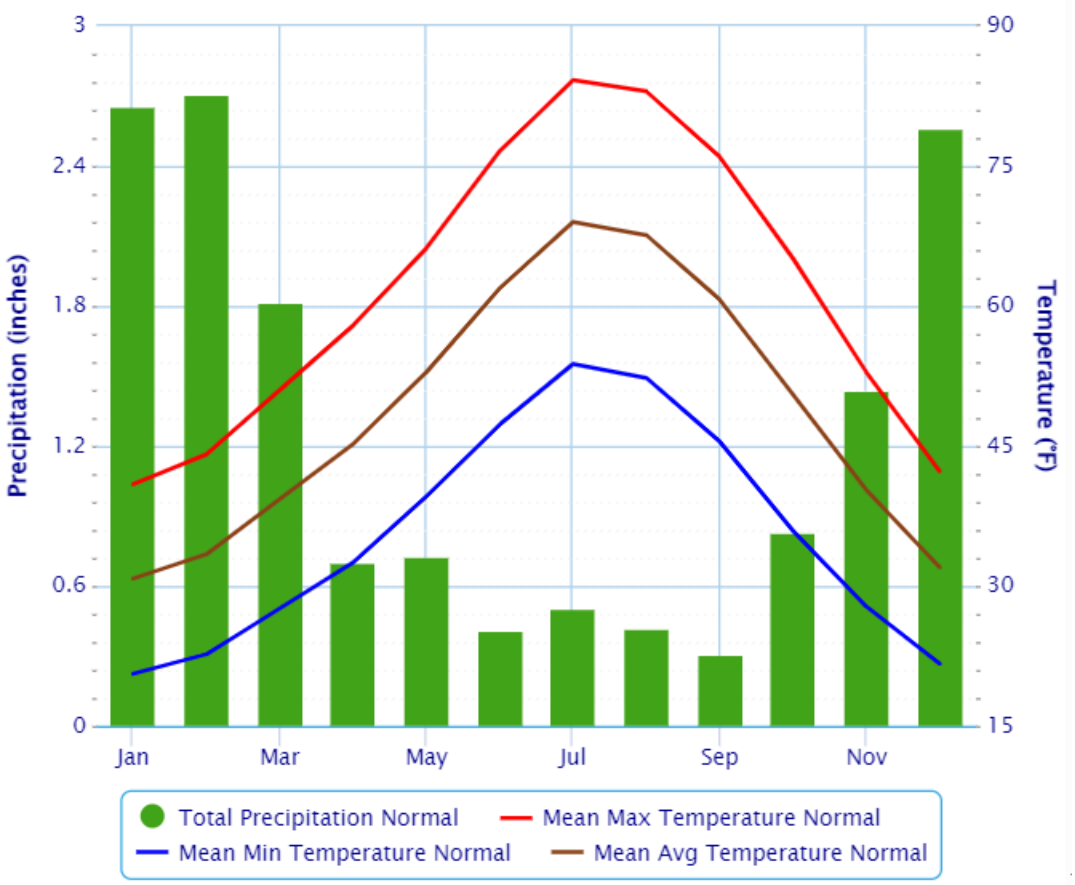


Figure 62: Monthly Climate Normals for Lee Vining, CA (1991–2020)[129]

Probability of Future Hazard Events

While national data is limited, based on local estimates of the previous annual occurrences of extreme heat events, extreme heat is highly likely to occur in the future in certain parts of the unincorporated County with an annual chance of occurrence of 20%. In particular, extreme heat is probable to occur in the future due to potential increase in temperature, longevity, and geographic extent in the planning area due to climate change.

CLIMATE CHANGE CONSIDERATIONS

Many areas of the United States are experiencing higher than average temperatures, increasing numbers of extremely hot days, and more frequent or longer extreme temperature events. These trends are projected to increase due to climate change. According to Cal-Adapt, the number of extreme heat days in the County that exceed the threshold of 97°F are likely to increase to over 40 days a year on average from 2070 to 2099. Increased heat and precipitation extremes are expected to impact the region's

[129] National Weather Service. NOWData-NOAA Online Weather Data. "Monthly Climate Normals (1991-2020) – Lee Vining, CA." 2025. https://www.weather.gov/wrh/Climate?wfo=rev.

transportation and other infrastructure. The Sierra Nevada region's transportation and energy infrastructure were developed to accommodate its highly variable climatic conditions, but are frequently challenged by natural events, such as extreme heat. Climate changes may result in increased maintenance and repair expenditures, disruptions of economic activity, interruptions of critical lifelines, and ultimately reductions in the overall quality of life.[130]

Walker, Coleville, and Benton are three of the hottest areas in the County. All three are expected to see a large increase in extremely hot days over the next 25 to 75 years. The historic baseline (1961-2005) for Walker was an average of 5 days per year of extreme heat. By mid-century, under a medium emissions scenario, that could rise to an average of 25 days per year and 38 by the end of the century.[131] The historic baseline for Coleville was an average of 5 days per year of extreme heat. By mid-century, under a medium emissions scenario, that could rise to an average of 24 days per year and 37 by the end of the century.[132] For Benton, the historical baseline was 8 days per year of extreme heat. By mid-century that could rise to 33 days per year and by the end of the century to 48 days.[133]

Climate change will also increase overall temperature, leading to increased risk of extreme heat. Figure 63 shows maximum daily summer temperatures projected for the planning area by the end of the century. Higher temperatures are projected for the western part of the County and areas at lower elevation in the southern part of the County near Inyo County.

[130] Cal-Adapt.org. "California's Fourth Climate Change Assessment, Sierra Nevada Region Report." 2025. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf.
[131] Cal-Adapt, "Extreme Heat Days and Warm Nights -Walker, CA," 2025, https://cmip5.cal-adapt.org/tools/extreme-heat
[132] Cal-Adapt, "Extreme Heat Days and Warm Nights -Coleville, CA," 2025, https://cmip5.cal-adapt.org/tools/extreme-heat
[133] Cal-Adapt, "Extreme Heat Days and Warm Nights -Benton, CA," 2025, https://cmip5.cal-adapt.org/tools/extreme-heat/.

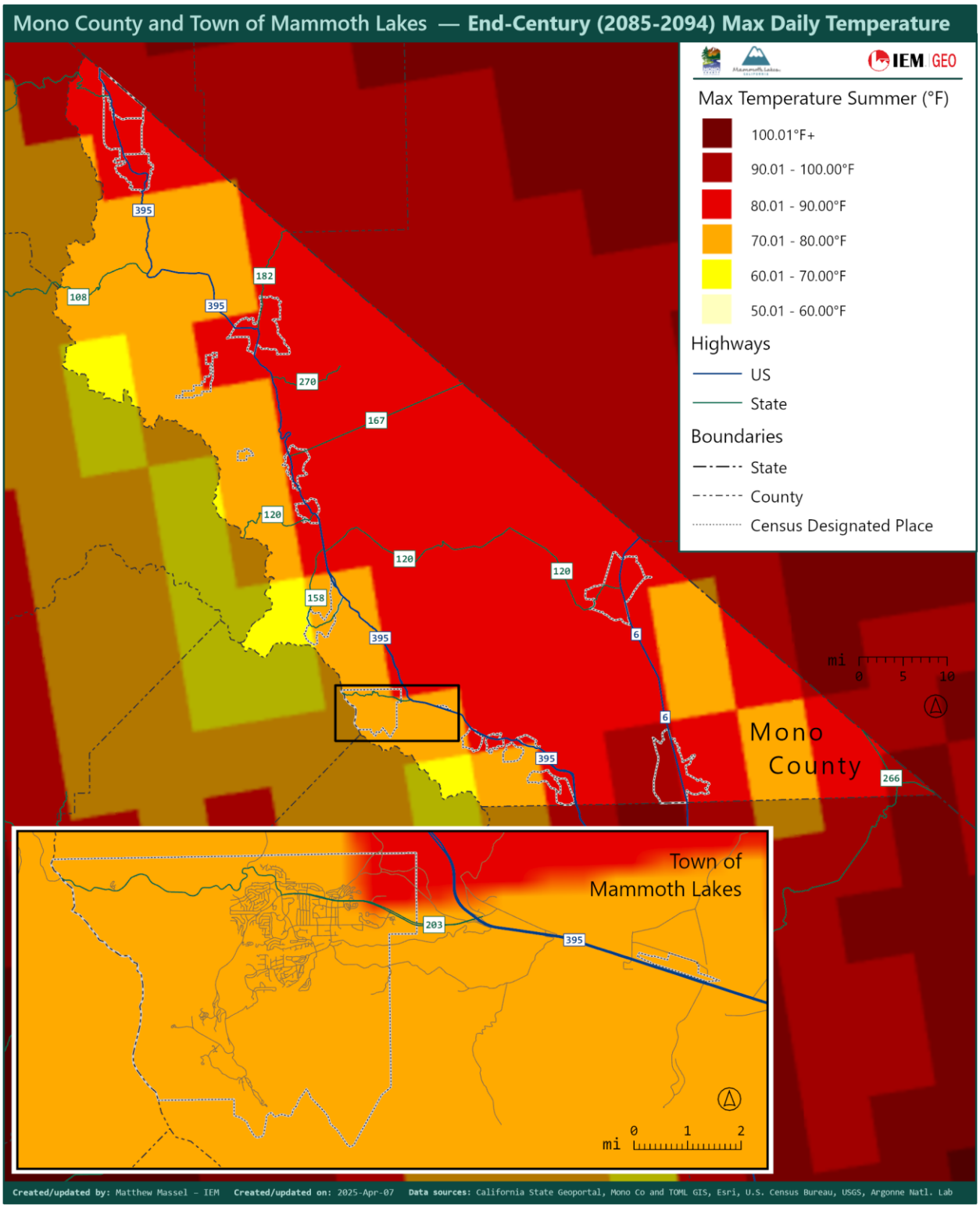


Figure 63: Mono County and Town of Mammoth Lakes - End-Century (2085-2094) Max Daily Temperature

Vulnerability

POPULATIONS

The greatest vulnerability in the County from extreme heat is the risk to people. Vulnerable populations, such as young children, older adults, outdoor workers, the unhoused population, and individuals with disabilities and chronic medical conditions are often most vulnerable to extreme heat. In part, this is because these populations are less likely to sense and respond to changes in temperatures or more likely to become dehydrated or suffer from heat stroke, which can be fatal. The Tri-Valley has many older residents living in older homes with poor insulation and limited or no air conditioning. Senior individuals are more adversely affected by extreme temperatures and could experience health risks during one or more days at or above the extreme threshold.

CRITICAL FACILITIES

Over time, additional vulnerabilities may be exposed, including to crops, transportation infrastructure, and energy infrastructure of the County, which all can be affected by extreme heat. Critical facilities, including pavement, asphalt, and the power grid, can be negatively affected by extreme heat and thus require more maintenance. A heat wave resulting in much higher than normal electricity draws to power air conditioning units could tax the electricity grid in the Tri-Valley and result in brownouts or blackouts; heat can also cause power lines to sag, causing additional hazards and risk of power disruption.

Impacts

California's Fourth Climate Change Assessment-Sierra Nevada Region Report, which reflects future conditions for the County, states impact on transportation infrastructure from warming include softening or buckling of road pavement and deterioration of concrete structures, compromising roadway integrity during heat waves or reducing their useful lifetimes. Similarly, bridge joints and other structural elements expand and contract during periods of extreme heat and cold, requiring maintenance and reducing their useful lifetimes. Heat waves and overall higher temperatures are likely to challenge vehicles of all sorts, from automobiles to railways, increasing the frequency of breakdowns and reducing service lifetimes. More frequent or intense heat waves also may contribute to increased incidents of vehicle-emitted smog and poor air quality. Heat waves can lead to limitations or interruptions to construction activities.

Extreme heat poses substantial health risks, including heat cramps, heat exhaustion, and heatstroke. Extreme heat is the deadliest type of natural hazard in the United States. Although only limited portions of the County are at risk of extreme heat, prolonged exposure could be deadly. While extreme heat events generally do not damage property, they can damage or destroy agricultural crops and landscapes. Very high temperatures may also reduce the effectiveness of power infrastructure, leading to an increased risk of blackouts.

However, some areas will experience benefits from increased temperatures, like reductions in snow and frost seasons that may reduce the need for removing snow and ice from roadways, railways, and

transportation structures. Earlier thaws and less snowpack and snow cover may increase the accessibility of seasonal mountain passes, although this could increase demands and season lengths for maintenance and repair.[134]

Changes in Development

Limited development has resulted in no changes in development that would impact overall vulnerability to extreme heat. Community programs like Inyo Mono Advocates for Community Action (IMACA) work to identify low- to moderate-income communities that have been historically underinvested. Many do not have access to air conditioning, increasing their vulnerability to extreme temperatures. IMACA provides a variety of services for disabled, low-income, and homeless persons in Inyo and Mono counties. In the unincorporated County, IMACA provides home weatherization programs for low-income persons. It operates 25 low-income housing units in the Town as well as senior and low-income housing units in Inyo County. IMACA has Section 8 vouchers that it uses primarily for rental assistance and shelter for homeless persons.

Flood

Hazard Description

Flooding is a temporary condition in which dry land is partially or completely inundated. Flooding can happen in a variety of ways. The water levels in bodies such as streams, rivers, lakes, and reservoirs can exceed their banks, causing water to overflow into nearby areas. Heavy precipitation can overwhelm the ability of soil to absorb water or of local storm drains to carry it away, causing water to build up on the surface. Flooding may also occur due to infrastructure failure, such as a burst water tank or pipe. Dam inundation, a specific type of infrastructure failure flooding that occurs when a dam partially or completely collapses, is discussed separately under the Dam Failure hazard profile.

Flooding, erosion, and debris flows can occur in California in the months and years following large, hot fires. High-severity wildfires significantly reduce the amount of vegetation, which can reduce the amount of rainwater absorption, allowing for excessive water runoff that often includes large amounts of debris. Structures located anywhere near a severe burn area are susceptible to flooding. Periods of high-intensity rainfall are of particular concern, but post-fire flooding can also occur during a normal rainy season.

In the County, flooding is mainly the result of snowmelt and short, intense rainstorms when the ground is already saturated. Localized torrential rain during summer thunderstorms can produce sudden flash flooding, particularly in the Tri-Valley Area. This part of the southern County is also subject to alluvial fan flooding, which occurs when runoff flows out of canyons and onto the adjacent, cone-shaped deposits of sediment. The rapidly moving water can pick up large boulders and other debris and then deposit them in runoff channels, blocking the flow of water. Flooding in alluvial fans often causes greater damage than

[134] Ibid.

clear-water flooding. A less common type of flooding could potentially occur due to seiches, which are earthquake-generated waves within lakes and reservoirs; however, there is no evidence that seiches have occurred in the County in the past.

One of the most significant types of flooding in the planning area tends to occur during rain-on-snow events, when snowmelt is compounded by rain. Rain runoff gets channelized through the snow instead of being directed to the proper runoff infrastructure. As drains are blocked by snow, roads become the primary pathway of water.

Regardless of the type of flood, a flood event can damage buildings and infrastructure either by debris carried along in the water or by the pressure of the water itself. Debris flows, which are a hazard of substantial concern in the County, are discussed under the Landslides hazard profile. Floods can weaken foundations and wash away soil, increasing the risk of damage or destruction. According to California's Multi-Hazard Mitigation Plan, floods are the second most common disaster type in California, second only to fire. Flood severity is generally described in years, such as a 100-year flood event. This does not mean that such an event only occurs once every 100 years, but that the risk of such an event is 1% in any given year. Similarly, a 500-year flood event is one where the risk of such an event is 0.2% in any given year.

CASCADING HAZARDS

Cascading impacts of flooding are additional hazard events triggered by flooding, which may in turn trigger further events. The following are the most significant cascading impacts associated with flooding:

- Riverine flooding causes bank erosion, especially in the upper courses of rivers with steep gradients. In these areas, floodwaters can pass quickly without much flooding but scour the banks, edging properties closer to the floodplain or causing them to fall in.
- Flooding can cause landslides when high flows oversaturate soils on steep slopes, causing them to fail.
- Hazardous materials spills can result from flooding if storage tanks rupture and spill into streams, rivers, or drainage sewers.
- Flooding can result in the failure of critical infrastructure, such as roads, bridges, and levees.[135]

NATIONAL FLOOD INSURANCE PROGRAM

In 1968, the US Congress created the National Flood Insurance Program (NFIP). Participation in the NFIP by a community is voluntary; however, in order to receive federally backed flood insurance, a community is required to participate in the program. The County has participated in the NFIP since 1985, and the Town has participated since 1994. The three pillars of the NFIP are floodplain management, floodplain

[135] Cal OES. 2024. Enhanced California State Hazard Mitigation Plan, "Riverine, Stream, and Alluvial Flooding, Cascading Impacts." https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf

mapping, and flood insurance. Local involvement in these three components of the NFIP are described in each jurisdiction's annex.

The Community Rating System (CRS) is a voluntary part of the NFIP that seeks to coordinate all flood related activities, reduce flood losses, facilitate accurate insurance rating, and promote public awareness of flood insurance by creating incentives for a community to go beyond NFIP minimums. CRS ratings are on a 10-point scale (from 10 to 1, with 1 being the best rating), with community residents receiving a 5% reduction in flood insurance rates for every class improvement in the community's CRS rating. Neither the County nor the Town currently participate in the CRS.

NFIP data can be utilized to understand flood risk in the planning area. Claims and policy data help identify previous impacts of flooding and current vulnerabilities. Possessing NFIP flood insurance reduces underinsured exposure to hazards and should be considered one way to mitigate risk. Policy and claim data are shown in Table 66. This data reflects only losses to insured properties and does not claim to represent all potential losses.

Table 66: Mono County and Town of Mammoth Lakes NFIP Claims and Policy Data

Community	Community Number	Total Policy County	Total Coverage	Total Losses	Total Net Dollars Paid
Mono County	060194	29	$9,366,000	2	$46,060
Town of Mammoth Lakes	060724	85	$23,105,200	44	$358,675

The NFIP tracks structures which have multiple claims. Understanding locations of Repetitive Loss (RL) and Severe Repetitive Loss (SRL) structures can help identify high-risk areas. Additionally, these properties may be eligible for additional mitigation grant funding or federal cost match. The NFIP defines RL and SRL as:

- **Repetitive Loss (RL)**: An NFIP-insured structure with two or more claims/losses resulting in claim payments (including building and contents) totaling more than $1000 per claim that are recorded in any 10-year period.
- **Severe Repetitive Loss (SRL)**: An NFIP-insured structure that has incurred flood-related damage for which four or more separate claims payments have been made, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or for which at least two separate claims payments (building payments only) have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the building. In both instances, at least two of the claims must be within 10 years of each other, and claims made within 10 days of each other will count as one claim.

The County has one RL property and no SRL properties. The structure is located in Zone D, an area landward of a levee system where flood risk has not been determined. Conducting more research in these areas can help determine flood risk. The Town has no RL or SRL properties.

Location

Flooding is anticipated to affect both the unincorporated County and the Town. In the unincorporated County, flooding is a potential risk to private properties situated in the vicinity of several waterways within the County. The community areas most likely to be impacted by a 100-year flood include properties along the East and West Walker River, Reversed Creek, and Spring Canyon Creek including portions of the Antelope Valley, Bridgeport Valley, the June Lake Loop, and the Tri-Valley Area.

The County has three watersheds: the Owens River drainage, the Mono Lake drainage, and the Walker River drainage. Flooding can occur in all three drainages.

FEMA maps areas that are subject to a 100-year flood event as part of the National Flood Insurance Program. Mapping data for the County is incomplete and noted as an issue by stakeholders, but does indicate that areas within these flood hazard zones include the following:

- Antelope Valley along the West Walker River—including the communities of Topaz, Coleville, and Walker—as well as the East Slough and much of the valley floor in between.
- Pickel Meadow along the West Walker River.
- Bridgeport Valley, along the East Walker River and creeks flowing into Bridgeport Reservoir, including the communities of Bridgeport and Twin Lakes.
- The June Lake Loop area, along Grant Lake and June Lake and the creeks that connect them.
- Throughout the center of the Tri-Valley Area on the valley's flat floor, including stretches of US 6 in Hammil Valley and Chalfant Valley.

Much of the development in the Tri-Valley along US 6 is subject to alluvial fan flooding and flash flooding from the surrounding mountains. The flows tend to be wide and shallow once they reach the valley floor due to the topography.

Flooding issues in the Town have been the result of shallow, overbank flooding. The Town's General Plan notes that the Town "has generally low flood hazards with the exception of Mammoth Creek, which can carry significant volumes during peak 100-year flood conditions."[136] FEMA flood maps likewise show areas adjacent to Mammoth Creek in the Old Mammoth area as within the 100-year flood zone. The floodplain includes portions of the Snowcreek Resort, which have been assigned a land use designation of "Resort" in the General Plan, allowing commercial mixed uses including visitor lodging, amenities, and services, as

[136] Town of Mammoth Lakes.ca.gov, 2019, "General Plan," https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.

well as workforce lodging. The floodplain also passes through some areas that the General Plan designates as Low-Density Residential and High-Density Residential.

Extent

The extent, or magnitude, of flooding is often described in terms of the 0.1% chance (100-year) and 0.02% chance (500-year) flood zones delineated in the FEMA Flood Insurance Study, which is reflected in the community's digital Flood Insurance Rate Maps (FIRMs). These flood zones reflect the high and moderate risk flood zones within the planning area.

Table 67 shows the ownership and administration of lands within the 100-year and 500-year floodplains in the County. In all, about 75,327 acres have a 1% chance of flooding in any given year, while 86,616 acres have a 0.2% chance. In both cases, just over half of this land is owned or administered by the State of California.

Table 67: Areas at Risk of Flooding in Mono County by Ownership[137]

Land Ownership or Administration Category	100-Year Flood Zone			100- Plus 500-Year Flood Zones		
	Acres in Hazard Zone	Percentage of Total in Ownership Category	Percentage of Total in Mono County Area	Acres in Hazard Zone	Percentage of Total in Category	Percentage of Total in Mono County Area
County	105	4.6%	< 0.1%	151	6.7%	< 0.1%
Federal	7,683	0.4%	0.4%	16,192	0.9%	0.8%
Local	7	3.1%	< 0.1%	9	4.4%	< 0.1%
Private	14,169	11.0%	0.7%	16,446	12.8%	0.8%
State[1]	45,725	54.5%	2.3%	45,730	54.5%	2.3%
Utilities	7,129	10.6%	0.4%	7,397	11.0%	0.4%
Right of way, unknown ownership/ administration	442	4.9%	< 0.1%	623	7.0%	< 0.1%
Unknown (other)	67	4.4%	< 0.1%	68	4.4%	< 0.1%
Total	**75,327**	**3.7%**	**3.7%**	**86,616**	**4.3%**	**4.3%**

[137] "Percentage of Total in Ownership Category" refers to the share of each ownership group's total land area that lies within the specified flood zone, not the share of total land area in Mono County. A large portion of the state-owned acreage in the hazard zone is part of Mono Lake.

Table 68 shows how much of the land in the 100- and 500-year flood zones is within each of the planning areas defined by the Mono County General Plan.

Table 68: Areas at Risk of Flooding in Mono County Planning Areas[138]

Planning Area	100-Year Flood Zone			100- Plus 500-Year Flood Zones		
	Acres in Hazard Zone	Percentage of Total in Ownership Category	Percentage of Total in Mono County Area	Acres in Hazard Zone	Percentage of Total in Category	Percentage of Total in Mono County Area
Antelope Valley	5,460	18.1%	0.3%	320	1.1%	< 0.1%
Benton Valley	1,983	5.02%	0.1%	8,001	20.3%	0.4%
Benton Hot Springs	260	3.9%	<0.1%	55	0.8%	0.0%
Bodie Hills	—	—	—	—	—	—
Bridgeport	5,892	11.4%	0.3%	—	—	—
Chalfant Valley	5,900	9.8%	0.3%	994	1.7%	< 0.1%
Hammil Valley	2,836	4.2%	0.1%	1,890	2.8%	0.1%
June Lake	2,039	3.9%	0.1%	—	—	—
Long Valley	152	0.8%	< 0.1%	—	—	—
Mammoth Vicinity	444	0.4%	< 0.1%	—	—	—
Mono Basin	451	19.2%	2.3%	—	—	—
Oasis	—	—	—	—	—	—
Sonora Junction	356	0.3%	<0.1%	—	—	—
Swauger Creek	—	—	—	—	—	—
Wheeler Crest	—	—	—	—	—	—

Table 69 shows the acreage and percentage of land in the 100- and 500-Year Flood Zones for the Town.

[138] "Percentage of Total in Ownership Category" refers to the share of each ownership group's total land area that lies within the specified flood zone, not the share of total land area in Mono County. A large portion of the state-owned acreage in the hazard zone is part of Mono Lake.

Table 69: Areas at Risk of Flooding in Town of Mammoth Lakes[139]

Planning Area	100-Year Flood Zone			100- Plus 500-Year Flood Zones		
	Acres in Hazard Zone	Percentage of Total in Ownership Category	Percentage of Total in Mono County Area	Acres in Hazard Zone	Percentage of Total in Category	Percentage of Total in Mono County Area
Town Municipal Boundary	382	2.38%	0.02%	—	—	—
Town Urban Limit	45	1.77%	0.00%	21	0.82%	0.0%

Figure 64 shows the 1% and 0.2% floodplains within the planning area.

[139] "Percentage of Total in Ownership Category" refers to the share of each ownership group's total land area that lies within the specified flood zone, not the share of total land area in Mono County. A large portion of the state-owned acreage in the hazard zone is part of Mono Lake.

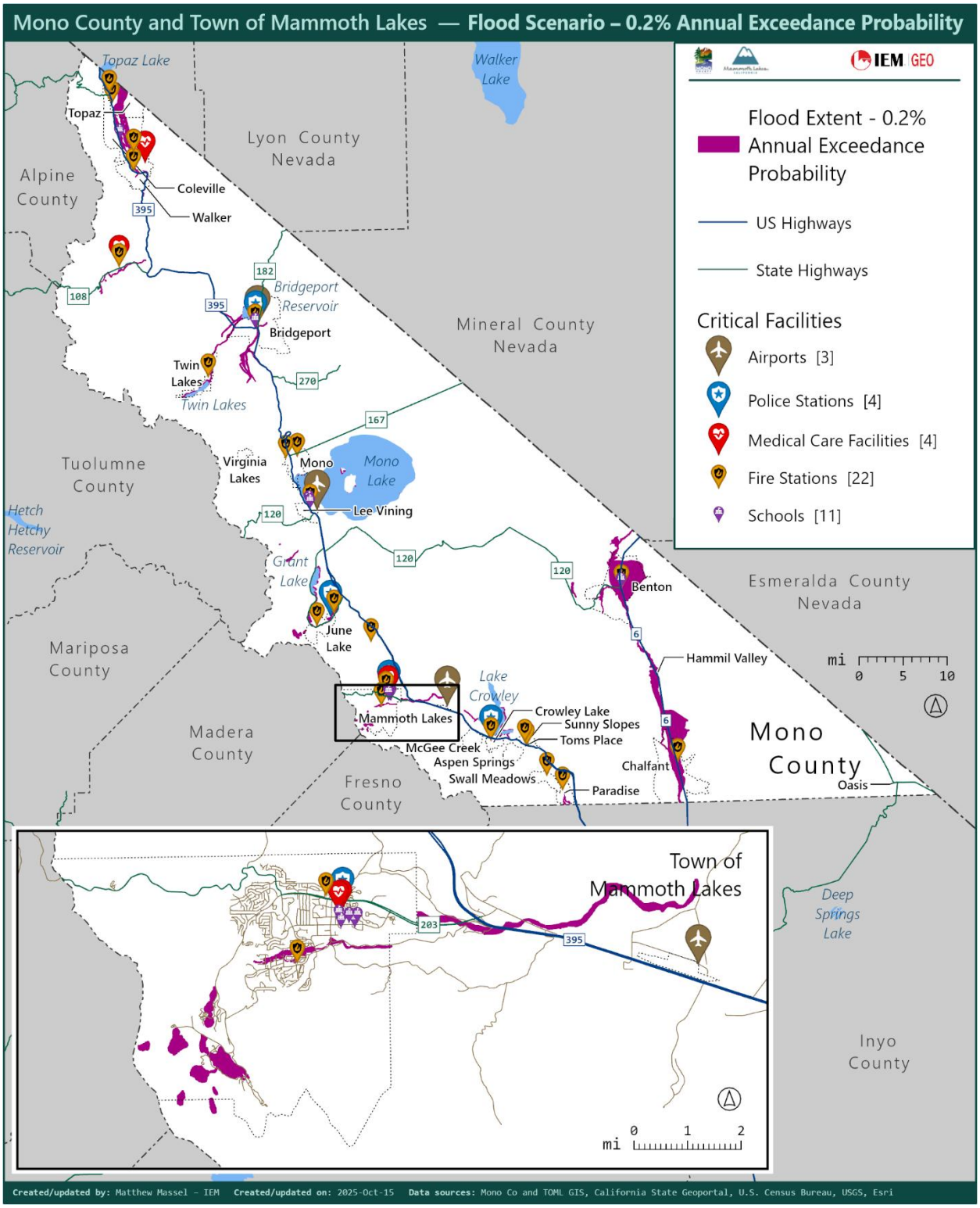


Figure 64: Mono County Flood Hazard Areas

History of Previous Hazard Events

The County has received three major federal declarations for flooding from 2000 to 2024.[140] Details for each declaration are provided below.

FEMA Declaration #4699-DR, April 3, 2023 – California Severe Winter Storms, Straight-Line Winds, Flooding, Landslides, and Mudslides: A major disaster declaration for the State of California was issued by the federal government for the incident period February 21, 2023, to July 10, 2023. The County was designated for federal grant assistance for Individual Assistance and Public Assistance categories A–G (see Figure 65).[141]

[140] Federal Emergency Management Agency, "Disasters and Declarations-Major Declarations, Flooding, California (2000-2025)," 2025, https://www.fema.gov/disaster/declarations?field_dv2_declaration_date_value%5Bmin%5D=2000&field_dv2_declaration_date_value%5Bmax%5D=2025&field_dv2_declaration_type_value=DR&field_dv2_incident_type_target_id_selective=49112&field_dv2_state_territory_tribal_value%5B%5D=CA.

[141] Federal Emergency Management Agency, "Disasters and Declarations-Major Declarations, Flooding, California (2000-2025)," 2025, https://www.fema.gov/disaster/declarations?field_dv2_declaration_date_value%5Bmin%5D=2000&field_dv2_declaration_date_value%5Bmax%5D=2025&field_dv2_declaration_type_value=DR&field_dv2_incident_type_target_id_selective=49112&field_dv2_state_territory_tribal_value%5B%5D=CA.

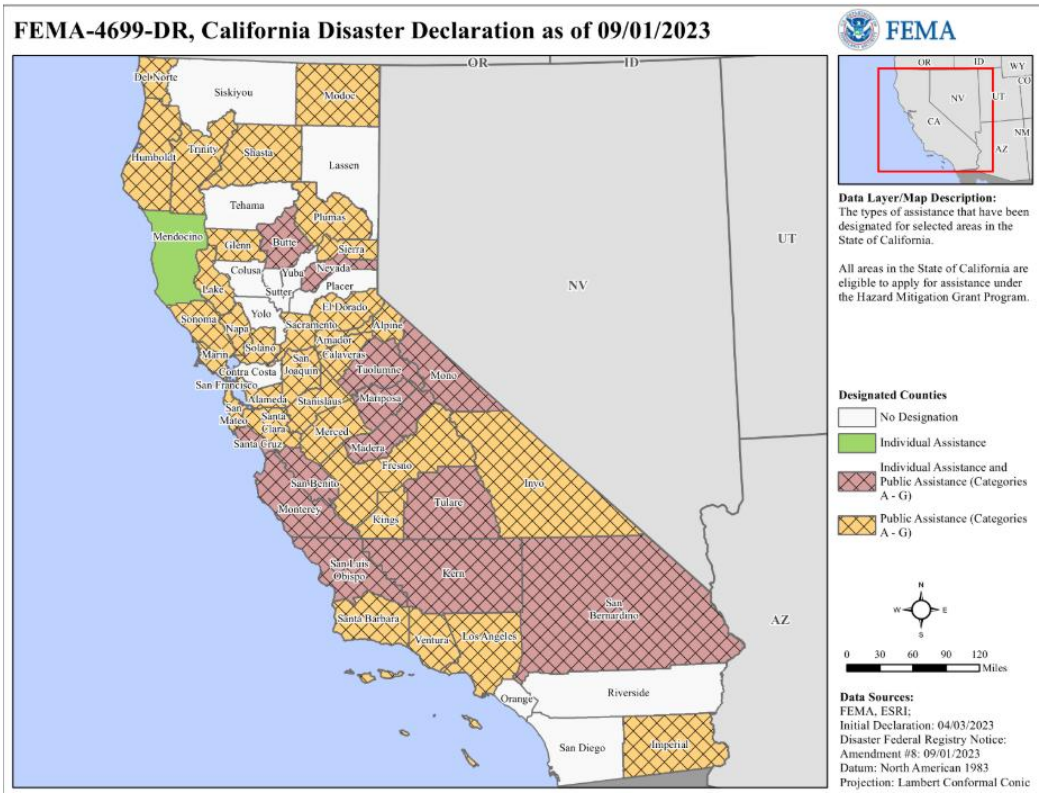


Figure 65: FEMA-4699-DR Designated Counties for Federal Disaster Assistance[142]

FEMA Declaration #4308-DR, March 19, 2017 – California Severe Winter Storms, Flooding, and Mudslides: A major disaster declaration for the State of California was issued by the federal government for the incident period February 1–23, 2017. The County was designated for federal grant assistance for Public Assistance categories A–G.[143]

FEMA Declaration #4305-DR, March 16, 2017 – California Severe Winter Storms, Flooding, and Mudslides: A major disaster declaration for the State of California was issued by the federal government for the incident period January 18-23, 2017. The County was designated for federal grant assistance for Public Assistance categories A–G.[144]

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[142] Federal Emergency Management Agency, "Disasters and Declarations-Major Declarations, Flooding, California (2000-2025)," 2025, https://www.fema.gov/disaster/declarations?field_dv2_declaration_date_value%5Bmin%5D=2000&field_dv2_declaration_date_value%5Bmax%5D=2025&field_dv2_declaration_type_value=DR&field_dv2_incident_type_target_id_selective=49112&field_dv2_state_territory_tribal_value%5B%5D=CA.

[143] Federal Emergency Management Agency, "Disasters and Declarations-Major Declarations, Flooding, California (2000-2025)," 2025, https://www.fema.gov/disaster/declarations?field_dv2_declaration_date_value%5Bmin%5D=2000&field_dv2_declaration_date_value%5Bmax%5D=2025&field_dv2_declaration_type_value=DR&field_dv2_incident_type_target_id_selective=49112&field_dv2_state_territory_tribal_value%5B%5D=CA.

[144] Federal Emergency Management Agency, "Disasters and Declarations-Major Declarations, Flooding, California (2000-2025)," 2025,

The following are recent state disaster declarations (state of emergency) for flooding, including details related to each flooding event.

- **December 27, 2022 – Flooding, Atmospheric River:** Governor Gavin Newsom proclaimed a State of Emergency in the County due to severe winter storms from a series of atmospheric rivers that struck California. These storms brought high winds, substantial precipitation, and both river and urban flooding. Continued storms brought heavy rainfall, flooding, strong winds and gusts, falling debris, downed trees, and widespread power outages. The storms forced the closure and caused damage to highways and roads, as well as caused levee and culvert failures, and mandatory evacuation in severely impacted counties. The storms threatened critical infrastructure, disrupted the movement of resources, and impacted burn scars from recent wildfires, potentially causing mud and debris flows, as well as river and urban flooding from prolonged rainfall.
- **February and March 2023 – Winter Storms, Flooding:** Governor Gavin Newsom proclaimed a State of Emergency in the County due to winter storms that struck California beginning in late February. These storms brought damaging winds and historic precipitation, including snowfall in areas unaccustomed to snow. These storms damaged and forced the closure of federal and state highways and roads, threatened critical infrastructure, and resulted in power outages, forced evacuations, and left residents and motorists stranded in impacted counties. The National Weather Service reported that storms across California brought strong winds, blizzard conditions across the Sierra Nevada mountains, above-normal precipitation, and unusually cold temperatures.
- **August 19, 2023 – Hurricane Hilary:** Governor Gavin Newsom proclaimed a State of Emergency in the County as a result of the extreme peril posed by Tropical Storm Hilary, which brought a rare and dangerous rainfall and wind event, leading to potential catastrophic flooding and debris flows. The National Weather Service issued a Flood Watch on August 20, 2023, for the County, warning of the potential for flash flooding caused by excessive rainfall. Swift water rescue resources were prepositioned in the County to assist with potential lifesaving efforts resulting from anticipated flooding and debris flows.

Flooding in January 1997, discussed in greater detail below, caused damage in the County, the Town, and the unincorporated communities of Coleville, Walker, Topaz, and Bridgeport. The floods were partially the result of two years of above-normal precipitation and a winter storm in December 1996 that deposited heavy snow in the Eastern Sierra. Additionally, a rain-on-snow event, with 8 inches of rain over a 36-hour period, was reported in the Town. On January 1 and 2, an atmospheric river (or "Pineapple Express") brought a flow of warm, moist air from the subtropics, leading to heavy rainfall and snowmelt. Extensive damage occurred along the West Walker River in Walker River Canyon and Antelope Valley. The floods destroyed 111 homes and four businesses at a cost of $25 million. Other damages included $5 million to public facilities and $48 million to the federal highway system, including a 12-mile stretch of US 395. The

https://www.fema.gov/disaster/declarations?field_dv2_declaration_date_value%5Bmin%5D=2000&field_dv2_declaration_date_value%5Bmax%5D=2025&field_dv2_declaration_type_value=DR&field_dv2_incident_type_target_id_selective=49112&field_dv2_state_territory_tribal_value%5B%5D=CA.

January 1997 flooding event caused $1.2 million of damage in the Town. The Mammoth Lakes Police Department was under 6 inches of water.

The US Geological Survey (USGS) stream gauge below the confluence of the Little Walker and West Walker Rivers measured a discharge of 12,300 cubic feet per second and a peak height of 10.1 feet, about 8.5 feet more than the normal height. According to a US Army Corps of Engineers report on the event, the stream gauges downstream and upstream of Walker River washed out prior to the storm's peak flow, but the rate in Walker could have reached as much as 14,000 cubic feet per second. This is approximately double the estimates for the flow that would be generated by a 100-year event on the river. The river crest was estimated at over 12 feet. During the same storm, the stream gauge on Hot Creek near the Town recorded its greatest discharge on record, with a flow of 433 cubic feet per second, and a peak height of 4.4 feet, about 3.4 feet above normal levels. Floodwater depths reached 2 feet in central Bridgeport.[145]

FEMA's 2012 Flood Insurance Study for the County reports that flash flooding occurred along US 6 in the Tri-Valley Area in 1978, 1984, 1986, and 1989. The worst of these events occurred on August 9 and 10, 1989, following a combined total of 3.15 inches of rainfall. Water coming down the alluvial fan slopes of the White Mountains created a mudflow that crossed Spring Canyon Creek, sending a wall of water down US 6 at 20 miles per hour. The flood caused $1.5 million in damage to crops and more than $400,000 in damage to federal, state, and County roads. As many as 50 homes and 20 mobile homes were damaged at a cost of $700,000, although none were destroyed. The Los Angeles Times reported that most residents of Chalfant Valley had to be evacuated.

A 1996 report to Congress on the Sierra Nevada Ecosystem Project notes that "particularly large snowmelt floods in the Sierra Nevada have been documented in 1906, 1938, 1952, 1969, 1983, and 1995," with volumes two to four times larger than average.[146]

Other notable events include floods in February 1986 that closed roads and caused damage throughout the County, and in March 1995 that destroyed two homes and damaged roads and utilities. A series of subtropical storms in December 1996 and into early 1997 caused significant flooding that affected the entire state, including the County. Forty-eight counties were declared disaster areas due to the flooding.

Since the 1997 event, smaller floods and flash floods have damaged or closed roadways, trails, and campgrounds throughout the County on numerous occasions. At least two flash floods have resulted in damage to homes.

On July 25, 2007, a thunderstorm produced flash flooding in the Town and the MMSA More than 2.5 inches of rain fell in a three-hour period. The Town reported water flowing over roadways and flooding a few houses.

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[145] Mono County.ca.gov, 2025, Mono County Hazard Mitigation Plan, 2019, "Flood Hazard Profile," https://monocounty.ca.gov/sites/default/files/fileattachments/planning_division/page/9617/mono_county_mjhmp_final_052919_w-appdx.pdf

[146] Ibid.

In July 2013, a slow-moving thunderstorm with heavy rain caused water damage to eight homes along SR 182 in Bridgeport. One home ended up with several inches of water on the main floor. In October 2015, thunderstorms over the White Mountains flooded Chalfant Valley, closing US 6 and damaging 20 homes, at least 4 of them severely.

Heavy storms of both rain and snow in January 2017 ultimately led to a federal disaster declaration due to storms and flooding. The Town received more than 12 inches of rain that combined with recent snow, clogging drainage systems with debris and ice. US 395 was temporarily closed due to flooding in both directions.

The National Weather Service issued flood watches for the County and the Town on several occasions during the winter storms of January and February 2017. In June 2017, following heavy snows of the previous winter, residences in portions of the June Lake Loop, including several properties on Dream Mountain Drive, experienced flooding. In some cases, this resulted in property damage. The flooding events coincided with very high-water levels in dams of the area and a warning by the dam owner, SCE, that month that some risk of dam inundation or overflow was possible. Dam failures did not ultimately occur; SCE utilized emergency pumps to regulate inflow of water to several of the dams during this time.

During the public review process, a public comment was received indicating that flooding may be a concern near Rock Creek Lake (located in Inyo County) as well. The lake itself is a natural lake, but the natural outlet for the lake appears to have been elevated by a man-made earthen mound which is not officially classified as a dam. The public comment cited two flooding events via personal observation in 1983 and 2023. Rock Creek Lake sits above Rock Creek Canyon (located in Mono County) which contains multiple campsites on federal land. On any given day there could be approximately 500-1,000 transient recreational persons in this drainage area, which additionally lacks reliable communications. Additional information on these potential interjurisdictional localized flood concerns and a monitoring system could provide additional details on this risk.

RECENT FLOOD EVENTS

On March 9, 2023, in the County, strong, damaging west-southwest winds increased travel hazards, especially for high-profile trucks, but also heightened the danger of destructive avalanches across the region. Snow started at all elevations Thursday evening, with snow levels rapidly rising Friday morning. Heavy, wet snow, known as Sierra Nevada Cement, fell across higher elevation areas as snow levels rose to 7,000 feet over the region. Heavy rainfall increased the possibility of flooding for lower elevation creeks and streams, along with urban drainage issues due to snow berms. Significant rises on mainstem rivers were monitored for potential flooding. Deep, cold snowpack absorbed most liquid precipitation during this second atmospheric river–supported storm system.

Recent flood history for the County and the Town is summarized in Table 70.

Table 70: Mono County/Mammoth Lakes Flood History, 2000–2024

Incident	Date	Location
Flood	8/30/2000	Oasis
Flash Flood	7/18/2002	Lee Vining
Flash Flood	7/30/2003	Southwest Mono County
Flood	5/19/2006	West Walker River
Flash Flood	7/18/2006	Walker
Flash Flood	7/25/2007	Mammoth Lakes
Flash Flood	7/15/2010	Bodie State Historic Park
Flash Flood	7/16/2010	Walker
Flood	6/24/2011–6/30/2011	Benton Hot Springs, Bridgeport, Crestview, Lee Vining
Flash Flood	7/3/2013	Bridgeport
Flash Flood	9/1/2013	Benton Hot Springs
Flash Flood	10/18/2015	Chalfant Valley
Severe Winter Storms, Flooding, and Mudslides	1/18/17–1/23/17	Statewide
Severe Winter Storms, Flooding, and Mudslides	2/1/2017–2/23/2017	Statewide
Localized Flooding	6/1/2017–6/10/2017	Mono County
Flood	7/19/2018–7/25/2018	Chalfant Valley
Flood	5/6/2019	Walker
Flooding, Debris Flow	7/31/2021	Walker
Flash Flood	7/15/2022	Chalfant Valley
Flood	3/09/2023	Bridgeport, Toms Place, Chalfant
Flood	5/03/2023	Bridgeport
Flood	6/25/2024	Bodie
Flash Flood, Debris Flow	7/21/2024–7/25/2024	Mono Lake, Walker, Crestview

Probability of Future Hazard Events

Based on previous history, the probability of flooding in the County in the future is high. Areas within the flood hazard zones identified in Figure 64 have a 1% chance of flooding in any given year. There is a 0.2% chance that a flood will occur in any given year in the 500-year floodplain areas indicated on the FEMA FIRMs. While a minor level of flooding will likely occur frequently (95% annual chance), it will not be as severe as a 100-year event, and it may not occur within the identified 100-year floodplain area. Significant, widespread flooding is most likely during conditions when melting snow combines with heavy rains.

The risk of flooding can significantly increase in areas that have been burned by wildfire. Fires alter terrain and ground conditions by eliminating vegetation that can absorb rainfall. Flooding is also often more severe because ash and debris left from the fire can contribute to mudflows. Due to the harsh climate of the area, it can take more than five years before an adequate layer of vegetation is restored. For locations in the County that have burned recently and are at increased flood risk, see the Wildfire hazard profile.

CLIMATE CHANGE CONSIDERATIONS

The 2023 Enhanced California State Hazard Mitigation Plan states climate studies project that precipitation patterns will increasingly shift peak runoff earlier in the winter and spring. This shift is expected as more precipitation falls as rain instead of snow, and snow melts off earlier. This change is projected to be especially true in rain-dominated watersheds, with runoff peaking earlier and higher. In snow-dominated watersheds, relatively little change in seasonality or peak runoff is expected by mid-century (2050), but large decreases in peak runoff from April to July are expected by 2100.[147]

The Cal-Adapt California Fourth Climate Change Assessment Sierra Nevada Region Report states that flood risks are projected to increase within and downstream from the Sierra Nevada as climate change increases storm intensities and temperatures. However, accurate estimates of the coming changes in flood characteristics (e.g., flood frequencies and magnitudes, flood durations, seasonal timing) have not yet emerged and are urgently needed by communities, engineers, and hazard managers in the region. Improved projections of future flood frequencies and risks—along with closely related projections of water-supply benefits and environmental and community impacts—are necessary for debates regarding new reservoir-storage options in the region.[148]

There is some evidence that climate change may result in more frequent intense storms, known as atmospheric river events. Some studies suggest that, statewide, more years will have an increased number of atmospheric river events and that the largest of these atmospheric river events will be more intense than they have been historically. In general, Northern California is expected to see more frequent atmospheric river events, potentially up to twice as many by the year 2100 as the region currently does. In contrast, Southern California is expected to see the same number of atmospheric river events, but each individual storm will be an average of 10%–20% more intense. However, the specific impacts on the County and the Eastern Sierra/Basin and Range region are not yet known.

As noted in the Drought hazard profile, dry conditions cause soil to harden, making it less absorbent to precipitation and increasing the risk of flooding, particularly at the beginning of the rainy season. Since drought conditions are expected to increase as a result of climate change, there is also a greater risk of flooding from these drought-induced changes in soil characteristics. These impacts may already be felt. In July 2015, then Lieutenant Governor Gavin Newsom, acting temporarily as governor, issued a disaster

[147] Cal OES. 2024. 2023 Enhanced California State Hazard Mitigation Plan, "Riverine, Stream, and Alluvial Flooding, Climate Change Impacts-Precipitation." https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf

[148] Cal-Adapt. 2025. "California Fourth Climate Change Assessment Sierra Nevada Region Report", https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

proclamation for large parts of Southern California due to flooding and related hazards due to severe storms. In the proclamation, Newsom noted the drought's impact of drying out soil and increasing the risk of flash floods.

Vulnerability

Flooding can impact the entire planning area therefore all people, property, and community assets are vulnerable to flooding in the planning area. The National Risk Index (NRI) includes data on individual natural hazards, historical loss, and overall risk at both the County and Census tract levels. Based on the NRI, the County has a risk index score of 71.8 and a rating of Relatively Low for the risk index for riverine flooding, which is below than the national percentile.[149] Certain areas may be more vulnerable than others, including those in the high-risk and moderate-risk floodplain.

Hazus was used to determine what structures are at risk in the planning area for the 1% and 0.2% annual chance flood. There are an estimated 10,441 buildings in the region with an estimated total building replacement value (excluding contents) of approximately $4.377 billion. Of these, about 90.63% of the buildings (and 75.25% of the building value) are residential. Table 71 provides regional population and building value data for a 100-year scenario, showing the County population impacted (13,147), residential ($3,293,164,000), and non-residential ($1,083,348,000) building values, with a total building value of $4,376,512,000.

Table 71: Regional Population and Building Value Data – 100-Year Flood

County	Population	Residential	Non-Residential	Totals
Mono County	13,147	3,293,164,000	1,083,348,000	4,376,512,000
Total	**13,147**	**3,293,164,000**	**1,083,348,000**	**4,376,512,000**

Table 72 provides regional population and building value data for a 500-year scenario, which reflects the same population and building values as the 100-year scenario, indicating consistent exposure across both events.

Table 72: Regional Population and Building Value Data – 500-Year Flood

County	Population	Residential	Non-Residential	Totals
Mono County	13,147	3,293,164,000	1,083,348,000	4,376,512,000
Total	**13,147**	**3,293,164,000**	**1,083,348,000**	**4,376,512,000**

[149] FEMA, National Risk Index. "Mono County Riverine Flood Expected Annual Loss Score, Map and Legend." https://hazards.fema.gov/nri/map

Impacts

The NRI includes data on the expected annual losses to individual natural hazards, historical loss, and overall risk at a County and Census tract level. Based on the NRI, the County has an expected annual loss of $1.1 million for riverine flood.[150]

IMPACTS TO POPULATIONS

Hazus estimates the number of households expected to be displaced from their homes due to the 100-year flood and the associated potential evacuation. It also estimates that these displaced people will require accommodation in temporary public shelters. The model predicts that 232 households (or 695 people) will be displaced due to the 100-year flood. Displacement includes households evacuated from within or very near the inundated area. Of these, 41 people (out of a total population of 13,147) are expected to seek temporary shelter in public shelters.

Hazus estimates the number of households expected to be displaced from their homes due to the 500-year flood and the associated potential evacuation. It also estimates that those displaced people will require accommodation in temporary public shelters. The model predicts that 313 households (or 938 people) will be displaced due to the 500-year flood. Displacement includes households evacuated from within or very near the inundated area. Of these, 44 people (out of a total population of 13,147) are expected to seek temporary shelter in public shelters.

IMPACTS TO STRUCTURES

Expected Building Damage by Occupancy and Building Type – 1% Annual Chance (100-Year Flood): Hazus estimates that approximately 11 buildings will be at least moderately damaged, which represents over 21% of the total number of buildings in the scenario. It is estimated that one building will be completely destroyed. Definitions of the "damage states" are provided in the Hazus Flood Technical Manual. Table 73 summarizes the expected damage by general occupancy for the buildings in the region, while Table 74 summarizes the expected damage by general building type.

Table 73: Expected Building Damage by Occupancy – 100-Year Flood

	1–10		11–20		21–30		31–40		41–50		> 50	
Occupancy	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	1	33	1	33	1	33	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0

[150] FEMA, National Risk Index. "Mono County Riverine Flood Expected Annual Loss Score, Map and Legend." https://hazards.fema.gov/nri/map

	1–10		11–20		21–30		31–40		41–50		> 50	
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	17	65	4	15	2	8	1	4	1	4	1	4
Total	**18**		**5**		**3**		**1**		**1**		**1**	

Table 74: Expected Building Damage by Building Type – 100-Year Flood

	1–10		11–20		21–30		31–40		41–50		> 50	
Building Type	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0	0	0	0	0	0	0	0	0	0	0
Manufactured Housing	8	80	1	10	0	0	0	0	0	0	1	10
Masonry	0	0	0	0	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0	0	0	0	0
Wood	9	56	3	19	2	13	1	6	1	6	0	0

Expected Building Damage by Occupancy and Building Type – 0.2% Annual Chance (500-Year Flood): Hazus estimates that approximately 17 buildings will be at least moderately damaged, which represents over 23% of the total number of buildings in the scenario. It is estimated that three buildings will be completely destroyed. Definitions of the "damage states" are provided in the Hazus Flood Technical Manual. Table 75 summarizes the expected damage by general occupancy for the buildings in the region, while Table 76 summarizes the expected damage by general building type.

Table 75: Expected Building Damage by Occupancy – 500-Year Flood

	1–10		11–20		21–30		31–40		41–50		> 50	
Occupancy	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	3	60	1	20	1	20	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	23	61	7	18	3	8	1	3	1	3	3	8
Total	**26**		**8**		**4**		**1**		**1**		**3**	

Table 76: Expected Building Damage by Building Type – 500-Year Flood

	1–10		11–20		21–30		31–40		41–50		> 50	
Building Type	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0	0	0	0	0	0	0	0	0	0	0
Manufactured Housing	10	63	2	13	1	6	0	0	0	0	3	19
Masonry	0	0	0	0	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0	0	0	0	0
Wood	14	61	5	22	2	9	1	4	1	4	0	0

Essential Facility Damage – 1% Annual Chance (100-Year Flood): Before the flood analyzed in this scenario, the region had 17 hospital beds available for use. On the day of the scenario flood event, the model estimates that 17 hospital beds remain available in the region. Table 77 provides a classification of essential facilities, the total number of each facility, and the number experiencing moderate and substantial loss of use in the event of a 100-year flood. The zeros indicate that none of the facilities were flooded, according to the mapped inventory data on the depth grid.

Table 77: Expected Damage to Essential Facilities – 100-Year Flood

Classification	Total	At Least Moderate Loss of Use	At Least Substantial Loss of Use
Emergency Operation Centers	0	0	0
Fire Stations	22	1	0
Hospitals	4	0	0
Police Stations	4	0	0
Schools	11	0	0

Essential Facility Damage – 0.2% Annual Chance (500-Year Flood): Before the flood analyzed in this scenario, the region had 17 hospital beds available for use. On the day of the scenario flood event, the model estimates that 17 hospital beds remain available in the region. Table 78 provides a classification of essential facilities, the total number of each facility, and the number experiencing moderate and substantial loss of use in the event of a 500-year flood. The zeros indicate that none of the facilities were flooded, according to the mapped inventory data on the depth grid.

Table 78: Expected Damage to Essential Facilities – 500-Year Flood

Classification	Total	At Least Moderate Loss of Use	At Least Substantial Loss of Use
Emergency Operation Centers	0	0	0
Fire Stations	22	1	
Hospitals	4	0	0

Classification	Total	At Least Moderate Loss of Use	At Least Substantial Loss of Use
Police Stations	4	0	0
Schools	11	0	0

Debris Generation Estimates – 100-Year Flood: Hazus estimates the amount of debris that will be generated by the 100-year flood. The model categorizes debris into three general types: (1) Finishes (dry wall, insulation, etc.); (2) Structure (wood, brick, etc.); and (3) Foundation (concrete slab, concrete block, rebar, etc.). This categorization is necessary due to the different types of material handling equipment required for each debris type. According to Figure 66, the model estimates a total of 175 tons of debris will be generated. Of the total amount, Finishes accounts for 56%, Structure for 14%, and Foundation for 30%. If the debris tonnage is converted into an estimated number of truckloads, it will require seven truckloads (at 25 tons per truck) to remove the debris generated by a 100-year flood.

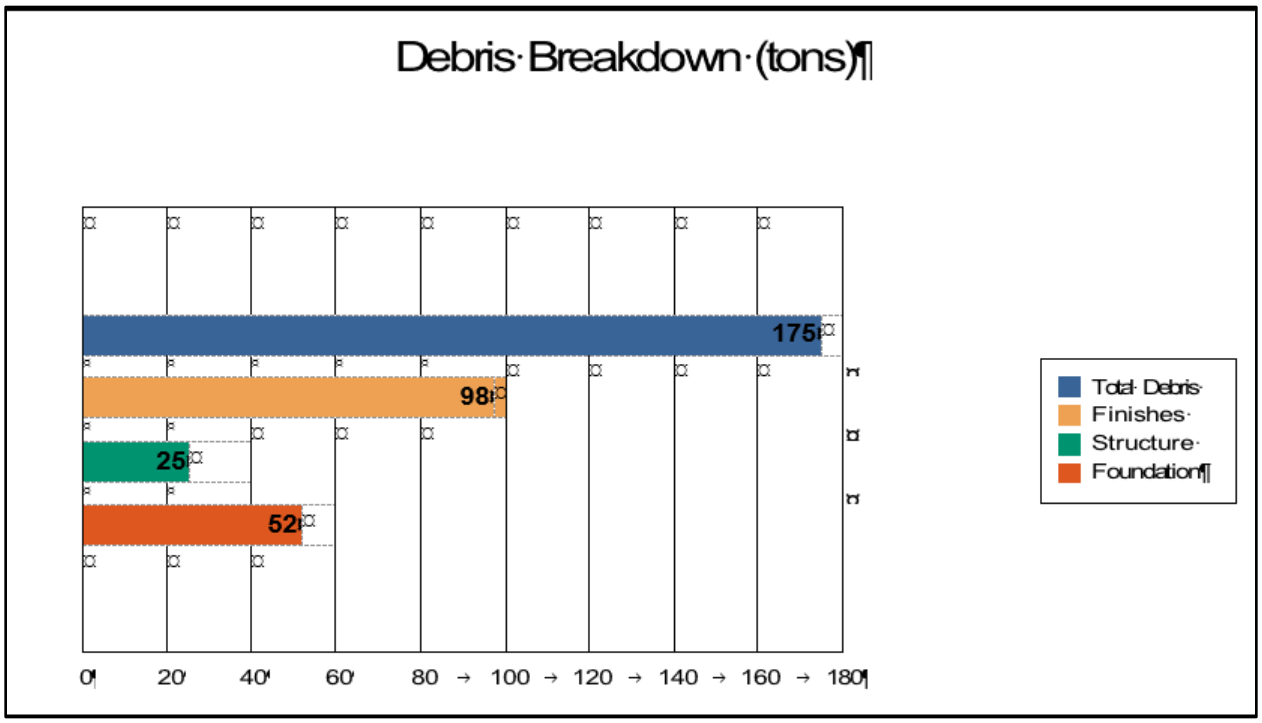


Figure 66: Debris Breakdown Model – 100-Year Flood

Debris Generation Estimates – 500-Year Flood: Hazus estimates the amount of debris that will be generated by the 500-year flood. The model categorizes debris into three general types: (1) Finishes (dry wall, insulation, etc.); (2) Structure (wood, brick, etc.); and (3) Foundation (concrete slab, concrete block, rebar, etc.). This categorization is necessary because of the different types of material handling equipment required for each debris type. According to Figure 67, the model estimates a total of 354 tons of debris will be generated. Of the total amount, Finishes accounts for 42%, Structure for 19%, and Foundation for 39%. If the debris tonnage is converted into an estimated number of truckloads, it will require 15 truckloads (at 25 tons per truck) to remove the debris generated by a 500-year flood.

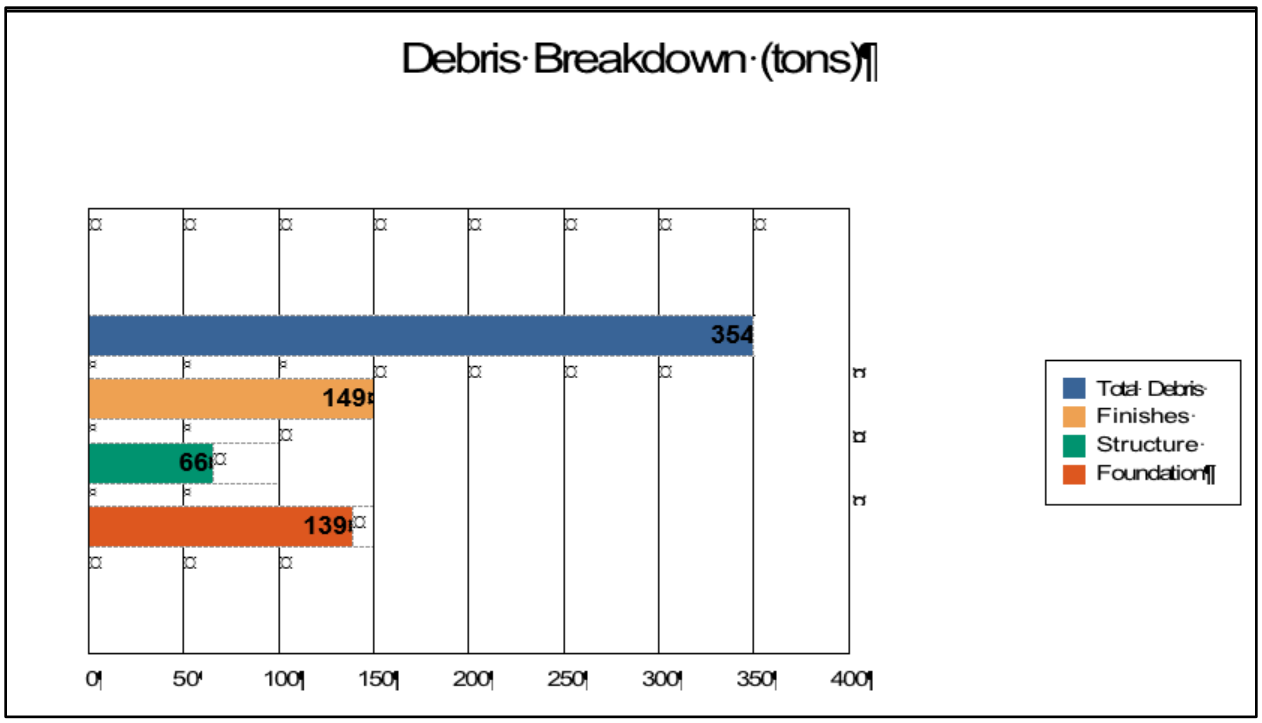


Figure 67: Debris Breakdown Model – 500-Year Flood

IMPACTS TO INFRASTRUCTURE

The Sierra Nevada region's transportation and energy infrastructures were developed to accommodate its highly variable climatic conditions but are frequently challenged by natural events such as floods.[151]

- **Transportation Lifeline Impacts and Damage from 100-Year and 500-Year Floods:**
  - **Infrastructure Destruction:** Roads, bridges, and railways can be washed away by floodwaters, severing critical transportation routes.
  - **Traffic Gridlock and Evacuation Challenges:** Flooding can overwhelm escape routes, delaying emergency evacuations.
  - **Loss of Access to Emergency Services:** Emergency response efforts may be hindered by impassable roads.
  - **Long-term Transportation Disruption:** Rebuilding roads and bridges may take months or years, limiting access to resources and economic activity.
- **Expected Utility Systems Facility Damage:**
  - **Power Outages:** Floodwaters can damage power plants, substations, and transmission lines, leading to widespread blackouts.

[151] Cal-Adapt.org, 2025, "California's Fourth Climate Change Assessment, Sierra Nevada Region Report" https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

- **Disruption of Fuel Supply:** Gas and oil storage tanks may be damaged, causing fuel shortages.
- **Damage to Communication Infrastructure**: Cell towers, radio stations, and internet infrastructure may be damaged or destroyed.
- **Loss of Emergency Communication:** Emergency services may struggle to coordinate rescue operations without reliable communication.
- **Power Loss to Communications Infrastructure:** Without electricity, phones, radios, and the internet may be inaccessible.
- **Increased Demand on Communication Networks:** Network congestion can slow down or block critical calls and emergency alerts.
- **Long-term Outages:** Repairing communications networks can take weeks or months, delaying information sharing.
- **Water and Wastewater Systems Infrastructure Damage:** Water treatment facilities, pumping stations, and storage tanks can be destroyed by floodwaters.
- **Contamination of Water Supply:** Excessive sediment, debris, and chemicals can infiltrate drinking water sources.
- **Loss of Potable Water:** Damage to pipelines and treatment plants can leave communities without drinking water for extended periods.
- **Disruption of Wastewater Treatment:** Overflows and damage to wastewater plants can allow raw sewage to enter water bodies, posing public health risks.
- **Discharge Backup:** Sewer systems can be backed up, causing wastewater to spill into homes, neighborhoods, rivers, and streams.
- **Increased Erosion and Sedimentation:** Massive water surges can alter riverbeds, reducing water quality.

IMPACTS TO THE ECONOMY

Total Economic Loss Estimated – 100-Year Flood: The total economic loss estimated for the flood is $33.27 million, which represents 3.3% of the total replacement value of the scenario buildings.

Building Related Loss – 100-Year Flood: Building losses are categorized into two types: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses amounted to $18.27 million. Of these losses, 45% were related to business interruption in the region. The residential occupancies accounted for 35.06% of the total loss.

Table 79 provides a summary of the losses associated with the building damage and business interruption for a 100-year flood.

Table 79: Building-Related Economic Loss Estimates – 100-Year Flood

Category	Area	Residential	Commercial	Industrial	Others	Totals
Building Loss	Building	4.22	0.57	0.04	1.19	6.02
	Content	2.25	2.31	0.04	4.01	8.61
	Inventory	0.00	0.29	0.00	3.34	3.63
	Subtotal	**6.47**	**3.17**	**0.08**	**8.54**	**18.26**
Business Interruption	Income	0.17	2.74	0.01	1.25	4.17
	Relocation	3.43	0.52	0.03	0.55	4.52
	Rental Income	1.20	0.34	0.00	0.03	1.57
	Wage	0.41	3.26	0.02	1.06	4.74
	Subtotal	**5.21**	**6.86**	**0.06**	**2.89**	**15.00**
All	**Totals**	**11.66**	**10.03**	**0.14**	**11.43**	**33.26**

Total Economic Loss Estimated – 500-Year Flood: The total economic loss estimated for the flood is 42.17 million dollars, which represents 4.11 % of the total replacement value of the scenario buildings.

Building Related Loss – 500-Year Flood: The building losses are categorized into two types: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses amounted to $21.79 million. Of these losses, 48% were related to the business interruption in the region. The residential occupancies made up 37.64% of the total loss. Table 80 provides a summary of the losses associated with the building damage and business interruption for a 500-year flood.

Table 80: Building Related Economic Loss Estimates – 500-Year Flood

Category	Area	Residential	Commercial	Industrial	Others	Totals
Building Loss	Building	5.85	0.71	0.06	1.24	7.86
	Content	2.98	2.81	0.06	4.22	10.07
	Inventory	0.00	0.34	0.01	3.52	3.87
	Subtotal	**8.83**	**3.86**	**0.13**	**8.98**	**21.79**
Building Interruption	Income	0.24	4.39	0.01	1.39	6.03
	Relocation	4.68	0.75	0.03	0.60	6.06
	Rental Income	1.55	0.53	0.00	0.03	2.11

Category	Area	Residential	Commercial	Industrial	Others	Totals
	Wage	0.59	4.47	0.02	1.12	6.19
	Subtotal	**7.05**	**10.14**	**0.06**	**3.13**	**20.38**
All	**Totals**	**15.88**	**14.00**	**0.19**	**12.11**	**42.17**

Changes in Development

Some FEMA maps lack information regarding the base flood elevation, making them of limited use for local development review and site-specific planning purposes. Some maps lack information about local alluvial fan and mudflow hazards. There is noted need update the flood hazard maps where these deficiencies exist.[152]

Hazardous Materials

Hazard Description

Under California law, a hazardous material (Hazmat) is a substance that causes "an increase in mortality or an increase in serious, irreversible, or incapacitating illness" or poses "a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed."[153] Hazardous materials involve a wide range of substances, including flammable or explosive materials; corrosive substances, such as acids and poisons; and infectious materials, such as dangerous germs. Some materials are always hazardous, while others may only pose a danger under certain conditions (e.g., flammable materials can be inert and harmless until exposed to a spark or heat source). Hazardous materials are often considered human-made compounds, but they may also include naturally occurring substances, such as radon gas, found naturally in some rock formations.

A Hazmat emergency usually occurs when the material leaks or escapes from its containment vessel, exposing people and objects in the vicinity to the material's harmful effects. This may occur because of another emergency, such as an earthquake or flood, that breaks a Hazmat storage container. It may also happen because of human error, an equipment malfunction, or, more rarely, as a deliberate act. Hazmat may be released from a building, such as a factory or storage facility, or a vehicle, such as a truck or train. US 395 is a significant thoroughfare that carries hazardous and potentially hazardous materials through the communities of the County. Residents and visitors also frequently transport combustible fuel, such as propane for personal use. Leaks or explosions can occur when Hazmat is improperly stored or secured. Hazmat in soils, either naturally occurring or accidental, may be washed into water bodies or groundwater basins during flood events, creating a risk of exposure. Other naturally occurring substances (e.g., radon) can filter up through the soil and into the air and, over long exposure, cause health issues. Soils

[152] Mono County.gov. 2025. "Issues, Opportunities/Constraints-Flooding, Flood Hazards." https://monocounty.ca.gov/generalplan/issues-opportunities-constraints
[153] Definition: hazardous waste from 42 USC § 6903(5) | LII / Legal Information Institute.

containing Hazmat may also dry out and be blown by the wind, spreading the material over a potentially large area.

Location and Magnitude

This section focuses on four aspects of Hazmat of particular concern to the County and Town:

6. Transport of hazardous material, such as fuel;
7. Propane in tanks and underground lines;
8. Naturally occurring gases (specifically, radon and carbon dioxide); and
9. Large hazardous sites from old industrial or mining waste filtering up through the soil and into the air.

Location, magnitude, and historical occurrences are discussed for each of these four categories.

HAZARDOUS MATERIALS TRANSPORT

MONO COUNTY

US 395 and US 6, are designated for transporting Hazmat in and through the County. These routes can transport a variety of Hazmat for personal and business use from one of the County's waste transfer stations to a permanent location outside the County. This creates the potential for hazards during transport and in the event of a vehicle accident. It is difficult to identify precisely which materials, how much, and when Hazmat moves through the County, but such transport is likely to be frequent. Hazmat includes propane, gasoline, household chemicals, and waste. The exact nature of materials or the timing of their transport is not tracked by any agency. However, the US Hazardous Materials Transportation Act regulates procedures and packaging for transporting certain materials. In addition, the Mono County Integrated Waste Management Plan contains a Hazardous Waste Management Element, which provides policies for siting and transporting Hazmat. Inspection points along US 395, including in Victorville and Big Pine, help ensure that these materials are correctly carried. The inspections are mainly performed by Caltrans staff, because the state highways are at the highest risk. However, these regulations are often inadequate to ensure safe road transport and in weather conditions such as high winds, ice, and snow, which occur frequently in the County. The location of the release of Hazmat is most likely related to these other hazards.

MAMMOTH LAKES

Because the Town has no interstate corridors running through it, the likelihood of a Hazmat incident is somewhat lower than in other areas of the County. However, a Hazmat release along US 395 could affect the Town if the wind carried gases or odors; if the release triggered other hazards, such as fire; or if it blocked key access into the Town. In addition, some vehicles carry Hazmat for use in the Town, which poses some risk.

The Casa Diablo IV facility, located at the junction of US 395 and US 203, implements safety measures to address concerns about the potential release of contaminants/pollutants. The actual risk associated with the facility depends on its operational practices and environmental policies. While geothermal plants are significantly better for air quality than fossil fuel–based energy sources, the equipment used in geothermal energy production can still emit certain pollutants. Common pollutants are listed in Table 81.[154]

Table 81: Potential Contaminants/Pollutants Released by Geothermal Power Plants

Potential Contaminants/Pollutants
Heavy Metals
Chlorides
Nickel
Mercury
Gases
Carbon Dioxide
Methane
Hydrogen sulfide
Ammonia
Boron

PROPANE

Propane is a colorless and odorless liquefied compressed gas (although odor is often added for easier detection). It is frequently used for fuel by residents and visitors to the County. Propane is distributed by truck and sold at gas stations, hardware stores, and camping supply stores. It is often transported by personal vehicle and stored at homes or businesses. Hazards associated with propane use and transport include the following:

- **Inhalation:** Inhalation of propane in a closed environment can lead to chronic health effects or, in extreme cases, suffocation.
- **Contact:** Direct contact with liquefied propane can cause frostbite.
- **Explosion:** Propane tanks are typically stable and difficult to rupture. However, in the case of extreme concussions (e.g., major vehicle collision or earthquake) or extreme heat (e.g., wildfire), a boiling liquid expanding vapor explosion (BLEVE) can occur. This happens when the pressure in the tank exceeds that at which the safety relief valve can safely vent the excess pressure into the outside atmosphere. Relief valves are designed to vent tank pressure at a specific flow rate. Once the pressure inside the

[154] Renewable Energy Magazine, "Cleaning up Geothermal Energy." https://www.renewableenergymagazine.com/jane-marsh/cleaning-up-geothermal-energy-20240701#:~:text=Air%20Emissions,Boron

propane tank reaches a certain level, the vent opens until the pressure falls below that level. Old or buried propane tanks can pose a special hazard, since their systems degrade with age, and current landowners may not know their location.

The dangers from propane leaks are aggravated in the County by winter weather, which freezes lines and valves, and heavy snow, which can disguise evidence of leaks for long periods and prevent emergency responders from accessing tanks and lines. Although County and Town codes require residents to check their tanks regularly and keep access clear during the winter, these requirements can be challenging to enforce.

As propane is a commonly used fuel, the proper storage and transport of propane cylinders are critical to prevent frequent hazards. Although the tank types, maintenance, placement, and storage of household or small business tanks are regulated by local and state codes, the location of the tanks is not currently tracked. Therefore, specific hazard zones for propane are not known. It is reasonable to assume that most parcels with habitable structures will have one or more propane tanks on site.

MAMMOTH LAKES

Besides small propane tanks on individual properties, the Town has an underground system of pipes that distribute propane to individual and group storage tanks in various parts of the community. The lines are owned and operated by AmeriGas. The lines are supplied by several large propane tanks, both inside the Town and near its perimeter. The Town does not have data on the exact locations or status of these underground pipelines, which can pose hazards in construction or maintenance activities and in the case of a natural disaster, such as an earthquake or fire.

NATURALLY OCCURRING GASES

The naturally occurring gasses of specific concern are radon and carbon dioxide. Radon is a commonly occurring radioactive gas derived from the natural decay of uranium. It filters through the soil and into the air, where it can be trapped in buildings or distributed by the use of well water. Radon exposure is the second largest cause of lung cancer and the number-one cause among nonsmokers. Radon should be tested for, prevented, or mitigated in buildings through design features, such as proper ventilation, soil barriers, and soil depressurization.

Congress passed Radon Act 51 to set the natural outdoor level of radon gas (0.4 picocuries per liter [pCi/L]) as the target indoor radon level. The US Environmental Protection Agency (EPA) has set an "action level" of 4 pCi/L, at which point the EPA recommends that people take corrective measures to reduce exposure to radon gas. However, there is no safe level of radon exposure (EPA 2016).

The EPA classifies radon levels into three zones:

- Zone 1: Counties with predicted average indoor radon screening levels greater than 4pCi/L.
- Zone 2: Counties with predicted average indoor radon screening levels from 2 to 4 pCi/L.
- Zone 3: Counties with predicted average indoor radon screening levels of less than 2pCi/L.

The County, including the Town, is designated Zone 2 for radon levels. The County recommends radon testing for all homes.

Carbon dioxide (CO_2) emissions from volcanic fissures in the County pose significant dangers to human health and the environment. These fissures can release high concentrations of CO_2, a colorless, odorless gas that can lead to serious health complications. Symptoms of CO_2 exposure include headaches, dizziness, shortness of breath, and, in extreme cases, can lead to loss of consciousness or even death. Sources of this gas are primarily volcanic activity and natural geological processes. Since CO_2 is heavier than air, it can accumulate in low-lying areas, creating a risk zone for unsuspecting individuals.

HAZARD HISTORY

It is difficult to link a given mortality to radon directly, but the EPA estimates that, nationally, 21,000 lung cancer deaths are caused by radon each year.[155] Since average indoor radon levels are higher in the County than in the US, the rate of health incidents and mortality is likely higher. Consequently, the County pursued and received a grant that allowed the County Public Health Department (CPDH) to provide free radon test kits to property owners. According to CDPH's most recent published data available, in 2016, 171 radon tests had been done in the 93546 zip code (the Town and Crowley Lake); 75 of them (43.9%) resulted in radon levels above 4 pCi/L. In the nearby Town of Bishop in Inyo County, 63 out of 186 tests (33.9%) returned above 4pCi/L.[156]

Volcanic vents emitting CO_2 are present in small pockets throughout the Long Valley Caldera. At the same time, some areas are known, others may not yet be identified, and new output locations may occasionally form. At least four deaths in the County have been confirmed because of natural CO_2 inhalation. In 1998, a man was found dead near Horseshoe Lake. His death is believed to be the result of breathing in CO_2 gas. In 2006, three ski patrol members were asphyxiated by CO_2 gas leaking from a volcanic fissure at Mammoth Mountain.[157]

HAZARDOUS MATERIALS CLEANUP SITES

According to the California Department of Toxic Substances Control, no hazardous waste facilities are in the County.[158] Mono County Department of Public Works is the only registered hazardous waste transporter in the County.

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[155] United States Environmental Protection Agency, "Health Risk of Radon." https://www.epa.gov/radon/health-risk-radon.
[156] California Department of Public Health, "California Radon Test Results." https://www.cdph.ca.gov/Programs/CEH/DRSEM/CDPH%20Document%20Library/EMB/Radon/Radon%20Test%20Results.pdf.
[157] The Spokesman-Review, "Deaths Show Hazards of Life at Mammoth." https://www.spokesman.com/stories/2006/apr/08/deaths-show-hazards-of-life-at-mammoth/.
[158] California Department of Toxic Substances Control, "Department of Toxic Substances Control." https://www.envirostor.dtsc.ca.gov/public/report_permitted_public.asp.

The California State Water Resources Control Board (SWRCB) maintains a list of sites with Hazmat that may contaminate groundwater supplies. Though not in the County, but within the Town, Mammoth Stamp Mill is the only facility with an open SWRCB case due to ground contamination. The potential contaminants of concern include acid mine drainage, arsenic, copper, lead, mercury, silver, zinc, and other metals. Table 82 provides an overview of hazardous materials cleanup sites in the Town and the County. Table 83 provides more detailed information specifically for the Town completed cleanup sites, while Table 84 provides detailed information on completed cleanup sites throughout the County.

Table 82: Number and Status of SWRCB Cleanup Sites in Mono County and Mammoth Lakes[159]

Status	Description	Mammoth Lakes	Mono County*
Completed – Case Closed	Cleanup activities have finished, and a formal case closure decision has been issued.	39	73
Open	Assessment and Interim Remedial Action	1	0
Open – Eligible for Closure	Cleanup activities have finished, although the case closure decision has not yet been issued.	0	0
Open – Inactive	There are no regulatory activities at the site.	0	2
Open – Site Assessment	Evaluation activities are ongoing at the site.	1	1
Open – Verification Monitoring	Cleanup has finished, and monitoring activities are ongoing to ensure that cleanup has been successful.	0	1
TOTAL		41	77

*Note: Includes Mammoth Lakes.

Table 83: Mammoth Lakes SWRCB Cleanup Sites, Completed Closures

Site	Address	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Bishop Airport	PO Box 24	Leak reported	Diesel	Soil	06/08/1994
Casa Diablo IV, Ormat Geothermal	0.8 Miles NE of Hwy 203 and Hwy 395	Land disposal site	N/A	N/A	12/29/2022
Chevron #8-1861	PO Box 27	Leak reported	Gasoline	Under Investigation	11/14/2003
Chevron #9-1861, 3236 Main	3236 Main Street	Leak reported	Gasoline	Other groundwater	01/07/2014

[159] California State Water Resources Control Board, "Site Cleanup Program." https://geotracker.waterboards.ca.gov/search.asp.

Site	Address	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
St., Mammoth Lakes, CA					
Contel	470039 Pinecrest Ave	Leak	Diesel	Soil	10/16/1996
Convict Lake Resort	Convict Lake Turnoff	Leak	Gasoline	Soil	06/08/1994
Crestview Maint. Facility	Hwy 395	Leak	Gasoline	Soil	04/24/1997
Exxon Mini-Mart (Former)	3280 Main St.	Leak	Gasoline	Soil	12/22/1998
Lodestar	1100 Lodestar Drive	Excavation/Leak	Gasoline	Soil	10/10/2007
Maintenance Garage	1 Minaret Road	Leak	Gasoline	Soil	10/28/1998
Mammoth Automotive	210 Commerce Dr.	Leak	Waste oil/ motor/ hydraulic/ lubricating	Surface water	05/02/1996
Mammoth Community Water Distr.	Commerce Dr.	Leak	Gasoline	Soil	01/27/1999
Mammoth Hot Springs Fish Hatch	Box 208	Leak	Gasoline	Aquifer used for drinking water supply	02/03/1999
Mammoth Lakes Old Town Yard	Rte. 1	Leak	Not listed	Soil	09/16/1996
Mammoth Mart	3275 Main St.	Leak	Gasoline	Aquifer used for drinking water supply	09/30/2013
Mammoth Mo-Mart	Hwy. 203	Leak	Gasoline	Under investigation	11/17/2003
Mammoth Mobile	Center St/	Leak	Diesel	Soil	10/01/2009
Mammoth Mountain Garage	PO Box 24	Leak	Gasoline	Other groundwater (uses other than drinking water)	09/28/2011
Mammoth Mountain Ski	1 Minaret Road	Leak	Diesel, gasoline	Soil	10/28/1998

Site	Address	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Area Mobile Equipment Maintenance Facility					
Mammoth Mountain Ski Area Mobile Equipment Maintenance Facility	1 Minaret Road	Same as above	None specified	None specified	10/28/1998
Mammoth Mountain Ski Area Mobile Equipment Maintenance Facility	1 Minaret Road	Same as above	None specified	None specified	10/28/1998
Mammoth Mountain Ski Area Mobile Equipment Maintenance Facility	1 Minaret Road	Same as above	None specified	None specified	10/28/1998
Mammoth Mtn. Ski Area/Yoddler	PO Box 24	Leak	Diesel	Aquifer used for drinking water supply	10/09/2003
Mammoth Retail Shops	501 Old Mammoth Rd.	Leak	HEATING OIL / FUEL OIL	SOIL	09/05/1995
Mammoth Shell Station	Hwy 203 & Mammoth Rd.	Leak	Gasoline	Soil	10/01/2003
Mammoth Unified School Dist.	Airport Rd	Leak	Gasoline	Soil	07/22/1994
Mammoth Yosemite Airport	PO Box 209, Route 1	Leak	Gasoline	Aquifer used for drinking water supply	07/14/2011
McGee Creek Maint. Facility	Hwy 395	Leak	Diesel	Soil	04/07/1997
Mid Chalet Tank Farm	1 Minaret Rd.	Leak	Gasoline	Soil	09/15/1998

Site	Address	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Midchalet Tank Farm	1 Minaret Rd.	Leak	Diesel	Soil	11/17/2003
Minaret Maint. Facility	Hwy 203 Minaret Rd.	Leak	Diesel	Soil	05/22/1997
Mineart Liquor Gas Station	Mineart Rd.	Leak	Gasoline	Soil	12/07/1993
Mineart Maintenance Station	Hwy 203	Leak	Diesel	Soil	06/22/1988
MMSA Maintenance Garage	Minaret Road	Leak	Diesel	Soil	11/17/2003
Napa of Mammoth	Hwy 203	Leak	Gasoline	Soil	12/20/1993
Norco Service Center	3670 Main St.	Leak	Gasoline	Soil	10/08/1996
SCE Mammoth Service Center	453001 Chateau Rd.	Leak	Gasoline	Aquifer used for drinking water supply	09/24/1997
Thomas Smith	Mammoth Lakes Airport	Leak	Aviation	Soil	06/17/2009
Unocal #5749	3141 Main St.	Leak	Gasoline	Aquifer used for drinking water supply	04/19/2002

Table 84: Additional Mono County SWRCB Cleanup Sites, Completed Closures

Site	Address	City	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Bento Road Shop	P.O. Box Bridgeport	Bridgeport	Leak	Diesel	Soil	10/20/1997
Bodie State Historic Park	1 State Park	Bodie	Leak	Gasoline	Aquifer used for drinking water supply	11/08/2004
Bridgeport CHP Facility	125 Main Street	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	06/26/2003

Site	Address	City	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Bridgeport Fire Department	PO Box 375	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	06/26/2003
Bridgeport MCMTWTC	Confidential /Military Base	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	07/15/2011
Bridgeport Shell	424 MAIN ST/ HWY 395	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	02/25/2005
Caltrans Sonora Jct. Maint.	Hwy 395	Sonora Junction	Leak	Gasoline	Aquifer used for drinking water supply	07/07/2005
Caltrans, Bridgeport Maint. St	PO Box 735	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	06/25/2001
Channel Union 76	Hwy 395 S	Lee Vining	Leak	Gasoline	Under Investigation	06/03/1996
Chevron #9-4739	Hwy 395	Lee Vining	Leak	Gasoline	Soil	06/17/2009
Chevron S.S. # 9-2727	Hwy 395	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	10/09/1996
Crowley Lake General Store	#1 South Landing Rd	Crowley Lake	Leak	Gasoline	Soil	05/17/1999
Crowley Lake Recreation Area	Crowley Lake Turnoff	Long Valley	Leak	Gasoline	Soil	03/09/1994
Dream Mountain Resort	Hwy 158	June Lake	Leak	Diesel	Soil	09/09/1996
Fargo Unocal Station	~1 Mi So of Bridgeport, Hwy 395	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	11/08/2004
Former Gas and Go Station	Main Street Nr. Twin Lake	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	11/15/2004

Site	Address	City	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Former Old Silver Lake Texaco	5580 Highway 158	June Lake	Leak	Gasoline	Under investigation	04/03/2017
Gene's Texaco Station	110 Main St.	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	06/02/2011
June Lake County Store	2684 Boulder Drive	June Lake	Leak	Gasoline	Surface water	10/28/2005
June Mountain Ski Area	3819 Highway 158	June Lake	Leak	Diesel, gasoline	Surface water, well used for drinking water supply	01/15/2009
Lake Mary Store		Lake Mary	Leak	Not listed	Soil	09/24/1997
Lee Vining Gas	PO Box 265	Lee Vining	Leak	Gasoline	Soil	09/03/1996
Lee Vining Road Shop	PO Box 457	Bridgeport	Leak	Diesel	Soil	10/20/1997
Middle Gorge Power Plant	1501 Gorge Road	Bishop		Waste oil/ motor/ hydraulic/ lubricating	Other groundwater (uses other than drinking water), soil	06/16/2014
Mo-Mart Texaco Bridgeport	76733 Main Street, PO Box 514	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	05/19/2009
Mono County Senior Citizen Center	137 Emigrant Street	Bridgeport	Leak	Heating oil/ fuel oil	Other groundwater (uses other than drinking water), soil	09/08/2012
Mono County Road Yard	207 Jack Sawyer Road	Bridgeport	Leak	Gasoline	Aquifer used for drinking water supply	02/22/2002
Mountain Warfare	Highway 108, 4 Miles	Bridgeport	Leak	Diesel	Other groundwater	09/15/2003

Site	Address	City	Description of Event	Potential Contaminant of Concern	Potential Media of Concern	Closure Date
Training Center (MWTC), Site 5	West of Hwy 395				(uses other than drinking water)	
MWTC-Lodge Tank	Hwy 108	Bridgeport	Leak	Diesel	Aquifer used for drinking water supply	08/28/1998
Tioga Pass Resort	85 Hwy 120	Lee Vining	Leak	Gasoline	Surface water	04/23/2002
Tom's Place Service Station	Rural Station Hwy 395	Toms Place	Leak	Gasoline	Soil	09/01/1994
Tules Village	Hwy 395	Topaz	Leak	Gasoline	Aquifer used for drinking water supply	12/01/1998
USFS Bridgeport Housing Complex	80590 Highway 395	Bridgeport	Excavation /leak	Other petroleum	Soil	11/15/2007
White Mountains Chevron SS	Highway 6	Benton	Leak	Gasoline	Soil	03/24/1998

Table 85 provides information on open cleanup site locations and details.

Table 85: Open-Assessment and Interim Remedial Action

Site	Address	City	Potential Contaminant of Concern	Potential Media of Concern
Mammoth Stamp Mill (Historic)	Old Mammoth Road	Mammoth Lakes	Acid mine drainage (pH <6.5), arsenic, copper, lead, mercury (elemental), other metal, silver, zinc	Aquifer used for drinking water supply, other groundwater (uses other than drinking water), sediments, soil, surface water, under investigation

Table 86 displays information on cases that are considered open, but inactive, and currently have no regulatory activities.

Table 86: Open – Inactive

Site	Address	City	Potential Contaminant of Concern	Potential Media of Concern
Benton Class III Landfill	400 Christie Lane	Benton	None specified	None specified
Chalfant	Class III Landfill	Chalfant	None specified	None specified

Table 87 provides information on sites in Mammoth Lakes that are currently being evaluated.

Table 87: Open–Site Assessment

Site	Address	City	Potential Contaminant of Concern	Potential Media of Concern
Mammoth Yosemite	1300 Airport Rd.	Mammoth Lakes	Per- and polyfluoroalkyl substances (PFAS)	None specified

Table 88 provides information on cases where cleanup has finished but monitoring activities are ongoing to ensure that the cleanup has been successful.

Table 88: Open – Verification Monitoring

Site	Address	City	Potential Contaminant of Concern	Potential Media of Concern
Bridgeport MCMTWTC- IR Site 3-Pickle Meadow Landfill	Box 5003	Bridgeport	None Specified	None Specified

CASCADING HAZARDS

Cascading hazards from Hazmat incidents present significant risks that extend beyond the initial event, impacting the immediate site and surrounding environments and communities. When released, Hazmat can trigger a series of interconnected failures, including chemical reactions, fires, and explosions, which can compromise nearby infrastructure and pose severe threats to public health. In addition, the dispersion

of toxic substances can contaminate air, soil, and water, leading to long-term ecological damage and necessitating extensive remediation efforts.

Extent

The Hazmat Warning System uses a series of levels to communicate the severity of a Hazmat incident and the appropriate response. They are listed in Table 89.

Table 89: Incident Levels of the Hazmat Warning System[160]

Hazmat Incident Level	Extent	Description
1	Minor	The Hazmat poses a minimal threat to human health and the environment. The local fire department or the Hazmat team can usually manage it.
2	Moderate	The Hazmat poses a moderate threat to human health and the environment. Additional resources and specialized equipment may be needed to manage the situation.
3	Serious	The Hazmat poses a serious threat to human health and the environment. There is a need for a large-scale response involving multiple agencies and specialized equipment.
4	Severe	The Hazmat poses a severe threat to human health and the environment. There may be a need for a massive response involving multiple agencies, specialized equipment, and significant resources.
5	Catastrophic	The Hazmat poses an extreme threat to human health and the environment.

History of Previous Hazard Events

There have been no Hazmat transport incidents since the previous plan.[161] There are records of two previous Hazmat incidents in the County, both of which occurred during transportation. In May 2013 and October 2014, accidents involving freight liners on US 395 resulted in the death of the driver as the truck exploded. Both accidents required extensive Hazmat cleanup.

[160] Lonestar Hazmat, "What is Meant by the Different Hazmat Incident Levels?" https://lonestarhazmat.com/what-is-meant-by-the-different-hazmat-incident-levels/.
[161] U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, "Incident Statistics." https://portal.phmsa.dot.gov/analytics/saw.dll?Portalpages&PortalPath=%2Fshared%2FPublic%20Website%20Pages%2F_portal%2FHazmat%20Incident%20Report%20Search.

PROPANE

In 1992, there were two fatalities due to a propane leak in the Town, which resulted in several modifications of the requirements for the use of propane in the Town.

In February 2012, a propane leak resulted in a deadly explosion in a family housing complex in Coleville that serves Marines assigned to the Mountain Warfare Training Center in Bridgeport. The explosion killed one person, injured several others, and forced the evacuation of 38 families. Close calls also occurred in the Town when Digital 395 workers severed a main propane line operated by AmeriGas in July 2013 because AmeriGas had made an improper determination of the gas line location. Besides Freightliner, propane and fuel trucks have been involved in transportation/delivery incidents.

In 2023, there were two propane explosions during the 2023 severe winter storm event that rendered the entire County and the Town in a state of emergency. The first propane explosion occurred on March 22, 2023, at Val D'Isere Condominiums leading to its collapse. The explosion sent shockwaves through the area, prompting emergency response efforts and highlighting the urgent need for structural reassessment amidst the ongoing winter emergency. The second explosion occurred on April 1, 2023, at Juniper Road and impacted a single-family home located in the 200 block of Juniper Road. The blast likely triggered a structural fire, prompting the evacuation of neighboring residences. The ensuing fire caused snowmelt flooding, leading to the evacuation of a nearby condominium complex.[162]



Figure 68: Juniper Road Propane Explosion April 1, 2023[163]

[162] Town of Mammoth Lakes, 2022-2023 Winter Storm After Action Report provided by the Town of Mammoth Lakes Fire Department.
[163] Town of Mammoth Lakes, 2022-2023 Winter Storm After Action Report, provided by the Town of Mammoth Lakes Fire Department.

During the Winter Storm 2023 event, the Mammoth Lakes Fire Protection District, the Mammoth Lakes Police Department and the Urban Search and Rescue teams together responded to a total of 142 reported propane leaks, mitigating potential risks to residents and properties.[164]

Probability of Future Hazard Events

There is always some chance that another natural disaster, such as an earthquake or flood, may damage buildings or storage tanks and release Hazmat. However, a natural disaster does not automatically result in a Hazmat release, which may occur independently of any other natural disaster.

In addition, propane represents a significant portion of energy generation. Propane will likely remain a significant portion of fuel use due to the area's unique housing design, existing infrastructure and equipment, and familiarity. Therefore, it is likely that incidents will continue to occur because of such personal use of propane.

Considering the history of Hazmat incidents, previous regular transportation, and propane incidents, another incident is highly likely to happen in the future.

CLIMATE CHANGE CONSIDERATIONS

Climate change is not directly linked to the frequency or severity of Hazmat releases. However, climate change may increase the frequency or severity of other hazards, such as severe storms, earthquakes, or wildfires, which may result in Hazmat releases in the following ways:

- Rising temperatures can increase the frequency and intensity of extreme weather events, such as winter storms, floods, hurricanes, and wildfires, which may compromise storage facilities and industrial sites where such materials are kept.
- Flooding can lead to the overflow of toxic waste containment structures, while wildfires can damage infrastructure, making hazardous substances vulnerable to release into the environment.
- Shifts in climate patterns can impact the stability and integrity of landfills, increasing the risk of contaminated runoff.

Vulnerability

The County faces several vulnerabilities regarding Hazmat incidents, mainly due to its unique geographic and industrial profile. Transportation routes and propane use, including on private property, are most vulnerable to this hazard. The County's remote location can complicate emergency response efforts, especially during severe weather or road closures, which may hinder access to affected areas. In addition, recreational activities, mountain tourism, and agricultural operations can lead to the exposure or

[164] Town of Mammoth Lakes, 2022-2023 Winter Storm After Action Report, provided by the Town of Mammoth Lakes Fire Department.

mishandling of chemicals, which may pose risks to public health and the environment. Urban areas may also see increased hazard exposure due to infrastructure inadequacies, which could amplify the impact of an incident.

Impacts

In the County, the potential impacts of Hazmat incidents can be significant and wide-ranging. Such incidents may pose serious health risks to local communities, potentially leading to exposure to toxic substances that can affect both short-term and long-term health conditions. Environmental damage also is a significant concern, as spills or leaks can contaminate soil and water sources, harming local wildlife and disrupting ecosystems. Economic repercussions may arise from shutting down affected areas, as businesses and tourism could be impacted, leading to revenue loss. In addition, responding to Hazmat incidents requires substantial resources from local and state agencies, which can strain public services and divert attention from other critical issues.

Changes in Development

Hazmat incidents can lead to significant development and land use changes, impacting the surrounding environment and community. Following such incidents, areas may be designated as contaminated, resulting in restrictions on land use and modifications to local development plans. This can include the imposition of buffer zones around affected sites, changes in zoning regulations, and increased scrutiny during permitting processes. Moreover, local governments might implement redevelopment strategies to ensure safe land utilization, including clean-up efforts and converting contaminated spaces into public parks or commercial areas, provided they meet safety standards. Mapping propane lines in the area is an ongoing effort. Understanding where these lines are located may help in making informed decisions on future development.

Landslides

Hazard Description

Landslides occur when the stability of a slope, such as a hillside or mountain, is compromised. This instability causes the soil to move downward toward the base of the slope, potentially damaging or destroying any structures in its path. Although some landslides happen quickly, others may progress slowly over an extended period. The risk of a landslide is influenced by the composition of the slope's materials and its steepness. Soil stability and time are significant factors in the likelihood of rockfalls, particularly along roads and trails where the slope angle has been increased by human activity.

Various natural hazards can trigger landslides. Earthquakes, for instance, can induce ground shaking or soil liquefaction, leading to landslides. Similarly, heavy precipitation can saturate the soil, reducing its stability, while flowing water may erode the base of a slope. The risk of landslides is particularly high in

areas recently affected by wildfires, which destroy vegetation that would otherwise help stabilize the soil and absorb water, making slopes more prone to sliding.

In the County, landslide hazards are predominantly linked to seismic activity and heavy rainfall. Steep and hilly terrains are susceptible to landslides triggered by ground shaking, intense rainfall, and human activities such as road construction and vegetation removal. Mudflows, characterized by the rapid downslope movement of saturated soil and debris, can form large alluvial fans at the edges of valleys, illustrating the ongoing movement of soil and debris over time.

In the western United States' Basin and Range Province, including the White Mountains, slopes are particularly prone to moisture-induced debris flows that create alluvial fans. These flows, often resulting from flash floods, carry sediments, boulders, and trees down steep canyons, spreading out once the water is free of the confined space. The loose composition of alluvial fans can further predispose them to landslides, including lateral spreading, where liquefied soils become fluid enough to move across gentle slopes.[165]

CASCADING HAZARDS

Landslides can trigger a chain reaction of cascading hazards that compound the overall impact on communities. The following are some of the hazards that can occur:

- **Flooding:** Landslides can block rivers or streams, creating temporary dams. When these dams break, they can cause sudden and severe flooding downstream.
- **Debris Flows:** Heavy rainfall on landslide-affected areas can lead to debris flows, which are fast-moving mixtures of water, mud, and debris.
- **Infrastructure Damage:** Landslides can damage roads, bridges, and buildings, leading to further hazards such as disrupted transportation and communication.
- **Secondary Landslides:** The initial landslide can destabilize surrounding slopes, causing additional landslides in the area.

Location

Areas at risk for landslides are found throughout the County, but mostly outside of populated community areas. Areas with high levels of susceptibility include the following:

- Northeast boundary of the Long Valley Caldera from Bald Mountain to Glass Mountain
- Many of the canyons along the eastern escarpment of the Sierra Nevada from the County's southern border to the peaks north of Pickel Meadow

[165] Hubert, J. F., & Filipov, A. J. 1989. "Debris-Flow Deposits in Alluvial Fans on the West Flank of the White Mountains, Owens Valley, California, USA." *Sedimentary Geology* 61(3–4): 177–205.

- Steep slopes north of Lee Vining
- Western slope of Slinkard Valley to the County border
- Slopes along Coyote Creek at the Nevada border
- Throughout the Bodie Hills area

Certain sections of key access roads are at high risk of rockfall and have historically experienced numerous rockfalls, including the following areas:

- US 395 north of Lee Vining near Mono Lake
- US 395 north of Mono City near Conway Summit
- SR 120 from Lee Vining to Tioga Pass
- Walker Canyon Road in Walker Canyon
- Lower Rock Creek Road from Swall Meadows Road northbound to US 395

Figure 69 shows the deep-seated landslide susceptibility in the County. It shows the relative likelihood of deep land sliding based on estimates of rock strength and slop steepness. This data was originally developed for the State of California in 2011 by the California Geological Survey. While the map incorporates a variety of data, it may not cover the entirety of landslide locations in the area including shallow landslides like debris flows. In general, large portions of the planning area are susceptible to deep-seated landslides. Less hilly areas besides lakes and in the upper and lower part of the planning area have little to no susceptibility.

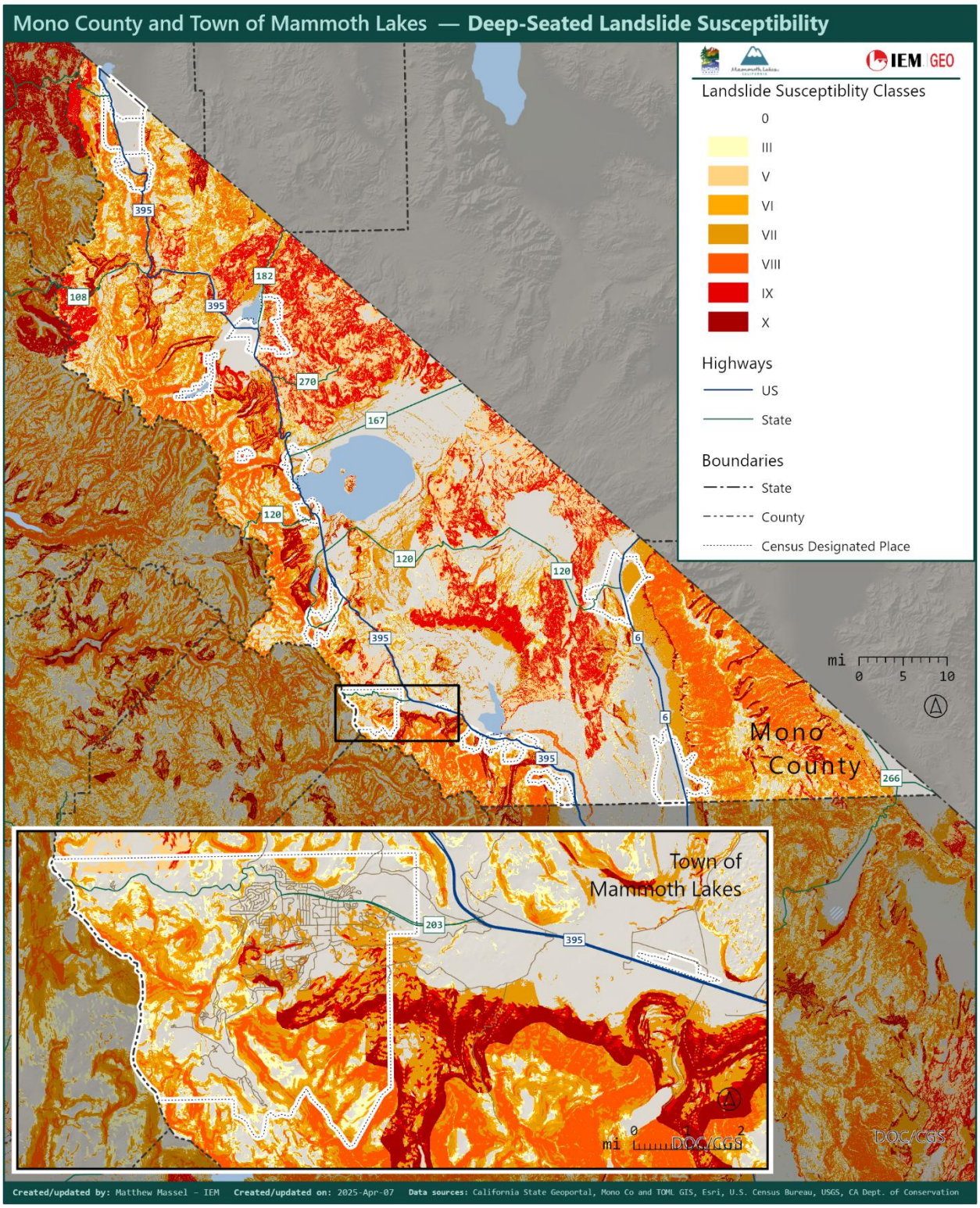


Figure 69: Mono County and Town of Mammoth Lakes - Deep-Seated Landslide Susceptibility

Rockfalls and landslides frequently occur along the steep slopes of the eastern escarpment of the Sierra Nevada, where talus slopes show evidence of past rockfalls. During the winter and spring, snow and ice

can lubricate rockfalls, making them extremely fast and destructive. The May 1980 earthquakes triggered numerous rockfalls, notably at Convict Lake and McGee Canyon, and "spectacular rockfalls" were witnessed in Chidago Canyon and the White Mountains during the July 21, 1986, earthquake in Chalfant Valley.

Fire has also contributed to rockfall hazards at burn scar locations on slopes due to the destruction of vegetation that previously anchored rock and soil. The June 2016 Marina Fire burned steep slopes along the western side of US 395 north of Lee Vining, destabilizing the slopes and necessitating the construction of extensive rockfall protection systems along the roadway.

Landslides can produce substantial amounts of debris. A California Geological Society (CGS) report on the 1980 earthquakes noted that several backcountry roads and trails were buried by debris, which was locally more than 30 meters thick. Near the Town, a boulder the size of a one-car garage was dislodged and rolled 500 meters. Large, destructive mud and debris flows associated with alluvial fans pose a risk in the Tri-Valley Area. Locations near the bottom of confined canyons are vulnerable to these flows, which can cover several square miles and contain millions of cubic yards of debris.

Extent

The extent of landslides can be classified by the mass wasting movement type. This scale is summarized in Table 90. All types could potentially occur in the planning area.

Table 90: Mass Wasting Movement Type

Type	Description
Topple	The forward rotation of matter about a pivotal point under the force of gravity.
Fall	A rapid movement/descent of material characterized by a freefall period.
Debris Flow	A landslide with high water content that is channeled by the landscape. Water combines with loose soil, rock, and organic material to form slurry, which flows downslope. Flows are often triggered by heavy precipitation or rapid snowmelt, which erodes and mobilizes loose soil or rock.
Transitional Slide	A slide wherein the surface material is separated from the stable underlying layer of a slope.
Block Slide	A transitional slide in which the moving mass consists of a single unit or small number of units which move in a single mass.
Lateral Spread	The movement of material sideways (laterally). Failure is caused by liquefaction triggered by rapid ground motion (associated with earthquakes). This type of landslide is unique because it can occur on gentle slopes or flat land.

History of Previous Hazard Events

The County has experienced several notable geological events over the years, underscoring the region's vulnerability to natural hazards, including landslides, rockfalls, and debris flows. Despite numerous

impacts to Mono County from landslides, there have been no federal and state disaster declarations since the prior plan update.

In May 1980, a series of earthquakes near the Town triggered widespread landslides and rockfalls. In areas like Convict and McGee Canyons, falling debris was reported to have partially or completely covered snowfields, and plumes of dust were visible across the Sierra Nevada following several quakes exceeding magnitude 4.5.

Outside the County, in Yosemite Valley, a rockfall linked to one of the earthquakes seriously injured two hikers. Another major event took place on August 9–10, 1989, when intense rainfall led to a flash flood and subsequent mudflow originating from the slopes of the White Mountains in the Tri-Valley Area. The flow, laden with debris, crossed US 6 and extended into Spring Canyon Creek, ultimately causing additional flooding in Chalfant Valley. Heavy rainfall events have also triggered numerous debris flows and rockfalls that have temporarily shut down key transportation routes. For instance, in March 1995, a combination of rockfall and mudslides forced the closure of US 395 from the Nevada state line to Bridgeport. More recently, areas west of Mono Lake have seen repeated mudslide-related road closures, including incidents along Lundy Lake Road in July 2014 and July 2018, as well as on Tioga Pass Road (SR 120) in July 2015, October 2016, and July 2018. These recurring events highlight the need for ongoing geologic hazard awareness and infrastructure resilience in the County.

One significant event occurred on July 31, 2018. A sudden rainstorm dropped over 4 inches upstream, triggering mudslides along Highway 158 between Silver Lake and Grant Lake, shutting down the June Lake Loop. Although the mudslides had no direct impact to the ski resort grounds, it affected access to the property and required cleanup before traffic could resume.

According to the California Department of Conservation, a landslide occurred on January 17, 2023, when a slide blocked access to Swall Meadows Road from the north. California Highway Patrol confirmed multiple slides across the roadway.[166] One July 8, 2021, rockfall impacted a campsite during an earthquake. July 31, 2021 a debris flow was supported southwest of Coleville, CA. On February 7, 2025, California Highway Portal reported a rockslide impacting half of the southbound lane on US 395, mile marker 101.5. One June 3, 2025, a mudslide approximately 1.5 feet thick blocked the southbound lanes at US 395 and reverse curve.

Probability of Future Hazard Events

Rockfalls and mudflows are frequent events in the Eastern Sierra, occurring annually (100% annual chance of occurrence). While the exact probability of geological hazards in specific areas is uncertain, landslide risks are expected to remain most significant in regions identified as highly susceptible. The risk of alluvial

[166] California Department of Conservation. "Reported California Landslides Database." https://cadoc.maps.arcgis.com/apps/webappviewer/index.html?id=bc48ad40e3504134a1fc8f39096590 41&_gl=1*1prdggf*_ga*MTM0Mjk0NjM2My4xNzM1NjQ4MjQx*_ga_N4MB98DBXY*MTc0NDEyMjY3MC4zLjAuMTc0NDEyMjY3MC4wLjAuMA

fan flows will continue along the mountain range bases in the County. The geological conditions that have historically contributed to landslide events in the County are anticipated to remain unchanged; therefore, the hazard is considered to have a high likelihood of occurrence in the planning area.

CLIMATE CHANGE CONSIDERATIONS

Climate change has the potential to increase the frequency and intensity of storms affecting California, which could subsequently lead to a rise in moisture-related landslides, especially those associated with alluvial fans. Warmer temperatures and prolonged drought periods resulting from climate change may reduce soil cohesion, rendering the soil more unstable and elevating the risk of landslides. More frequent and extensive wildfires may also result in larger areas of burn scars, which are more susceptible to landslides.

Vulnerability

The County is highly vulnerable to landslides due to its diverse climate and topography. The region's steep, hilly terrain and the presence of active faults make it susceptible to ground shaking and ground failure, which can trigger landslides. The County also experiences frequent seismic activity, including earthquakes that can destabilize slopes and lead to rockfalls and mudflows.

Certain populations may face unique challenges when it comes to landslides. Backcountry enthusiasts are at risk because of their exposure to this hazard. Tourists are also at risk, especially those who may be unfamiliar with the local geography and hazards. Visitors engaging in outdoor activities such as hiking, skiing, or sightseeing in mountainous areas can be caught off guard by sudden landslides. Ensuring that tourists have access to accurate information, early warning systems, and emergency response plans is crucial to minimizing their risk and enhancing their safety while visiting the County.

Impacts

The impacts and losses due to landslides in the County can be significant. Landslides can cause extensive damage to infrastructure, including roads, bridges, and utilities, leading to costly repairs and disruptions in transportation and communication networks. Residential and commercial properties in landslide-prone areas are at risk of damage or destruction, which can result in substantial financial losses for property owners and businesses. Landslides can pose serious threats to public safety, potentially causing injuries or fatalities. The environmental impact of landslides includes the alteration of natural landscapes, destruction of habitats, and increased sedimentation in water bodies, which can affect water quality and aquatic ecosystems.

Changes in Development

The management of landslide hazards in the County and the Town has been significantly influenced by the implementation of stringent building regulations and proactive planning measures. The County adheres to the California Building Standards Code, which mandates comprehensive geological

assessments prior to construction, the incorporation of retaining walls, effective drainage systems, and other engineering solutions designed to stabilize slopes and mitigate soil erosion. These regulations aim to enhance the resilience of new constructions against landslide risks.

The Mono County General Plan includes policies that restrict development in high-risk areas and promote land use practices that diminish the likelihood of landslides. These initiatives contribute collectively to safeguarding structures, protecting residents, and preserving the natural landscape from the detrimental effects of landslides.

Severe Wind

Hazard Description

Severe winds are characterized by sustained wind speeds of 40 miles per hour (mph) or greater lasting for an hour or more, or by wind speeds of 58 mph or higher for any duration. The genesis of wind involves differences in air pressure and the uneven heating of the Earth's surface resulting in the horizontal movement of air.

Damaging winds, which can arise from various meteorological phenomena include straight-line winds, downdrafts, macrobursts, microbursts, downbursts, gust fronts, derechos, and haboobs. Straight-line winds are thunderstorm winds not associated with rotation, setting them apart from tornado-related winds. Downdrafts are small-scale air columns that rapidly descend toward the ground. Macrobursts, characterized by horizontal dimensions greater than 4 km, occur when strong downdrafts reach the surface causing widespread damage similar to tornadoes. Microbursts, smaller and short-lived, produce concentrated bursts of strong winds with maximum speeds exceeding 100 mph. They can be wet, accompanied by heavy precipitation, or dry, with minimal precipitation. Downbursts are a general term for both macrobursts and microbursts, referring to strong localized wind events caused by thunderstorm downdrafts. Gust fronts, formed by the leading edge of rain-cooled air, clash with warmer thunderstorm inflows, often creating gusty winds and temperature drops. Derechos are extensive, long-lived windstorms associated with fast-moving showers or thunderstorms characterized by widespread wind damage over vast areas. Haboobs are walls of dust driven by thunderstorm downdrafts moving at high speeds across the ground.

Severe structural damage directly caused by severe winds is relatively uncommon. However, minor damage is pervasive and notably contributes to power outages. Such outages can lead to major adverse impacts, including an increased likelihood of traffic accidents, heightened fire vulnerability, food spoilage, and various other losses due to the lack of power. Severe winds can also cause trees and limbs to fall, damaging vehicles and buildings, and flying debris can pose dangers to individuals caught unsheltered during storms.

CASCADING HAZARDS

Severe winds can trigger a chain reaction of cascading hazards that compound the overall impact on communities. The following are some of the hazards that can occur:

- **Downed Powerlines:** Strong winds can knock down power lines, leading to widespread power outages and posing the risk of electrical fires.
- **Wildfires:** Downed power lines and the friction of wind against dry vegetation can ignite wildfires, which can rapidly spread and cause extensive damage.
- **Structural Damage:** High winds can cause significant damage to buildings, trees, and infrastructure, increasing the risk of further debris hazards and secondary damage.
- **Hazardous Road Conditions:** Fallen trees and power lines, as well as flying debris, can create hazardous road conditions, leading to accidents and necessitating road closures.

Location

In the County, severe wind events have the potential to occur in a variety of locations, including in both the unincorporated County and Town. More specific areas of concern include Crowley Lake, Coleville, Lee Vining, Swall Meadows, US 395, and US 6. Both Caltrans and the California Highway Patrol proactively implement highway closures and restrictions on high-profile vehicles to mitigate the risks posed by severe wind conditions to vehicular safety and traveler wellbeing. This demonstrates the high-risk of severe winds in this area.

Extent

The extent of severe wind can be classified using the Beaufort Wind Scale, which was first developed by Sir Francis Beaufort. This scale aids in determining relative force and wind speed based on the appearance of wind effects (see Table 91).

Table 91: Beaufort Wind Scale[167]

Force	Wind Speed (mph)	WMO Classification	Appearance of Wind Effects on Land
1	1–3	Light Air	Smoke drifts indicate wind direction, still wind vanes
2	4–7	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8–12	Gentle Breeze	Leaves and small twig constantly moving, light flags extended
4	13–17	Moderate Breeze	Dust, leaves, and loose paper lifted; small tree branches move

[167] NOAA National Weather Service Beaufort Wind Scale, www.weather.gov. https://www.weather.gov/tbw/beaufort

Force	Wind Speed (mph)	WMO Classification	Appearance of Wind Effects on Land
5	18–24	Fresh Breeze	Small trees and leaves begin to sway
6	25–30	Strong Breeze	Larger tree branches moving, whistling in wires
7	31–38	Near Gale	Whole trees moving, resistance felt walking against the wind
8	39–46	Gale	Twigs breaking off trees, generally impedes progress
9	47–54	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55–63	Storm	Seldom experienced on land, trees broken or uprooted, considerable structure damage
11	54–73	Violent Storm	N/A
12	74+	Hurricane	N/A

History of Previous Hazard Events

The National Centers for Environmental Information (NCEI) Storm Events Database identified 319 severe wind occurrences within the County and the Town since 1996. Since the last plan update, there have been 149 severe wind events, but no state or federal disaster declarations for severe winds. Table 92 provides a brief overview of the severe wind events since the last plan update.

Table 92: Severe Wind Events Since the Last Plan Update[168]

Date	Magnitude (knots)	Type	Fatality	Injury	Property Damage	Crop Damage
1/4/2020	76	High Wind	0	0	$0	$0
1/4/2020	61	High Wind	0	0	$0	$0
1/14/2020	56	High Wind	0	0	$0	$0
1/14/2020	88	High Wind	0	0	$0	$0
1/14/2020	88	High Wind	0	0	$0	$0
1/14/2020	64	High Wind	0	0	$0	$0
1/14/2020	69	High Wind	0	0	$0	$0
1/14/2020	69	High Wind	0	0	$0	$0
1/14/2020	52	High Wind	0	0	$0	$0
1/14/2020	52	High Wind	0	0	$0	$0
1/14/2020	60	High Wind	0	0	$0	$0

[168] National Centers for Environmental Information. "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/.

Date	Magnitude (knots)	Type	Fatality	Injury	Property Damage	Crop Damage
1/14/2020	52	High Wind	0	0	$0	$0
1/14/2020	65	High Wind	0	0	$0	$0
1/14/2020	65	High Wind	0	0	$0	$0
1/14/2020	72	High Wind	0	0	$0	$0
1/16/2020	53	High Wind	0	0	$0	$0
1/16/2020	55	High Wind	0	0	$0	$0
1/16/2020	97	High Wind	0	0	$0	$0
1/16/2020	58	High Wind	0	0	$0	$0
1/16/2020	58	High Wind	0	0	$0	$0
1/16/2020	88	High Wind	0	0	$0	$0
1/16/2020	55	High Wind	0	0	$0	$0
1/17/2020	74	High Wind	0	0	$0	$0
2/2/2020	52	High Wind	0	0	$0	$0
2/2/2020	55	High Wind	0	0	$0	$0
2/2/2020	55	High Wind	0	0	$0	$0
2/2/2020	54	High Wind	0	0	$0	$0
2/2/2020	56	High Wind	0	0	$0	$0
2/2/2020	51	High Wind	0	0	$0	$0
2/2/2020	51	High Wind	0	0	$0	$0
2/2/2020	56	High Wind	0	0	$0	$0
2/2/2020	62	High Wind	0	0	$0	$0
2/2/2020	63	High Wind	0	0	$0	$0
2/2/2020	54	High Wind	0	0	$0	$0
2/2/2020	115	High Wind	0	0	$0	$0
2/2/2020	52	High Wind	0	0	$0	$0
2/2/2020	91	High Wind	0	0	$0	$0
2/2/2020	56	High Wind	0	0	$0	$0
2/2/2020	52	High Wind	0	0	$0	$0
2/8/2020	54	High Wind	0	0	$0	$0
2/8/2020	60	High Wind	0	0	$0	$0
2/9/2020	94	High Wind	0	0	$0	$0
2/9/2020	126	High Wind	0	0	$0	$0
2/29/2020	74	High Wind	0	0	$0	$0
2/29/2020	76	High Wind	0	0	$0	$0

Date	Magnitude (knots)	Type	Fatality	Injury	Property Damage	Crop Damage
2/29/2020	55	High Wind	0	0	$0	$0
2/29/2020	53	High Wind	0	0	$0	$0
3/14/2020	90	High Wind	0	0	$0	$0
11/13/2020	63	High Wind	0	0	$0	$0
11/17/2020	80	High Wind	0	0	$0	$0
12/13/2020	83	High Wind	0	0	$0	$0
12/25/2020	80	High Wind	0	0	$0	$0
1/4/2021	94	High Wind	0	0	$0	$1,000
1/18/2021	103	High Wind	0	0	$0	$0
2/3/2021	95	High Wind	0	0	$0	$0
2/20/2021	75	High Wind	0	0	$0	$0
2/26/2021	51	High Wind	0	0	$0	$0
3/6/2021	86	High Wind	0	0	$0	$0
3/8/2021	52	High Wind	0	0	$0	$0
4/13/2021	59	High Wind	0	0	$0	$0
4/24/2021	76	High Wind	0	0	$0	$0
9/18/2021	48	Strong Wind	0	0	$0	$0
10/11/2021	78	High Wind	0	0	$0	$0
10/18/2021	68	High Wind	0	0	$0	$0
10/25/2021	138	High Wind	0	0	$0	$0
11/4/2021	54	High Wind	0	0	$0	$0
12/23/2021	92	High Wind	0	0	$0	$0
12/25/2021	85	High Wind	0	0	$0	$0
1/4/2022	72	High Wind	0	0	$0	$0
1/21/2022	104	High Wind	0	0	$0	$0
1/25/2022	60	High Wind	0	0	$0	$0
2/2/2022	96	High Wind	0	0	$0	$0
2/14/2022	72	High Wind	0	0	$0	$0
2/14/2022	60	High Wind	0	0	$0	$0
2/21/2022	55	High Wind	0	0	$0	$0
3/13/2022	90	High Wind	0	0	$0	$0
3/13/2022	95	High Wind	0	0	$0	$0
3/27/2022	51	High Wind	0	0	$0	$0
4/4/2022	57	High Wind	0	0	$0	$0

Date	Magnitude (knots)	Type	Fatality	Injury	Property Damage	Crop Damage
4/11/2022	87	High Wind	0	0	$0	$0
4/14/2022	58	High Wind	0	0	$0	$0
4/16/2022	85	High Wind	0	0	$0	$0
4/19/2022	76	High Wind	0	0	$0	$0
4/21/2022	53	High Wind	0	0	$0	$0
5/2/2022	79	High Wind	0	0	$0	$0
5/6/2022	60	High Wind	0	0	$0	$0
5/6/2022	68	High Wind	0	0	$0	$0
5/8/2022	54	High Wind	0	0	$0	$0
5/8/2022	60	High Wind	0	0	$0	$0
5/8/2022	91	High Wind	0	0	$0	$0
5/28/2022	64	High Wind	0	0	$0	$0
6/12/2022	97	High Wind	0	0	$0	$0
6/17/2022	53	High Wind	0	0	$0	$0
10/22/2022	64	High Wind	0	0	$0	$0
11/1/2022	70	High Wind	0	0	$0	$0
11/7/2022	61	High Wind	0	0	$0	$0
11/30/2022	64	High Wind	0	0	$0	$0
12/1/2022	86	High Wind	0	0	$0	$0
12/10/2022	85	High Wind	0	0	$0	$0
12/26/2022	66	High Wind	0	0	$0	$0
12/30/2022	101	High Wind	0	0	$0	$0
1/8/2023	100	High Wind	0	0	$0	$0
1/22/2023	86	High Wind	0	0	$0	$0
1/29/2023	56	High Wind	0	0	$0	$0
2/4/2023	103	High Wind	0	0	$0	$0
2/11/2023	60	High Wind	0	0	$0	$0
2/14/2023	110	High Wind	0	0	$0	$0
2/21/2023	103	High Wind	0	0	$0	$0
2/27/2023	90	High Wind	0	0	$0	$0
3/10/2023	67	High Wind	0	0	$0	$0
3/10/2023	89	High Wind	0	0	$0	$0
3/13/2023	89	High Wind	0	0	$0	$0
3/28/2023	85	High Wind	0	0	$0	$0

Date	Magnitude (knots)	Type	Fatality	Injury	Property Damage	Crop Damage
4/2/2023	116	High Wind	0	0	$0	$0
4/17/2023	100	High Wind	0	0	$0	$0
6/6/2023	63	High Wind	0	0	$0	$0
6/8/2023	52	High Wind	0	0	$0	$0
6/18/2023	52	High Wind	0	0	$0	$0
6/19/2023	74	High Wind	0	0	$0	$0
7/27/2023	54	High Wind	0	0	$0	$0
9/1/2023	68	High Wind	0	0	$0	$0
10/25/2023	57	High Wind	0	0	$0	$0
11/6/2023	66	High Wind	0	0	$0	$0
11/15/2023	59	High Wind	0	0	$0	$0
11/19/2023	125	High Wind	0	0	$0	$0
12/6/2023	91	High Wind	0	0	$0	$0
1/6/2024	121	High Wind	0	0	$0	$0
1/10/2024	129	High Wind	0	0	$0	$0
1/13/2024	90	High Wind	0	0	$0	$0
1/17/2024	110	High Wind	0	0	$0	$0
1/20/2024	77	High Wind	0	0	$0	$0
1/31/2024	86	High Wind	0	0	$0	$0
2/4/2024	109	High Wind	0	0	$0	$0
2/14/2024	134	High Wind	0	0	$0	$0
2/19/2024	97	High Wind	0	0	$0	$0
2/26/2024	100	High Wind	0	0	$0	$0
2/29/2024	91	High Wind	0	0	$0	$0
3/1/2024	99	High Wind	0	0	$0	$0
3/5/2024	54	High Wind	0	0	$0	$0
3/11/2024	76	High Wind	0	0	$0	$0
3/14/2024	125	High Wind	0	0	$0	$0
3/22/2024	79	High Wind	0	0	$0	$0
3/27/2024	83	High Wind	0	0	$0	$0
4/3/2024	74	High Wind	0	0	$0	$0
4/13/2024	73	High Wind	0	0	$0	$0
5/4/2024	60	High Wind	0	0	$0	$0
8/2/2024	50	High Wind	0	0	$0	$0

Date	Magnitude (knots)	Type	Fatality	Injury	Property Damage	Crop Damage
9/2/2024	57	High Wind	0	0	$0	$0
9/11/2024	56	High Wind	0	0	$0	$0

Figure 70 shows the previous historic windstorms according to the NOAA NWS Storm Prediction Center Severe Weather GIS (SVRGIS). These wind events do not reflect the entire history of high winds in the County in part because GIS data was not available at the time of the plan update for many recorded events. This data limitation indicates that federal datasets may underestimate the prevalence of high winds in the County. The plan participants also believed that the NRI underestimated wind risk in the County. According to what GIS coordinates are available, previous windstorms have been pretty spread out across the planning area.

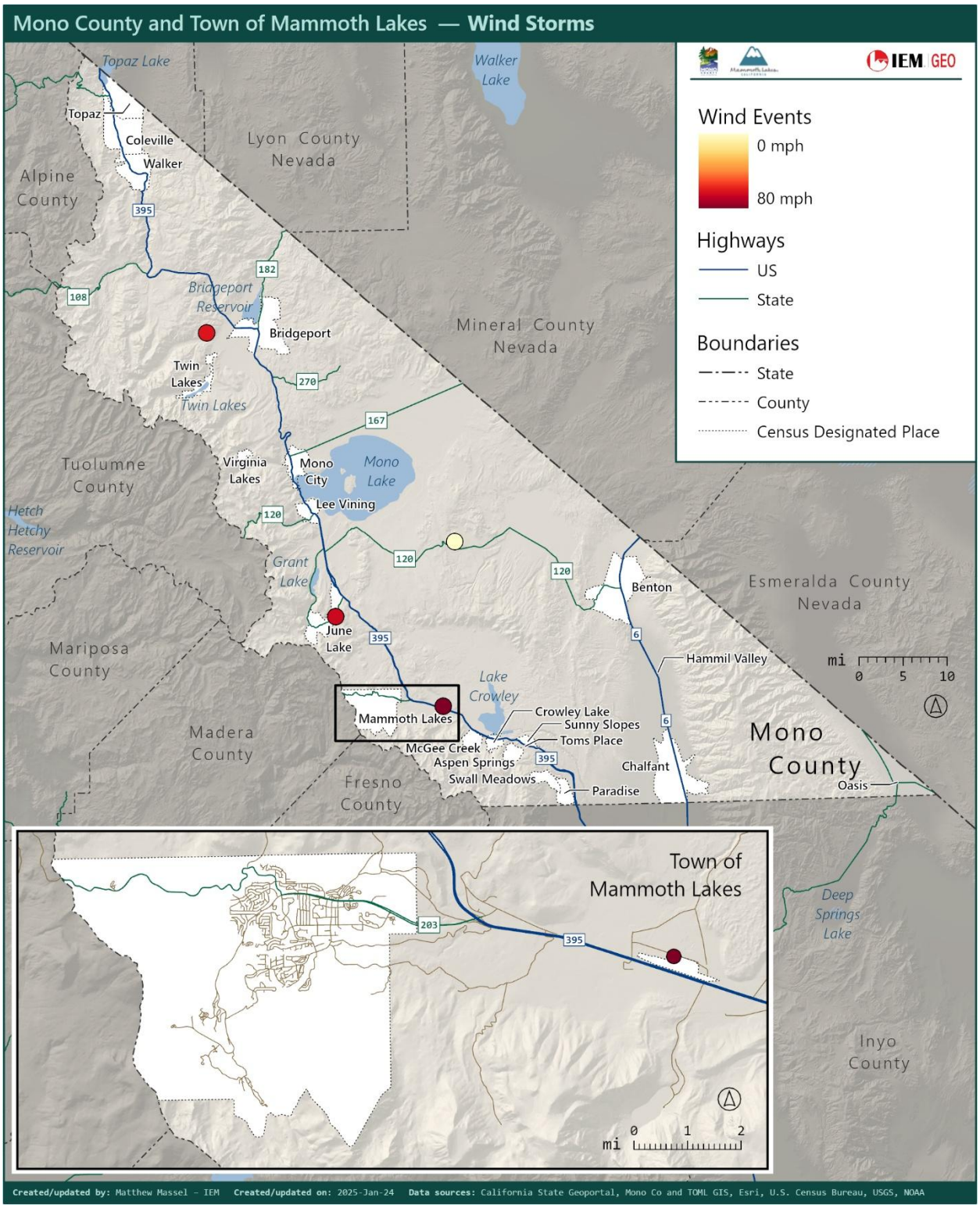


Figure 70: Mono County and Town of Mammoth Lakes - Wind Storms

Beyond road closures, severe winds can also lead to downed power lines, which can have significant consequences. For example, on February 6, 2015, severe winds caused power lines to fall, which ignited

the Round Fire. This event prompted the declaration of a state of emergency in the County as fires spread consuming thousands of acres and destroying over 40 structures, including residential buildings. Another severe wind event also was documented in Reds Meadow just across the Madera County line, resulting in thousands of downed trees. Road closures along US 395 and US 6 due to high winds can severely limit mobility within the County. In the Town, severe wind events can result in road closures and downed power lines or trees. Severe wind events can also have an impact on crops. On January 4, 2021, high winds caused approximately $1,000 in damage to crops while also snapping two-foot diameter trees near June Lake Fire Department.

Probability of Future Hazard Events

The NCEI Storm Events Database identified 319 severe wind occurrences within the County planning area since 1996 resulting in a 100% annual chance of occurrence with approximately 11 significant events every year.

CLIMATE CHANGE CONSIDERATIONS

Climate change is anticipated to intensify severe wind events in regions such as the County and the Town. Rising global temperatures can alter atmospheric pressure patterns, leading to an increase in the frequency and intensity of severe wind events. This heightened wind activity poses significant risks to the local infrastructure, ecosystems, and communities, necessitating proactive planning and adaptive measures.

In the County, severe winds can exacerbate the already vulnerable conditions of wildfire-prone areas. Increased wind speeds can fan the flames of existing fires and help the spread of new ones making fire management and emergency response more challenging. Additionally, stronger winds can contribute to more frequent and severe downed power lines, posing both immediate hazards and long-term disruptions to the electrical grid and essential services. For communities like the Town, the impact of severe winds is compounded by the region's reliance on winter tourism. Extreme wind events can lead to hazardous conditions for outdoor activities such as skiing and snowboarding, disrupting the local economy that depends heavily on these winter sports. Infrastructure in tourist areas, such as lifts and lodges, may be at greater risk of damage from high winds as events become more frequent.

Vulnerability

The County and the Town are particularly susceptible to severe wind hazards due to their complex topography, diverse climate, and exposed mountainous ridgelines. Located in the Eastern Sierra, the area frequently experiences intense downslope wind events—such as the Mono Winds—as well as high-elevation gusts. These conditions are especially common during transitional seasons and winter storms, presenting unique challenges to safety and stability across the region.

High wind events in this area pose significant threats to public safety. Residents, outdoor workers, and visitors can face dangerous conditions, particularly when engaged in recreational or travel-related

activities. Flying debris, falling trees, and structural failures increase the risk of serious injury or fatalities, especially in high-traffic or forested areas. Tourists unfamiliar with local weather patterns may be especially vulnerable to sudden wind shifts and storm intensification.

In terms of structures and property, older homes, mobile housing, and temporary installations such as fences, signage, and sheds are at high risk for damage during severe wind events. Commercial buildings are also susceptible to wind-related impacts, including façade damage and interrupted operations resulting from blocked access points or power outages.

Essential infrastructure throughout the County is equally vulnerable. Electrical systems—including overhead lines, transformers, and substations—may suffer damage leading to extended power outages. Key transportation routes like US 395, which serves as a vital north–south corridor, are exposed to wind-prone zones that can result in dangerous driving conditions, accidents, and closures. Blowing snow or dust can further impair visibility, compounding the risks.

Critical communication systems, including cellular and satellite infrastructure, can also be disrupted by high winds, potentially interfering with emergency response coordination. Community lifelines—such as energy supply, emergency services, healthcare, water, wastewater, and transportation—can all experience cascading effects when severe wind events occur. For example, power losses may hinder heating during winter or disable essential medical equipment, while road blockages and grounded medical aircraft can delay emergency services.

Tourism and outdoor recreation, which are vital to the Town's economy, are particularly impacted by wind hazards. Facilities such as ski lifts, hiking trails, campgrounds, and other outdoor amenities may be forced to close due to safety concerns. Additionally, backcountry visitors caught in unexpected windstorms may face life-threatening conditions if adequate shelter or emergency assistance is not readily accessible.

Impacts

Since 1996, the NCEI Storm Events Database estimates there have been $1,000 in damage to crops and no injuries/fatalities as a result of 319 severe wind occurrences within the County planning area. This equates to approximately $3.13 in estimated severe wind damage per event. The following is a breakdown of property and crop damage along with injuries and fatalities as a result of severe wind occurrences recorded in the NCEI Storm Events Database since the last plan update.

All critical facilities are considered potentially vulnerable to severe winds. Most newer structures in the planning area are built to withstand 90 mph wind gusts, but older structures and vehicles on are typically at the greatest risk. The historic County courthouse building constructed in 1880 has been retrofitted to better withstand severe wind and weather events, but it is still at risk.

In the County and the Town, certain populations are particularly vulnerable to severe wind events due to a combination of socioeconomic factors and the characteristics of their housing. The elderly, individuals with disabilities, lower-income residents, and those with limited English proficiency often face heightened risks during such hazards. These groups may have reduced access to resources and support systems

essential for effective preparation and recovery. Challenges such as limited transportation options, financial constraints preventing the acquisition of emergency supplies, and language barriers can further exacerbate their susceptibility.

Housing quality significantly influences vulnerability. Structures built before the adoption of modern building codes may not be designed to withstand severe wind conditions, placing their occupants at greater risk. In the County, there are approximately 13,632 housing units, with an average household size of 2.3 persons. While specific data on the number of older structures is limited, it is reasonable to infer that a portion of these units may have been constructed prior to the implementation of contemporary building standards. Residents of such dwellings, particularly those lacking the financial means for renovations or relocation, face increased exposure to wind-related hazards.[169]

Changes in Development

In the County and the Town, development patterns have remained relatively stable in recent years, with no significant urbanization or expansion into previously undeveloped areas. The region has seen modest growth, including projects like the Sierra Nevada Resort expansion and the construction of affordable housing units. However, these developments are primarily low-rise structures that align with the area's existing architectural character and do not substantially alter the community's exposure to severe wind hazards. The risk profile concerning wind-related events has not experienced notable changes due to development activities.

Severe Winter Weather and Snow

Hazard Description

Severe winter weather encompasses heavy snowfall, freezing rain, ice, sleet, and blizzards. These storms vary in intensity and size, posing significant risks, especially when accompanied by extremely cold temperatures and strong winds. Heavy snowfall or ice accumulation can cause roofs and power lines to collapse, resulting in prolonged power outages. Poor visibility and treacherous road conditions make driving hazardous for both motorists and first responders. Those without adequate shelter during these storms are at risk of frostbite, hypothermia, or even death.

Table 93: Warning and Advisory Thresholds for Winter Weather from National Weather Service Reno

Type	Condition
Winter Storm Warning	• Snow › 4 inches or more in 12 hours › 6 inches or more in 24 hours

[169] Census Reporter. "Mono County, CA." https://censusreporter.org/profiles/05000US06051-mono-county-ca/.

Type	Condition
	• Freezing rain and sleet › Ice accumulation of 0.25 inches or more
Blizzard Warning	Sustained winds or frequent gusts of ≥ 35 mph and considerable falling and/or blowing snow, frequently reducing visibility to < 1/4 mile for ≥ three hours. Blizzard conditions need to be the predominant condition over a three-hour period.
Ice Storm Warning	0.25 inches or greater of ice accumulation in 12 hours.

Winter Weather Advisory	• Snow
	  › 1–3 inches in 12 hours
	• Freezing rain and sleet
	  › Ice accumulation of less than 0.25 inches
	• Forecaster's discretion
	  › A National Weather Service forecaster can issue a Winter Weather Advisory at their discretion, even if criteria are not fully met, if a forecasted event may impact the region.

Extreme cold events occur when temperatures plunge significantly below historical averages. In the County, freezing temperatures are relatively common, and residents are generally prepared, reducing the risk until temperatures drop much lower. Such events can accompany other severe weather conditions, like blizzards or ice storms, but can also occur on sunny days.

The National Weather Service (NWS) defines heavy snowfall as an accumulation of 4 inches or more within a 12-hour period, or 6 inches or more within a 24-hour period. A snow squall, is a brief but intense event characterized by moderate to heavy snow, strong and gusty winds, and occasionally lightning. Snowstorms are intricate events involving a combination of heavy snow and winds, with their impact influenced by various factors such as regional climate susceptibility, snowfall amounts and rates, wind speeds, temperatures, visibility, storm duration, topography, and timing (including time of day and season). Significant snowfall events can lead to widespread economic, transportation, and infrastructure impacts, among other consequences.

Sleet consists of ice pellets formed from frozen or mostly frozen raindrops or refrozen partially melted snowflakes. These pellets typically bounce upon hitting the ground or hard surfaces. Freezing rain falls as liquid but forms a glaze of ice when it contacts surfaces below 32°F. Both forms of precipitation, even in small amounts, pose significant hazards to communities. An ice storm is characterized by freezing rain that results in the accumulation of at least 0.25 inches of ice. Major ice accumulations can bring down trees and utility lines, causing power and communication outages. These icy conditions also make walking and driving extremely perilous, posing serious dangers for motorists and pedestrians alike.

CASCADING HAZARDS

Severe winter weather can trigger a chain reaction of cascading hazards that compound the overall impact on communities. The following are some of the hazards:

- **Power Outages**: Heavy snow, ice accumulation, and high winds can bring down power lines and utility poles, leading to extended power outages. Without electricity, heating systems fail, increasing the risk of hypothermia and other cold-related health issues.
- **Transportation Disruptions:** Snow and ice create hazardous driving conditions, causing accidents and road closures. Public transportation can also be severely affected, leading to delays or cancellations. These disruptions impede emergency response efforts and can leave people stranded.
- **Infrastructure Damage:** Buildings, roads, and bridges can suffer damage from the weight of snow and ice as well as from freeze-thaw cycles. This damage can weaken structures, leading to potential collapses and costly repairs.
- **Health Risks:** Exposure to extreme cold can cause frostbite, hypothermia, and other health problems. Increased use of heating devices can lead to carbon monoxide poisoning if an area is not properly ventilated.
- **Water Supply Issues:** Freezing temperatures can cause water pipes to burst, disrupting the water supply and leading to flooding. This can compromise both drinking water availability and sanitation.

Location

Severe winter storms and snow are expected to impact both the unincorporated County and the Town. No single part of the County, including the Town, is significantly more or less at risk, though some areas might be more affected than others.

Severe winter storms occur throughout the County, particularly along the eastern slope of the Sierra Nevada, in the western part of the County, and at higher elevations. These storms, which can lead to road closures, power outages, school closures, and avalanche risks, may involve heavy snow, whiteout conditions, or ice storms. Developed areas may face hazards from snow and ice shedding. Snow sliding toward pedestrian areas, parking lots, or other structures poses significant risks. Excessive snowfall and significant snow accumulation can obstruct and stress propane lines and roof vents, potentially leading to dangerous carbon monoxide buildup.

Extent

The extent of severe winter weather can be classified using meteorological measurements and by evaluating its societal impacts. The NWS's Winter Storm Severity Index (WSSI) is a tool designed to predict the potential impacts of winter storms across the continental United States. The WSSI provides information on possible winter storm impacts in an area, including damage to trees and property.

Table 94: Winter Storm Severity Index[170]

Impacts	Potential Winter Storm Impacts
Minor	• Expect a few inconveniences to daily life. › Winter driving conditions. Use caution while driving.
Moderate	• Expect disruptions to daily life. › Hazardous driving conditions. Use extra caution while driving. › Closure and disruptions to infrastructure may occur.
Major	• Expect considerable disruptions to daily life. › Dangerous or impossible driving conditions. Avoid travel if possible. › Widespread closures and disruptions to infrastructure may occur.
Extreme	• Expect substantial disruptions to daily life. › Extremely dangerous or impossible driving conditions. Travel is not advised. › Extensive and widespread closures and disruptions to infrastructure may occur. › Life-saving actions may be needed.

Just as extreme heat is influenced by air temperature and humidity, extreme cold is determined by air temperature and wind, commonly referred to as wind chill. For instance, a temperature of 10°F can feel like 1°F with 5 mph winds but can drop to a perception of -20°F with wind speeds of 50 mph or higher. NWS indicates that frostbite can occur within 30 minutes when the wind chill is below -18°F. This can happen with air temperatures as high as 10°F if combined with 55 mph winds, or with temperatures as low as -10°F, even in 5 mph winds.

[170] Weather Prediction Center, "The Winter Storm Severity Index." https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php

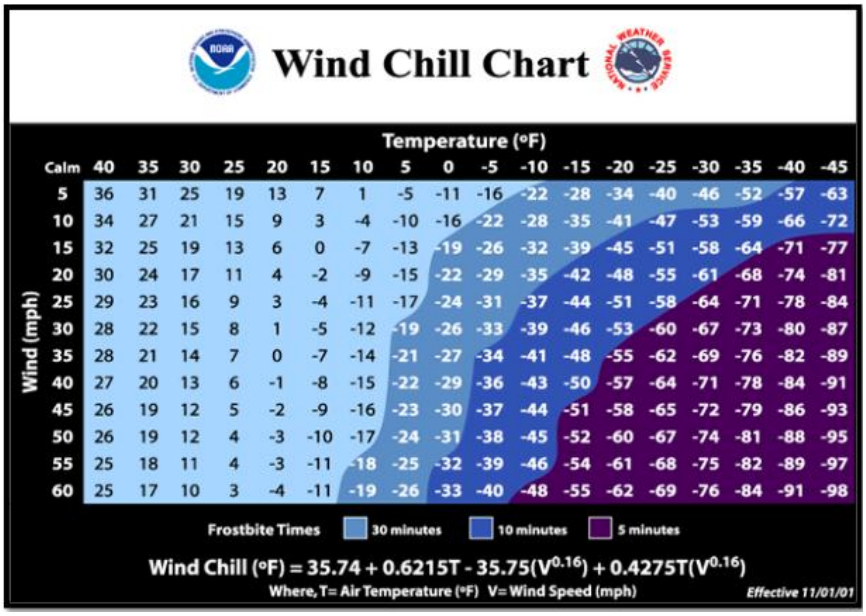


Figure 71: Wind Chill Temperature Index and Frostbite Risk[171]

History of Previous Hazard Events

The National Centers for Environmental Information (NCEI) Storm Events Database identified 70 severe winter weather occurrences in the County and the Town since 1996. Since the last plan update, there have been 24 significant severe winter weather events in the planning area. Table 95 provides a brief overview of each storm and the type.

Table 95: Severe Winter Weather Events Since the Last Plan Update[172]

Date	Type	Location	Description
3/1/2020	Winter Weather	Mono County	7–8 inches of snowfall fell overnight from the evening of February 29 to the morning of March 1 at MMSA.
11/8/2020	Winter Weather	Mono County	Variable snowfall across the Eastern Sierra. Heavy snow near Topaz Lake with 12 inches. 8–9 inches near Mammoth Mountain. Dusting to 2 inches elsewhere in the County closer to US 395 and Bodie.
12/11/2020	Winter Weather	Mono County	Generally, 1–3 inches of snow fell across southern Mono County above 8,000 feet from Bodie south to Mammoth Mountain.

[171] National Weather Service, "Understanding Wind Chill." https://www.weather.gov/safety/cold-wind-chill-chart
[172] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/

Date	Type	Location	Description
12/13/2020	Winter Weather	Mono County	Variable snowfall across the Eastern Sierra. Heavier snow near Mammoth Mountain with 8–12 inches. Dusting to 2 inches elsewhere in the County closer to US 395 and Bridgeport.
12/16/2020	Winter Weather	Mono County	6–8 inches of snow fell at MMSA.
12/25/2020	Winter Weather	Mono County	MMSA measured 2–3 inches of snow at their base elevation.
12/27/2020	Winter Weather	Mono County	A dusting of snow fell near Bridgeport, with 6–12 inches of snow accumulating along the central Sierra crest at June Mountain and MMSAs. Near Toms Place, 2–6 inches fell west of US 395.
1/4/2021	Winter Weather	Mono County	Light snow fell at MMSA Jan. 4 into the early morning hours of Jan. 5 with 4 inches measured at the base of the resort.
1/22/2021	Winter Weather	Mono County	At MMSA, 2–3 inches of snow fell.
1/24/2021	Winter Weather	Mono County	MMSA reported 6–7 inches of snowfall overnight from the Jan. 24 into the morning of Jan. 25.
1/27/2021	Blizzard	Mono County	Up to 76 inches of snowfall was reported at Mammoth Mountain. Snow totals across the County were generally 3–6 feet. US 395 was closed from Bishop to the Nevada State Line due to blizzard conditions and avalanche danger for the duration of the event. CA 203 was briefly closed near the Town the morning of Jan. 27. June Mountain ski area closed due to blizzard conditions. Wind gusts were strong at times with gusts at 45–50 mph. Sierra ridge gusts near Mammoth Mountain were as high as 80 mph.
3/11/2021	Winter Weather	Mono County	Snow showers brought 1–3 inches snowfall to US 395 communities in the eastern Sierra, with 4 inches at Bodie and 6 inches at Mammoth Mountain.
3/14/2021	Winter Weather	Mono County	Ski areas reported 2–7 inches new snowfall.
3/19/2021	Winter Weather	Mono County	Snowfall mainly impacted the ski areas of the Eastern Sierra with 4 inches at June Mountain and 14 at Mammoth Mountain by the morning of Mar. 20.

Date	Type	Location	Description
2/14/2022	Winter Storm	Mono County	At 9:29 p.m. PST, Caltrans issued a high-profile vehicle prohibition for all of the County due to high winds. At 12:15 a.m. PST, California Highway Patrol was notified of an overturned semi-truck in the center ditch going southbound on US-395 just south of Lake Crowley. At 12:10 a.m. a utility company's anemometer (ID: SE445), immediately to the south of the highway, measured sustained winds out of the SW of 41 mph with a gust to 62 mph.
4/19/2022	Winter Weather	Mono County	Law enforcement reported a camper shell was partially blown off a Toyota Tundra truck due to high winds on US 395 near Bridgeport, CA.
11/1/2022	Winter Storm	Mono County	The public located at the base elevation of the MMSA reported a 24 hour storm total snowfall of 6.0 inches.
2/27/2023	Blizzard	Mono County	Mammoth Lakes Airport peaked out with gusts of 62 mph, heavy snow, and visibility less than one quarter mile at 3:30 a.m.
3/5/2023	Winter Weather	Mono County	The public located at the MMSA base reported a major power outage across the region.
11/18/2023	Winter Weather	Mono County	The public located at MMSA base reported a 24 hour snowfall amount of 6–7 inches from the main lodge to the summit. There was a 48 hour storm-total snowfall amount of 8–10 inches.
1/6/2024	Winter Weather	Mono County	The public located at MMSA Main Lodge reported storm total snowfall of 9 inches at the Main Lodge, and 11 inches at the summit height.
1/21/2024	Winter Weather	Mono County	The public located at the June Mountain Ski Area base, and MMSA base reported 48-hour storm total snowfall amounts of 11 inches and 10 inches, respectively.
2/7/2024	Winter Weather	Mono County	The public located at the June Mountain Ski Area base and the MMSA base, reported 24-hour storm total snowfall amounts of 9 inches and 7 inches, respectively.

Date	Type	Location	Description
3/3/2024	Winter Weather	Mono County	A trained spotter located 5 miles WSW of June Lake Mountain Ski Area reported a 24-hour snowfall of 10 inches.
12/24/2025–12/31/2025	Winter Storm	Mono County	Heavy snow of 1–3 ft above 8,000 ft and 2–12 in below 8,000 ft, along with high winds up to 100 mph, occurred. Multi-day power outages and impacts to June Lake PUD's services were experienced. Heat and essential services were impacted. Three warming centers were opened.

The 2022–2023 winter storms timeline details a series of escalating events in the Town, highlighting the Town's emergency response efforts amid historic snowfall levels. The crisis began in late December 2022, prompting the opening of a warming center. By mid-January, the County declared an emergency, followed by NWS warnings in February for blizzards and avalanches. In early March, the Town issued its own emergency proclamation, followed by disaster declarations by both the state and federal agencies (DR-4683), including CAL FIRE and FEMA mobilizing to assist. Snow trucking operations began in mid-March as structural collapses and propane explosions heightened safety concerns. Evacuation warnings were issued, and shelters were established to support displaced residents.

As the season progressed, financial relief efforts were launched, including Small Business Administration (SBA) disaster loans and a Snow Removal Emergency Fund. By April, propane-related explosions intensified concerns, while business recovery programs and federal assistance were implemented. By mid-May, FEMA expanded its disaster declaration to aid affected residents, and a disaster recovery center was established to support economic recovery. The timeline underscores the Town's multiagency coordination and resilience in managing a prolonged and severe winter emergency.[173]

[173] Town of Mammoth Lakes, 2024, "22/23 Winter Storms After-Action Report (AAR)." https://www.townofmammothlakes.ca.gov/DocumentCenter/View/14208/MammothLakes_WinterStorms-AAR_FinalDraft_052624



Figure 72: 2022–2023 Winter Storm Photographs in the Town of Mammoth Lakes

Figure 73 shows the locations of historic severe winter storms recorded in the NCEI Storms Database.

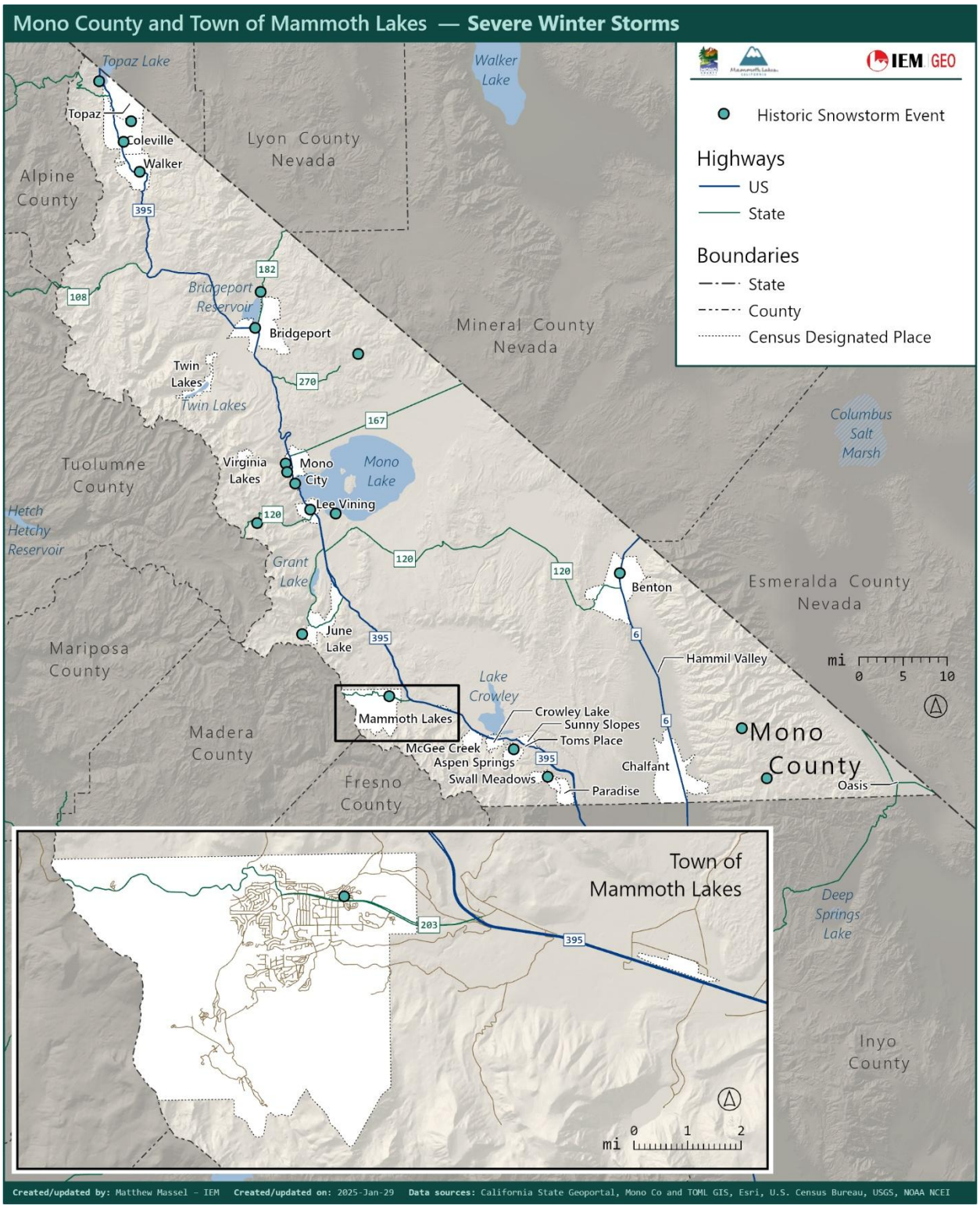


Figure 73: Mono County and Town of Mammoth Lakes - Severe Winter Storms

Probability of Future Hazard Events

The NCEI Storm Events Database identified 70 significant severe winter weather occurrences in the County planning area since 1996, resulting in a 100% annual chance of occurrence with approximately 2 to 3 significant events every year.

While the overall frequency of extreme cold events has declined due to rising regional temperatures, the intensity and variability of winter storms have increased, largely influenced by changing atmospheric dynamics and the growing prevalence of atmospheric river events. This pattern, often described as climate-induced "whiplash," reflects greater year-to-year fluctuations between mild winters and those with record-breaking snowfall. The variance in event frequency has therefore increased.

CLIMATE CHANGE CONSIDERATIONS

In the County and the Town, research indicates that climate change will lead to increased temperatures, reducing the number of extreme cold events. However, climate change is leading to more intense precipitation events, meaning that when precipitation falls as snow, there is significant snowfall accumulation. For example, the County experienced record-breaking snowfall in recent years due to changes in the atmosphere and atmospheric rivers.

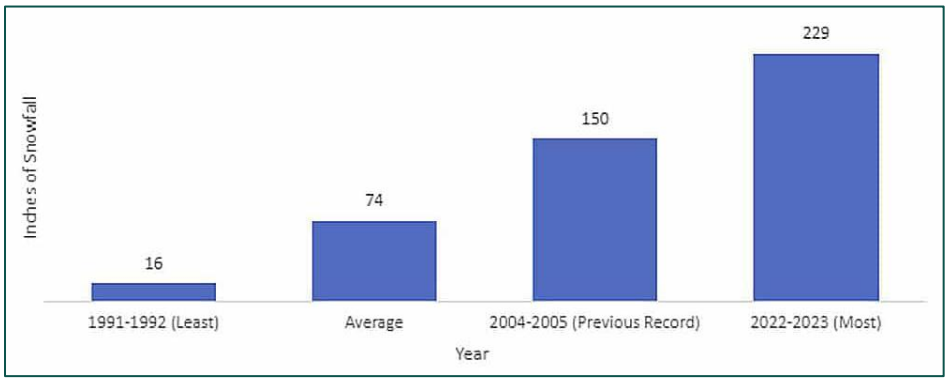


Figure 74: Lee Vining Annual Snowfall[174]

The County and the Town are increasingly experiencing a phenomenon often described as climate-induced "whiplash," characterized by rapid oscillations between extremely dry and extremely snowy or wet years. This variability reflects how climate change intensifies both ends of the precipitation spectrum rather than producing a steady shift toward wetter or drier conditions.

In the Sierra Nevada, warming temperatures have reduced the frequency of extreme cold events and shortened the duration of snow retention. However, warmer air can hold more moisture, which increases the potential for intense precipitation events when atmospheric rivers make landfall. These warm,

[174] Mono Lake Committee, "Snow and Climate Change: Exploring Mono Lake's Extreme Winter Weather," chart by Fiona Travers. https://www.monolake.org/wp-content/uploads/2023/10/snow-climate-change-Lee-Vining-annual-snowfall-graph.jpg

moisture-rich systems can deliver massive snowfall to higher elevations like the Town while simultaneously causing rain-on-snow events or flooding at lower elevations.

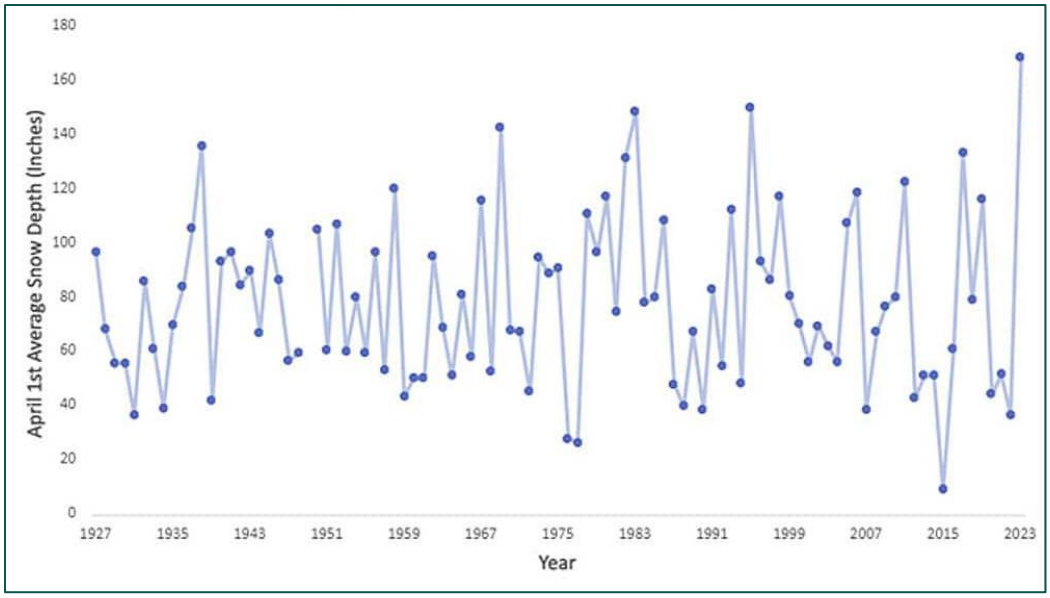


Figure 75: Average Snow Depth on April 1 Across the Mono Basin, 1927–2023[175]

The County and the Town are experiencing more variability in weather patterns, alternating between wet and dry periods. This can result in sudden and extreme weather changes, making it difficult to prepare for and predict winter storms. In addition to weather patterns, rising temperatures are causing a decline in snowpack levels. Warmer temperatures will reduce the amount of snow that accumulates and persists on the ground, which can affect the water supply throughout the year.

Figure 75 depicts April 1 average snow depth (in inches) in the County from 1927 to 2023, revealing considerable year-to-year variability in snowfall patterns. The snow depth ranges from approximately 10 inches to about 170 inches, a span of around 160 inches, indicating extremely high interannual variability. The average snow depth across the full record appears to be roughly 80 to 90 inches.

Over time, the variability has evolved. From the 1930s through the 1960s, snowpack levels showed moderate variation, typically ranging between 50 and 100 inches. During the 1970s and 1980s, the region experienced more pronounced extremes, including both very low years near 20 inches and high years exceeding 140 inches. From the 1990s onward, particularly through the 2020s, snow depth became increasingly erratic, alternating between severe drought conditions and extremely wet winters, some surpassing 150 inches. Notably, in 2023, one of the highest snow depths in the entire dataset was recorded, following several below-average years, underscoring the pronounced volatility.

[175] Ibid.

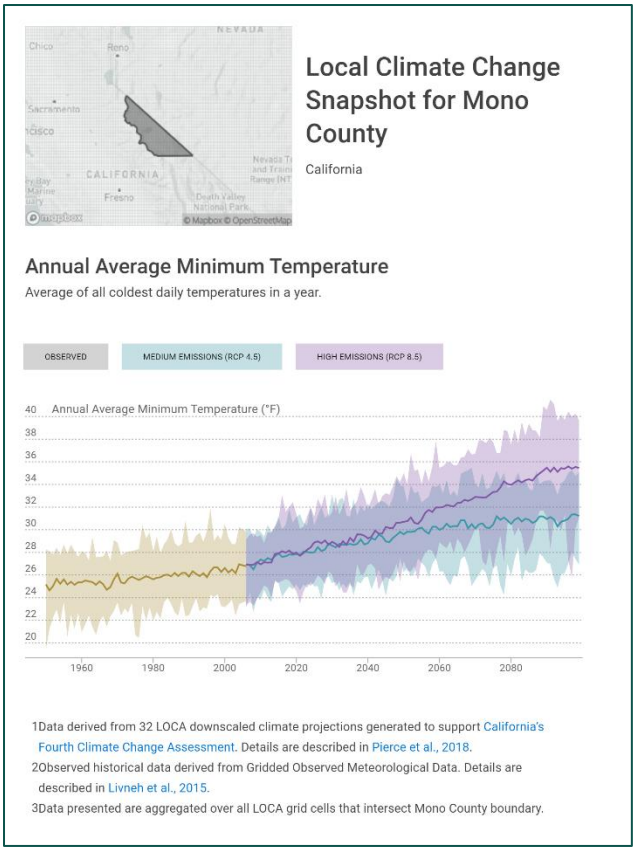


Figure 76: Annual Average Minimum Temperatures for the Mono County Planning Area[176]

Vulnerability

The County and the Town are highly vulnerable to severe winter weather due to their diverse climate and topography. This can lead to varied and unpredictable storm impacts across the region. These conditions can cause significant disruption to transportation, infrastructure, and daily life, especially when heavy snowfall, ice, and strong winds are accompanied by extreme cold temperatures.

The County planning area, including the Town, has several vulnerable populations that are highly susceptible to the impacts of severe winter weather. Vulnerable populations during severe winter weather include the elderly, young children, individuals with pre-existing health conditions, and those experiencing homelessness. These groups are particularly at risk due to their increased susceptibility to cold-related health issues such as hypothermia and frostbite. Those who are homeless are especially susceptible due to

[176] Cal Adapt, "Local Climate Change Snapshot for Mono County, California." https://cal-adapt.org/tools/local-climate-change-snapshot

their potential lack of access to adequate shelter and resources. Tourists, who may be unfamiliar with the local climate and driving conditions, can also face significant risks during winter storms.[177]

Power outages can affect transportation as well as heating and water infrastructure. The December 2025 winter storm, for example, resulted in many electric vehicles being stranded in June Lake and Lee Vining. Current response capacities do not include significant support for electric vehicles. Obtaining additional equipment to provide assistance to electric vehicles could reduce this risk. Gas stations also require backup generators for traditional and electric vehicles.

Impacts

Severe winter weather and snow can significantly impact the County affecting various aspects of life and community. Health risks arise from cold-related illnesses which can threaten residents and lead to anxiety and a decline in quality of life. Economically, heavy snowfall can disrupt local businesses and agriculture leading to financial losses for farmers and a decline in tourism, critical for the area's economy, if visitors are deterred by harsh weather conditions. The structural integrity of homes and historic sites may be compromised as snow and ice cause damage necessitating costly repairs and preservation efforts. Ecosystem disruptions can occur due to extreme weather impacting local wildlife and the environment, while traditional cultural practices may be threatened if natural resources are affected. These weather-related challenges can limit outdoor recreational activities and divert resources from public health initiatives ultimately influencing community engagement and cohesion.

Transportation is among the most affected sector during severe winter weather events with major routes such as US 395, SR 203 to the Town, and mountain passes frequently experiencing temporary closures due to snow accumulation, avalanche risk, or limited visibility, According to Caltrans District 9 data, the County experiences dozens of snow-related road closures each year, with primary routes closed for an average of 10–20 days annually and high-elevation passes remaining closed for several months, often from late fall through early summer. Prolonged closures can isolate communities such as Lee Vining, June Lake, and Bridgeport, disrupt supply chains, delay emergency response times, and hinder tourism access to destinations such as Mammoth Mountain and Yosemite National Park's eastern entrance.

Changes in Development

Since the last plan update, vulnerability to severe winter weather has increased. Changes in development and building codes in the County have significantly impacted how the area handles severe winter weather and snow. The 2022–2023 winter season also demonstrated the risk of heavy snow loads, including on utility infrastructure. The County has implemented stringent building codes to ensure that structures can withstand heavy snow loads, with requirements varying by elevation to prevent roof collapses and other structural failures. The County's General Plan includes a Safety Element that addresses severe winter

[177] Mono County California's Eastern Sierra, "Mono County Office of Emergency Management Encourages Residents to Be Winter Ready." https://www.monocounty.ca.gov/cao/page/mono-county-office-emergency-management-encourages-residents-be-winter-ready-visit-ready

weather, outlining measures such as proper insulation, heating in buildings, and maintaining clear access routes for emergency services. The County has also incorporated climate change vulnerability assessments into its planning preparing for more extreme weather patterns that could lead to heavier and more frequent snowfall.

After the 2022–2023 winter season severe winter weather event resulting in two propane explosions, the Town has required gas utility providers comply with the Pipeline Safety Advisory Bulletin (Docket No. PHMSA–2016–0013) to take proactive measures to address safety risks to mitigate the risk of explosions and potential damage caused by snow and ice accumulation on pipeline facilities. Regardless of regulatory oversight by the Pipeline and Hazardous Materials Safety Administration or state agencies, utility providers should heed the recommendations outlined in the bulletin to safeguard the community and protect residences, facilities, services, and infrastructure. These efforts have been well-documented and integrated into existing plans, policies, procedures, and training programs.[178]

Volcanoes

Hazard Description

A volcano is an opening (or vent) in the Earth's surface that erupts lava, ash, and gas stored deep within the planet. Volcanoes come in many sizes and shapes, from large mountains built up by layers of lava to conical mounds of loose cinder or low, crack-like fissures in the ground. Several potential hazards may occur depending on the type of volcano and the nature of the materials it ejects. These are described in detail on the USGS California Volcano Observatory website and are summarized in the California State Multi-Hazard Mitigation Plan. The information in Table 96 describes the hazards that have typified past eruptions of California volcanoes.

Table 96: Hazards Associated with California Volcanoes

Name	Description
Pyroclastic Flow	A sudden, fast-moving eruption of lava, ash, and gases. Pyroclastic flows can move down the volcano's sides at speeds greater than 50 mph, faster than people can run. Damage occurs from the high temperatures of the material (400°F –1,300°F) and the fast-moving debris itself. Poisonous gases may also suffocate people or animals.
Slow-Speed Lava Flow	A slow-moving lava eruption, usually less than 30 mph. The lava itself may be fluid or thick. People can generally move out of the way, but the lava may bury structures, and the high temperatures often ignite fires.

[178] Town of Mammoth Lakes, 2024, "22/23 Winter Storms After-Action Report (AAR)." https://www.townofmammothlakes.ca.gov/DocumentCenter/View/14208/MammothLakes_WinterStorms-AAR_FinalDraft_052624

Name	Description
Lahar	A volcanic debris flow, usually a slurry-like mixture of ash, rock, and water, travels at 20 to 40 mph speeds. Though not as hot as a lava eruption, it can be hot and may carry large debris, such as boulders, for great distances. The speed and temperature of a lahar may cause injury or death, and the debris itself may bury people or structures.
Volcanic Flood	A type of flash flood that occurs when snow or ice on the volcano's surface is melted by intense heat from the volcano, or when debris deposited from a volcano causes a river or stream to overtop its banks. The effects are generally like other types of flash floods.
Fine Ashfall	A "rain" of small ash particles ejected from a volcano during an eruption, sometimes reaching hundreds of miles from the volcano itself. The ash can cause short-term respiratory problems, although it is generally nonlethal. The weight of the ash may damage buildings, and accidents can occur if the ash sufficiently reduces visibility. Ash particles may also clog wastewater systems, damage electronics, and harm crops and livestock. Air traffic can be disrupted by ash fall.
Coarse Air Fall	An ejection of large, hot pieces of lava or rock. The force of the ejecta may cause damage or injury, and the high temperatures may ignite fires. These are generally the size of a softball or smaller, although some volcanoes may eject boulder-size pieces.
Phreatic Eruption	An eruption of steam caused when volcanic heat causes water underground or on the surface to flash-boil. The steam may erupt violently, carrying ash and pieces of rock. The intense heat may cause damage, the materials ejected by the steam, or poisonous gases that can accompany the eruption.

Table 96 does not include an exhaustive list of all possible hazards resulting from volcanoes; it is possible that an event not shown here may occur during a California volcano's eruption.

The County contains California's most significant volcanic center outside the Cascade Range. The Long Valley–Mono Basin Region is dominated by two distinct but interrelated systems that have produced volcanic and seismic activity for millions of years. The region includes the Long Valley Caldera, a 20-mile-by-10-mile, oval-shaped depression formed about 760,000 years ago. This was one of the most significant eruptions in the earth's history, ejecting more than 70 times as much material as the famous Krakatoa explosion in 1883. A younger system, the Mono-Inyo Craters, runs from Mono Lake to Mammoth Mountain near the caldera's rim. The chain has seen small to moderate eruptions as recently as 250 to 350 years ago.[179]

[179] Mangan, M., Ball, J., Wood, N., Jones, J. L., Peters, J., Abdollahian, N., ... & Pridmore, C. (2019). California's exposure to volcanic hazards (No. 2018-5159). US Geological Survey.

CASCADING HAZARDS

During a volcanic eruption in the County, several cascading hazards could significantly impact the region and its residents. These hazards include ashfall, which can contaminate air and water supplies and pose respiratory health risks; pyroclastic flows that can devastate infrastructure and threaten lives; and lahars, or volcanic mudflows, which can occur when volcanic debris mixes with water, posing a severe threat to communities located near rivers and streams. Additionally, the potential for secondary hazards such as landslides, wildfires ignited by lava, and disruptions to transportation and communication systems must be considered. An eruption during winter could melt heavy snowpacks, generating mudflows and locally destructive flooding.

Location

Volcanic eruptions could occur in the Long Valley Caldera and along the Mono-Inyo Craters chain. Over the past 2,000 years, volcanic eruptions have occurred at an average rate of one per 100 years. Vents located along these chains are known to have produced explosive eruptions, resulting in pyroclastic flows or surges (violent eruptions of lava fragments) and tephra fall (solid material ejected during a volcanic eruption and transported through the air). USGS scientists estimate that pyroclastic flows and surges could travel 10 miles from vents in the Long Valley Caldera's south moat area, located south of SR 203 between the Town and US 395. An explosion from the vents along the Mono-Inyo Craters chain could result in pyroclastic flows or surges traveling 7 to 8 miles to the east. To the west, those flows would be blocked by the high Sierra Nevada. Downwind deposits of ash produced by an explosive eruption could reach thicknesses of at least 8 inches at 22 miles from the eruption, 2 inches at 53 miles, and 0.5 inches at 185 miles. Significant ash fall could affect large portions of the County and surrounding areas, depending on the wind direction and size of the eruption.

Movement in the caldera has caused numerous earthquakes. Since 1974, the USGS has monitored the caldera for volcano surveillance (earthquakes often serve as an early sign of volcanic unrest). Earthquake swarms occurred in Long Valley from 1978 to 1983, 1990 to 1995, 1996 to 1997 to 1998. The USGS indicates that the rate of earthquakes in recent years has been relatively low compared with the history since seismic monitoring started.[180]

The Town is near the southwest edge of the Long Valley Caldera. Mammoth Mountain and basaltic volcanic vents have been historically active within the Town boundaries. In addition, an area of potential future volcanic vents, inferred based on seismic activity, extends into the Town's east side. The entire Town is within hazard areas for pyroclastic flows and tephra falls.

Figure 77 shows the Long Valley volcanic region. A large portion of the middle of the County, including the Town, would be near vent or exposed to lava flows. The entire planning area is expected to see ash fall of 2 inches or greater.

[180] Mangan, M., Ball, J., Wood, N., Jones, J. L., Peters, J., Abdollahian, N., ... & Pridmore, C. (2019). *California's exposure to volcanic hazards* (No. 2018-5159). US Geological Survey.

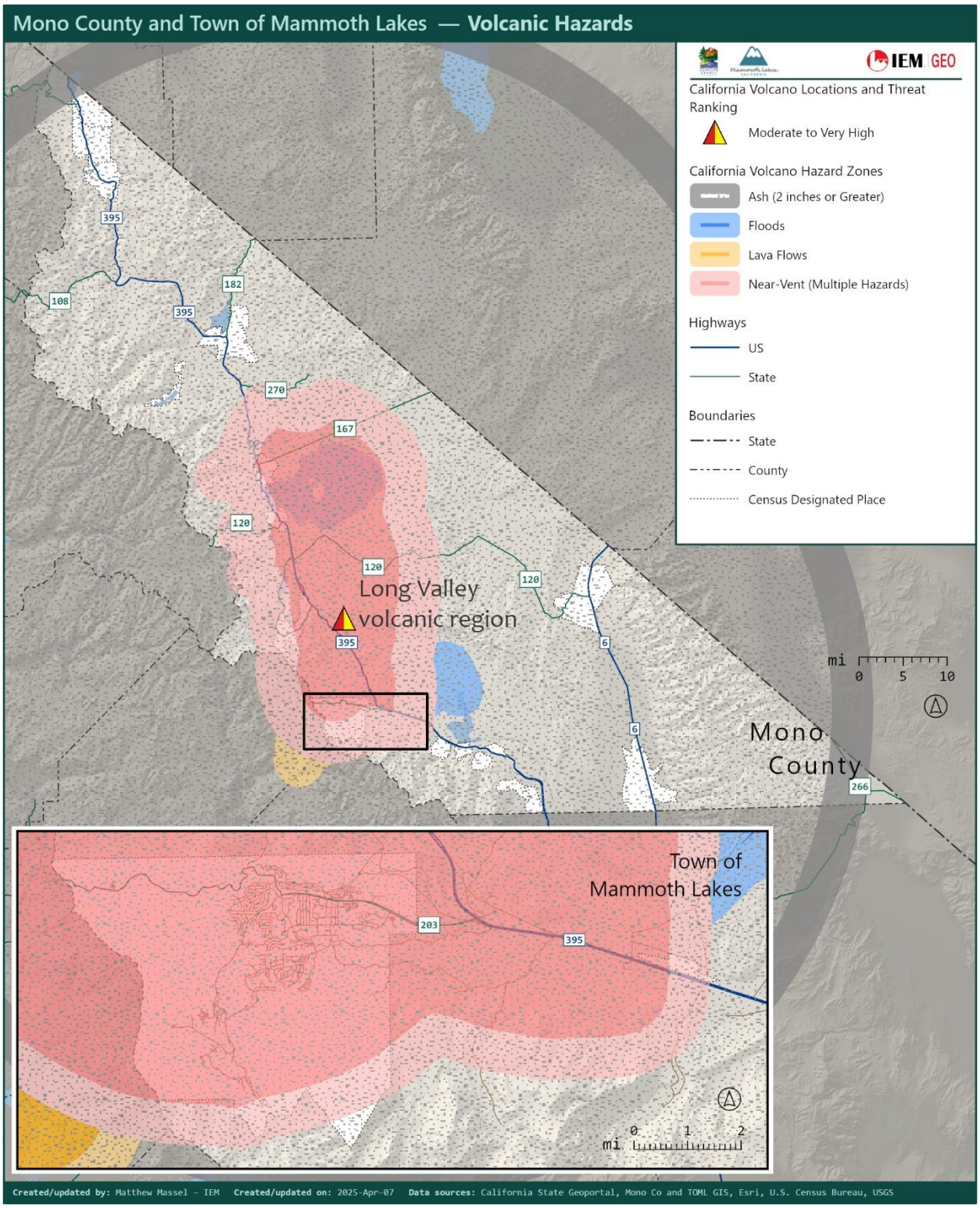


Figure 77: Mono County and Town of Mammoth Lakes - Volcanic Hazards

Extent

The Volcanic Explosivity Index scale ranges from 0 to 8, quantifying explosive volcanic eruptions by magnitude and impact intensity (see Table 97).

Table 97: Volcanic Explosivity Index[181]

Volcanic Explosivity Index	Magma Ejecta Volume in km^3 (mi^3)	Column Height in km (mi)	Description
0	0.00001 (0.000002)	<0.1 (0.06)	Effusive
1	0.001 (0.0002)	1 (0.6)	Severe
2	0.01 (0.002)	5 (3)	Explosive
3	0.1 (0.02)	15 (9)	Catastrophic
4	1 (0.2)	25 (16)	Cataclysmic
5	10 (2)	>25 (16)	Paroxysmal
6	100 (20)	>25 (16)	Colossal
7	1,000 (200)	>25 (16)	Mega-colossal
8	>1,000 (>200)	>25 (16)	Apocalyptic

The Long Valley Volcanic Center is one of 18 "very high threat" volcanoes listed in a 2005 ranking developed as part of the National Volcano Early Warning System (NVEWS). The USGS conducted a systematic assessment of volcanic threats for all US volcanoes. Volcanoes were evaluated using 25 threat factors: 15 for hazard type (e.g., explosivity index, pyroclastic flows, lahars) and 10 for societal exposure to hazards (e.g., nearby populations, infrastructure, transportation corridors). The composite NVEWS score, calculated as the sum of the hazard factors multiplied by the sum of the exposure factors, translates into a specific threat-level grouping that ranges from "very high threat" to "very low threat." The USGS periodically reevaluates the rankings as new scientific data becomes available and/or nearby infrastructure and populations change.[182]

It is important to note that the NVEWS threat rankings do not express the probability of an eruption occurring, only the threat level posed should an eruption occur. Table 98 shows the threat levels of the County volcanoes.

[181] National Park Service. "Volcanic Explosivity Index (VEI)." https://www.nps.gov/subjects/volcanoes/volcanic-explosivity-index.htm#:~:text=about%201%2C000%20km3.-,VEI%20Table,based%20on%20magnitude%20and%20intensity.

[182] Moran, S. C., Neal, C. A., & Murray, T. L. (2024). *The US Geological Survey Volcano Science Center's Response Plan for Significant Volcanic* (No. 1518). US Geological Survey.

Table 98: Mono County Region Volcano NVEWS Scores

Volcano	NVEWS Score	Last Eruption
Long Valley Volcanic Center	Hazard score: 9/20 Overall threat ranking: 129 (Very High Threat)	16,000 to 17,000 years ago
Inyo Craters	Hazard score: 8/20 Overall threat ranking: 106 (High Threat)	600 years ago
Mono Craters	Hazard score: 8/20 Overall threat ranking: 89 (High Threat)	650 years ago
Mono Lake Volcanic Field	Hazard score: 5/20 Overall threat ranking: 57 (Moderate Threat)	250 years ago

Mammoth Mountain, part of the Long Valley Volcanic Center, is a volcanic system located in California's Eastern Sierra region. It is classified as a dormant volcano.[183] with the last significant eruptions occurring around 50,000 years ago. Currently, the threat potential is considered moderate due to episodes of heightened unrest over the past few decades, including earthquakes, ground uplift, and/or volcanic gas emissions.[184] However, the area is closely monitored by the USGS and other agencies due to its geologic history and potential for future activity.

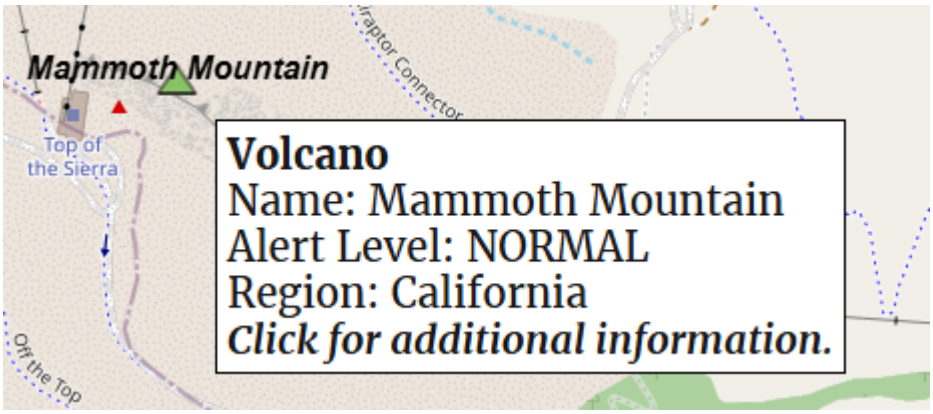


Figure 78: Mammoth Mountain Alert Level[185]

[183] Visit Mammoth, "Did You Know Mammoth Lakes Has Volcanoes!?" https://www.visitmammoth.com/blogs/did-you-know-mammoth-lakes-has-volcanoes/#:~:text=While%20the%20volcano%20itself%20is,evidence%20of%20an%20explosive%20past.
[184] USGS, "Mammoth Mountain." https://www.usgs.gov/volcanoes/mammoth-mountain
[185] Ibid.

History of Previous Hazard Events

Since the Long Valley Caldera's formation 760,000 years ago, clusters of smaller volcanic eruptions have occurred in the caldera at roughly 200,000-year intervals. About 100,000 years ago, one of these eruptions along the caldera's ring fault resulted in the formation of the Mammoth Knolls, low hills just north of the Town. The most recent eruption within the topographic basin occurred 16,000 to 17,000 years ago on the mafic chain along the west rim.

The Mono-Inyo chain has erupted at intervals of 700 to 250 over the last 3,000 years. Mammoth Mountain was formed by numerous eruptions 100,000 to 50,000 years ago, during this period, it erupted approximately 25 times. Basaltic vents around the mountain erupted approximately 35 times between 235,000 and 8,000 years ago, contributing to the formation of the Red Cones. Mono and Inyo Craters were created between 400,000 and 5,000 years ago, and the latest eruptions took place about 8,000 years ago. The most recent activity in the chain occurred with the formation of Mono Lake's Paoha Island about 350 years ago.

More recently, the release of hot volcanic gases can create deep cavities in the snow containing lethal carbon dioxide concentrations. Such conditions have been blamed for the deaths of a cross-country skier in 1998 and three ski patrol members in 2006 at MMSA. There have been no federal and state disaster declarations regarding volcanoes since the prior plan update,

Probability of Future Hazard Events

Volcanoes have been active in the area for millions of years, and future eruptions are certain to occur. The pattern of volcanic activity suggests that future eruptions are more likely to occur along the Mono-Inyo volcanic chain than within the caldera. The probability of such an eruption occurring in any given year is less than 1%, comparable to the odds for a great (magnitude 8) earthquake along the San Andreas fault in coastal California. The odds of a small eruption significantly impacting any specified place along the chain in any given year is one in 1,000, or 0.1%. Future eruptions will likely be explosive in style but slight to moderate in size. More significant eruptions are possible but less likely. Scientists see no evidence pointing toward the possibility of a massive eruption along the lines of the one that formed the caldera 760,000 years ago.

Geologic unrest—including earthquake swarms, ground deformation, gas emissions, and fumarole activity—can signal a change in the likelihood of an eruption, depending on the nature, intensity, and location of the unrest. An ongoing geologic unrest in the Long Valley area began in 1978 with a magnitude 5.4 earthquake centered 6 miles southeast of the caldera. Since then, earthquake activity has increased. The most intense swarms occurred in May 1980, including four substantial magnitude 6 earthquakes. Between 1979 and 1980, the caldera's center rose almost a foot after decades of stability. The swelling continues and, to date, totals more than 2.7 feet, suggesting magmatic activity beneath the caldera. During the early 1990s, trees began dying at several places on Mammoth Mountain at the southwest edge of Long Valley Caldera. Studies showed that the trees were killed by large amounts of

carbon dioxide gas seeping up through the soil from the magma below. Such tree mortality could affect other hazards, such as wildfires and landslides.

The planning area will probably experience a volcanic eruption in the future. However, given the timeframe between historic events, the probability of a volcanic eruption occurring in any given year is unlikely.

CLIMATE CHANGE CONSIDERATIONS

According to the 2023 State Hazard Mitigation Plan, climate change is not expected to significantly alter the frequency of volcanic eruptions, but could increase the impacts of an eruption. Debris and volcanic material—including ash—may be spread further as the atmosphere warms. Additionally, changes in precipitation patterns might lead to increased water infiltration into volcanic systems, which can contribute to explosive eruptions by causing more significant steam generation—the resulting environmental changes, such as altered vegetation and soil stability, further influence volcanic behavior.

Vulnerability

Understanding the vulnerabilities associated with potential volcanic eruptions is crucial, especially given the region's geological characteristics. The assets at risk include critical infrastructure such as roads, bridges, and utility systems, which could be severely impacted by ashfall or lava flows. Additionally, the local population, numbering in the thousands, may face immediate threats to their safety through evacuation difficulties and potential health hazards stemming from volcanic gases and ash exposure.[186] Therefore, it can be assumed that all assets—including people, structures, and infrastructures—within the planning area are at-risk to this hazard.

There is residual risk from this hazard on the planning area. The unique position of the County and the Town so close to the Long Valley Caldera mean that the planning area is vulnerable to the impacts of volcanoes beyond a full eruption. Poisonous gases emitted by volcanic vents in the planning area can pose a threat to human life and wellbeing.

Impacts

The impact of an eruption in the Long Valley area would depend on its location, size, and type, as well as the wind direction. Similar to previous activity along the Mono-Inyo chain during the past 5,000 years, more minor eruptions would typically begin with a series of steam blast explosions that can throw large blocks of rock and smaller fragments hundreds of feet in the air.

If magma reaches the surface, its gases can escape explosively, hurling volcanic ash as high as 6 miles or more. Airborne volcanic ash would be carried downwind, and the ash's size would diminish with distance from the eruption site. Ash accumulations pose little threat to life but may collapse building roofs, close

[186] Program, V. H. (n.d.). *Impacts & Mitigation - Impacts & Mitigation*. https://volcanoes.usgs.gov/volcanic_ash/

roads, and seriously disrupt utilities and communications. The ash produced by explosive volcanic eruptions poses a special hazard to aircraft. A small to moderate explosive eruption can send ash to elevations exceeding 30,000 feet, posing a serious hazard to commercial aviation on transcontinental routes that pass over the County.

The center can also produce effusive (nonexplosive) basaltic eruptions (the type common in Hawaii). The resulting hot, relatively fluid lava flows, while not directly threatening to life, can pose serious problems for built infrastructure.

Changes in Development

Increased development, particularly the development of new resorts in Town, along with the area's significant tourism, could have both positive and negative impacts on vulnerability to volcanic activity.

On one hand, the influx of tourism and investment in new resorts might bring additional resources that could enhance geological monitoring and emergency services. Increased funding could lead to improved infrastructure, such as better evacuation routes and facilities, as well as more public awareness campaigns about volcanic risks. This could ultimately improve the community's preparedness and resilience to volcanic activity.

On the other hand, building resorts in a region prone to volcanic activity could increase vulnerability, particularly if the development is located in a high-risk area. If development does not adhere to stringent land use planning and zoning regulations aimed at reducing exposure to volcanic hazards, it could place more people at risk during an emergency. Additionally, an increase in population density may complicate evacuation efforts, as more visitors would need to be safely relocated in the event of a volcanic eruption.

Wildfire

Hazard Description

A wildfire is any unplanned fire that originates in a natural environment, like forests or grasslands. Their ignition generally stems from lightning strikes and human causes, but can also come from other natural factors like volcanic eruptions. These fires are a natural part of the ecosystem in the County, occurring long before the area was settled by humans. Low- and moderate-intensity wildfires are often harmless to human populations and beneficial for regenerative processes in the forest ecosystems that make up the County. But, under dry conditions, strong winds, and with enough fuel, fires can reach high intensity and spread into populated areas. As the County has developed into the modern day through population growth and a rise in tourism, these high-intensity fires have increasingly threatened structures, infrastructure, and human life.

Wildfires are particularly concerning in the zone where structures or other human development meet or intermingle with undeveloped wildland or vegetative fuel, called the wildland-urban interface (WUI), which includes homes, storage sheds, recreational facilities, transmission lines, or other buildings. In natural

areas in and around the County, mountain pine beetle infestations and a history of fire suppression are some factors that have led to a chronic and destructive wildfire history. Providing adequate fire protection in the WUI can be difficult where local suppression methods and resources may not be suited to wildfire suppression, and personnel can become easily overwhelmed when multiple structures are threatened simultaneously. Energy output from a wildfire may make protection of homes almost impossible and poses tremendous danger to firefighters and homeowners.

High-intensity wildfires can also trigger cascading hazards across the landscape. By removing vegetation that stabilize slopes and protects soil from excessive rainfall, wildfires can increase runoff, flooding, and debris flows. They can also produce smoke and ash that spread for hundreds of miles, impacting human and ecosystem health far beyond the immediate vicinity of the fire.

Each wildfire is the product of a complex interplay between natural and anthropogenic factors. The three primary natural factors that affect fire behavior are topography, vegetation, and weather.

1. **Topography:** Topography includes factors such as slope, aspect and elevation. Fires spread faster upslope because fuels are closer to flames. Aspect also influences fuel moisture content. Fuels tend to be drier on south and west-facing slopes. Higher elevation is related to cooler temperatures and higher relative humidity, as well as changes in vegetative fuel types.
2. **Vegetation:** The type of vegetation has a major effect on how quickly a fire will spread. For example, sedges and brush burn more rapidly, whereas heavy, dense fuels like lodgepole and Jeffrey pines burn slowly but with greater intensity. Different fuels burn at different rates of spread and intensity and will resist control to different degrees.

   Size, continuity, and compactness also affect the fuel's rate of spread. Large fuels do not burn as readily as small fuels and take more heat to ignite. Small fuels ignite more easily, and fire will spread more rapidly through them. Continuity describes how a fuel is arranged horizontally. Fuels that are broken up in patches burn unevenly and more slowly than uniform fuels. Compactness is how fuel is arranged vertically. Compact fuels burn more slowly than tall, deep fuels that have more oxygen available.
3. **Weather:** Weather (temperature, humidity, precipitation, and wind) affects the ease with which a fuel ignites, the intensity at which it burns, and how easy control may be. High temperatures heat fuels and reduce water content, which increases flammability. A decrease in relative humidity causes a proportionate decrease in fuel moisture, promoting easier ignition and more intense burning. Wind carries the heat from a fire into unburned fuels, drying them out and causing them to ignite more easily. Wind is also a major factor in providing fires more oxygen, which increases combustion and drives the fire toward new fuels. High winds can make fires highly unpredictable, making them difficult to contain and control. Wind may also blow burning embers into unburned areas ahead of the main fire, starting spot fires. The County is particularly susceptible to high winds caused by pressure differences between the Sierra Nevada and the Great Basin and unique local topography. These winds can have major implications on wildfire growth and spread in the County.

Figure 79 illustrates the key factors that make an area vulnerable to wildfire: vegetation and fuel sources, possible ignition sources, topography, and weather conditions.[187]

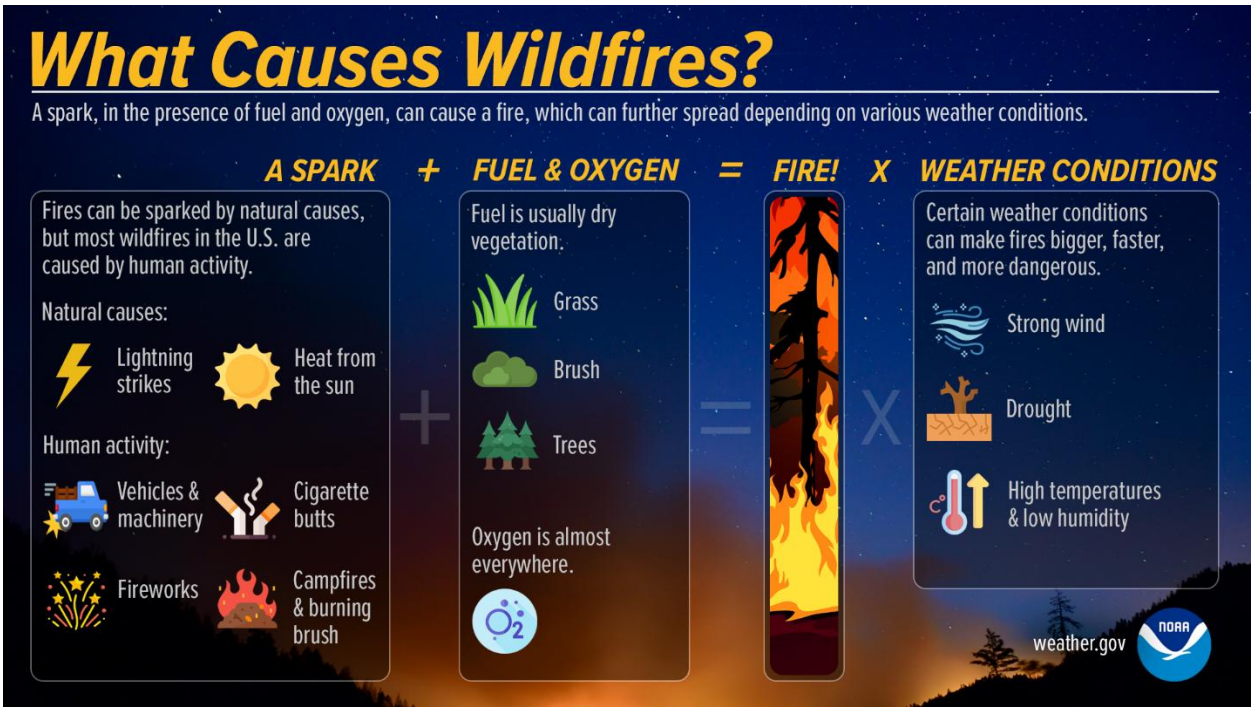


Figure 79: Causes of Wildfires[188]

CASCADING HAZARDS

Flooding, erosion, and debris flows can also occur in the County in the months and years following large hot fires. High-severity wildfires significantly reduce the amount of vegetation, which can reduce the amount of rainwater absorption, allowing excessive water runoff that often includes large amounts of debris. Structures located anywhere near a severe burn area are susceptible to flooding. Periods of high-intensity rainfall are of particular concern, but post-fire flooding can also occur during a normal rainy season.[189]

The 2023 Enhanced California State Hazard Mitigation Plan states wildfire may result in secondary negative impacts in the form of air pollution, including greenhouse gas emissions, soil erosion (resulting in siltation of streams and lakes), post-fire flooding, or mudslides. The impacts can even extend beyond

[187] RiskFactor.com. "Key Factors that Make an Area Vulnerable to Wildfire." 2024. https://firststreet.org/county/salt-lake-county-ut/49035_fsid/fire.
[188] U.S. National Weather Service, https://www.weather.gov/wrn/summer-wildfire-sm.
[189] 2023 Enhanced California State Hazard Mitigation Plan. "Riverine, Stream, and Alluvial Flooding, Climate Change Impacts-Impact of Wildfire on Flooding." 2024. https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf.

state borders. In 2020, wildfire smoke not only blanketed large swaths of the County, but also worsened air quality across the United States.[190]

Southern California Edison (SCE) currently implements extensive public safety outage management programs in areas with extreme fire risks. The threat of wildfires in the County is real and growing. With one-quarter of its service area in high-risk fire areas, SCE has implemented PSPS, in which SCE temporarily shuts off power to neighborhoods during dangerous weather conditions to prevent the electric system from becoming a source of ignition. These safety shutoffs are a measure of last resort to keep the communities in the County safe by preventing wildfires. PSPS is an operational protocol that is implemented under extreme weather conditions to minizine the threat of wildfires and keep communities safe from potentially dangerous situations. These types of sustained outages are temporary and usually involve situations where high-fire areas are experiencing adverse weather or public safety is at risk.[191]

Location

Wildfires have occurred all across the County, ranging from small 1-acre fires to massive 22,000-acre conflagrations. The County is particularly susceptible to wildfire for several reasons. First, all counties east of the Sierra Nevada Mountains, including Mono, are more susceptible to wind-dominated wildfires, with southwest winds driving wildfires. Second, fuel-dominated wildfires are common in the timber-rich forests of the Sierra Nevada Mountain Range that contain large fuel loads. These fuel loads are partially due to the policy of fire suppression for federal land for most of the 20th century. Restricting fires from burning caused vegetation that would have burned to build up over decades. Now, that vegetation has become tinder waiting to fuel the next fire. Timber harvesting in the mid-20th century also played a role, removing large, fire-resistant trees and replacing them with dense groves of younger, more vulnerable ones. Third, a mixture of climate change and bark beetle infestations, like the mountain pine beetle, have weakened forests in the Eastern Sierra Nevada, making them more vulnerable to fire. Many population centers in the County are located in or near fire-prone areas, increasing the risk that wildfires harm human life and property. For example, the entire Town is considered to be in the WUI, as approved by Town Council in 2007.

For the reasons outlined above, the County has many fire-prone landscapes, on both public and private lands. As such, the Mono County and Town of Mammoth Lakes Community Wildfire Protection Plans of 2019 reports high and very high wildfire zones are present in both the unincorporated County and the Town. In 2025, California Department of Forestry and Fire Protection (CAL FIRE) updated its fire hazard severity zones in the County for both local and state areas of responsibility. Table 99 shows the number of

[190] 2023 Enhanced California State Hazard Mitigation Plan. "Wildfire-Wildland Fires." 2024. https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf.

[191] Southern California Edison Annual Electric Reliability Report. "Appendix A: Definitions." 2023. https://www.sce.com/sites/default/files/AboutUs/Reliability/Annual%20Reliability%20Report%202023.pdf.

acres in moderate, high, and very high severity zones across the County. There are 270,00 acres total in those three zones, though a large percentage of those acres are in state responsibility areas.[192]

Table 99: Number of Acres in Wildfire Severity Zones in Mono County and Town of Mammoth Lakes[193]

Jurisdiction	Moderate Wildfire Severity Zone	High Wildfire Severity Zone	Very High Wildfire Severity Zone	Total
Town of Mammoth Lakes	98	658	2,147	2,903
Rest of Mono County	9,420	1,366	761	11,547
Total Local Responsibility Area in Mono County	9,518	2,024	2,908	14,450
State Responsibility Area	103,379	134,594	17,577	255,550
Total	112,897	136,618	20,485	270,000

[192] CAL FIRE. "Fire Hazard Severity Zones." 2025. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones.
[193] CAL FIRE. "Fire Hazard Severity Zones." 2025. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones.

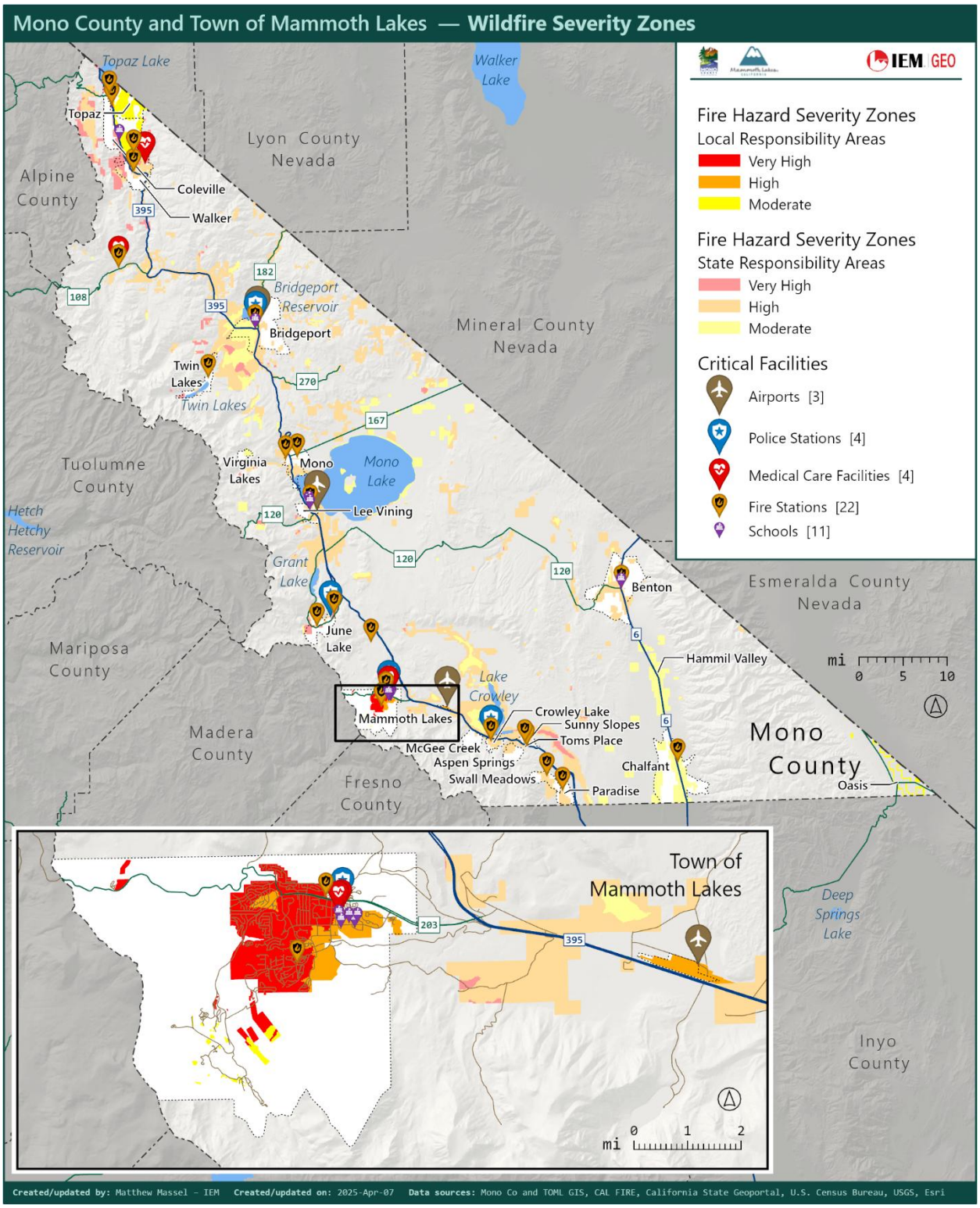


Figure 80: Mono County and Town of Mammoth Lakes Wildfire Severity Zones[194]

Figure 80 shows the Fire Hazard Severity Zones (FHSZs) for the County and the Town including local and state responsibility areas. Large portions of the planning area also include federal land, which is not

included in this map. Overall, the majority of the urbanized Town is in a very high fire severity zone, and the rest is in the high or moderate fire severity zone, based on CAL FIRE Hazard Severity Zone Mapping (discussed in detail in the Extent section).

The other area of wildfire concern that falls under local responsibility is in the Antelope Valley area in the northern part of the County. This area covers the unincorporated communities of Topaz, Walker, and Coleville. The area has 9,420 acres in the moderate wildfire severity zone, with 1,366 in the high severity zone and 761 acres in the very high zone. Antelope Valley Fire Protection District provides fire prevention, suppression, and education for the area.

Extent

In the County, like all counties in California, CAL FIRE determines wildfire hazard levels by designating FHSZ as moderate, high, or very high. It determines these zones for both State Responsibility Areas (SRA) and Local Responsibility Areas (LRA). CAL FIRE updated its assessment for the County in 2025, providing new maps and data on fire hazards.[195] CAL FIRE considers the following components in its assessment of wildfire hazards to the County:

- Wildlands (i.e., forests, grasslands, shrublands)
  - Delineate wildland zones: Group areas of similar potential fire behavior using slope, vegetation type, and watershed boundaries.
  - Determine wildland FHSZ classification: Based on burn probability (fire history from 1991 to 2020) and flame length (vegetation type, slope, local climate), each zone was given a hazard score.
- Non-Wildlands (i.e., urban and agricultural lands)
  - Firebrand production and disbursal: Firebrands are embers emitted from wildfires and principal driver of the wildfire hazard in densely developed areas. Calculating this component of the assessment included firebrand production or the amount of firebrands a fire would produce (vegetation type, flame length, and burn probability) and fire brand disbursal or where those firebrands would land (worst case scenario for wind speed and direction).
  - Non-wildland FHSZ classification: Buffers are created around the wildland zones that take into account firebrand load (number of embers landing in a given area), slope, and the amount of tree cover within the non-wildland area. These factors determine the width of the buffer. Areas farther away from wildland zones within the buffer receive a lower hazard classification. Non-wildland areas that are sufficiently far from wildland remain unzoned, in contrast to wildlands, which always receives a zone designation.

[194] CAL FIRE. "Fire Hazard Severity Zones." 2025. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones
[195] Ibid.

The 2025 updated LRA FHSZ for the County shows very high and high risk areas around the Town of Coleville in the north of the County and the Town in the south. The SRA high and very high zones in the County are more extensive, covering all parts of the County but clustered around Coleville, Walker, Bridgeport, Lee Vining, and Crowley Lake.

Federal lands are also an important piece for understanding wildfire hazard in the County, since a large portion of land in and around the County is under federal jurisdiction. In 2025, the USFS updated their Emergency Situation Determination Lands (ESDL) dataset, which shows National Forest System Lands that are either at risk of insects and diseases or high or very high fire hazard potential. In Figure 81, ESDL are shown in blue across southern Mono County. These lands are not included in CAL FIRE's wildfire hazard assessment, but are important for the County to take into consideration.

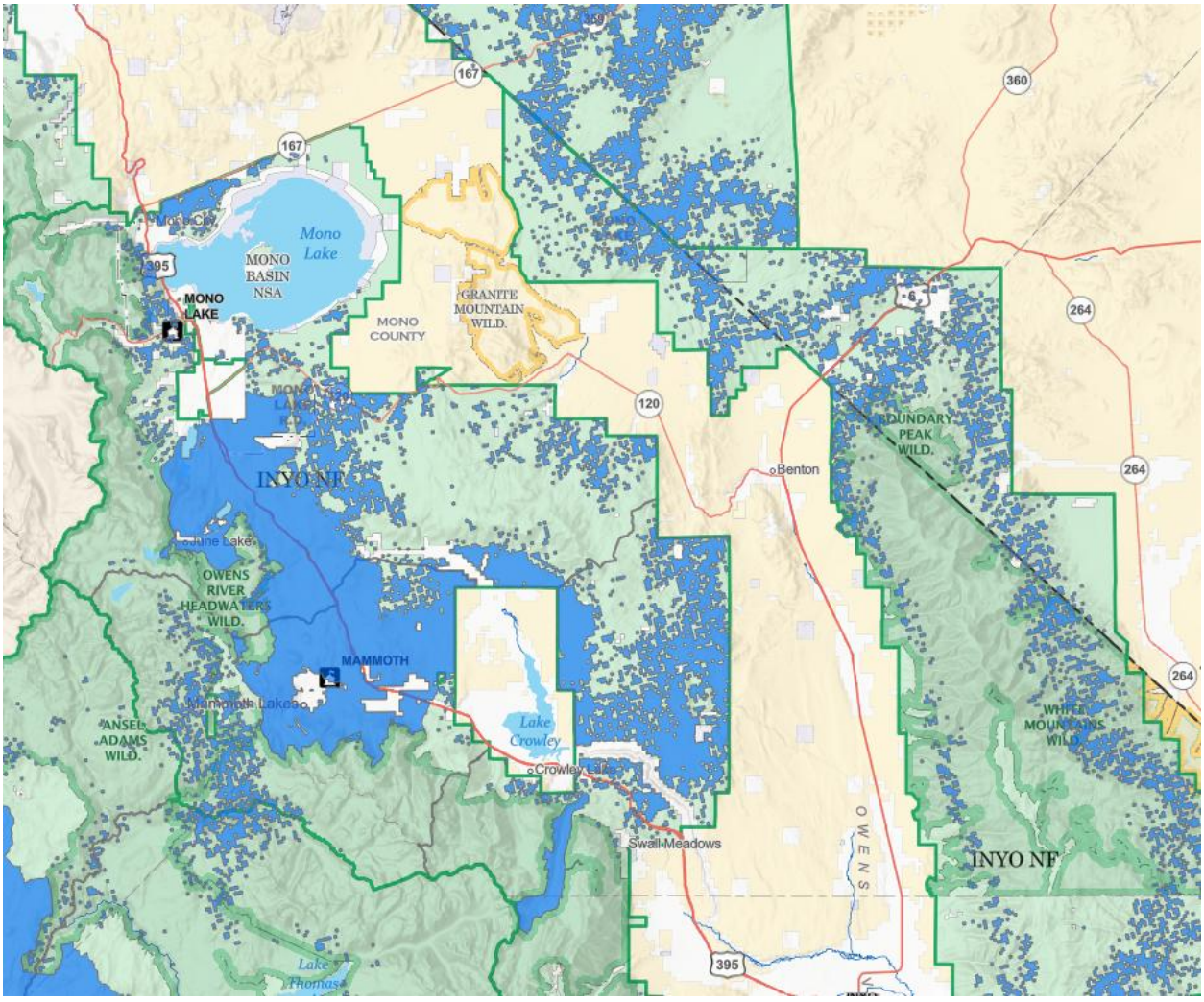


Figure 81: US Forest Service Emergency Situation Determination Lands (in Blue)[196]

[196] U.S. Forest Service, "Emergency Situation Determination Lands" 2025, https://usfs.maps.arcgis.com/home/item.html?id=7e927ec5d6b94f528ca6943c45e65ffd.

The total number of acres or hectares impacted by the wildfire is often used as a primary measure of its extent.

Table 100: Wildfire Extent in Acres Burned[197]

Fire Size	Acres Impacted
Small	<1,000
Medium	>1,000 but <50,000
Large	>50,000

Figure 82 provides the California Air Resources Board Air Quality Index, with index scores ranging from 0 to 50 indicating a good air quality day and 301 to 500 indicating a hazardous air quality day. Wildfire produces a range of harmful air pollutants, from cancer-causing substances to tiny particles that can aggravate existing health problems and increase the risk of heart attack or stroke. Particulate matter (PM) is the main pollutant of concern from wildfire smoke for relatively short-term exposures (hours to weeks). Particles from smoke can be very small (with diameters of 2.5 micrometers and smaller). They are small enough to get deep into the lungs and the tiniest, ultrafine, particles can pass directly into the bloodstream. The association between PM2.5 and heart and lung health effects is well documented in scientific literature.[198]

The County is part of the Great Basin Unified Air Pollution Control District (GBUAPCD), a California regional government agency that works to protect the people and the environment from the harmful effects of air pollution. GBUAPCD enforces federal, state and local air quality regulations to ensure that the federal and state air quality standards are met in the District. These standards are set to protect the health of sensitive individuals by restricting how much pollution is allowed in the air.[199]

[197] U.S. Department of Agriculture. "Trends in Wildfire Size." https://experience.arcgis.com/experience/cd2e874658934902868a52fb70c62d77/page/----------Wildfire-Size-Interpretation.
[198] California Air Resources Board, "Particulate Matter," 2025, https://ww2.arb.ca.gov/smokereadyca.
[199] Great Basin Unified Air Pollution Control District, "Great Basin Unified Air Pollution Control District Homepage," 2023, https://www.gbuapcd.org/District/AirQualityPlans/MammothLakes/.

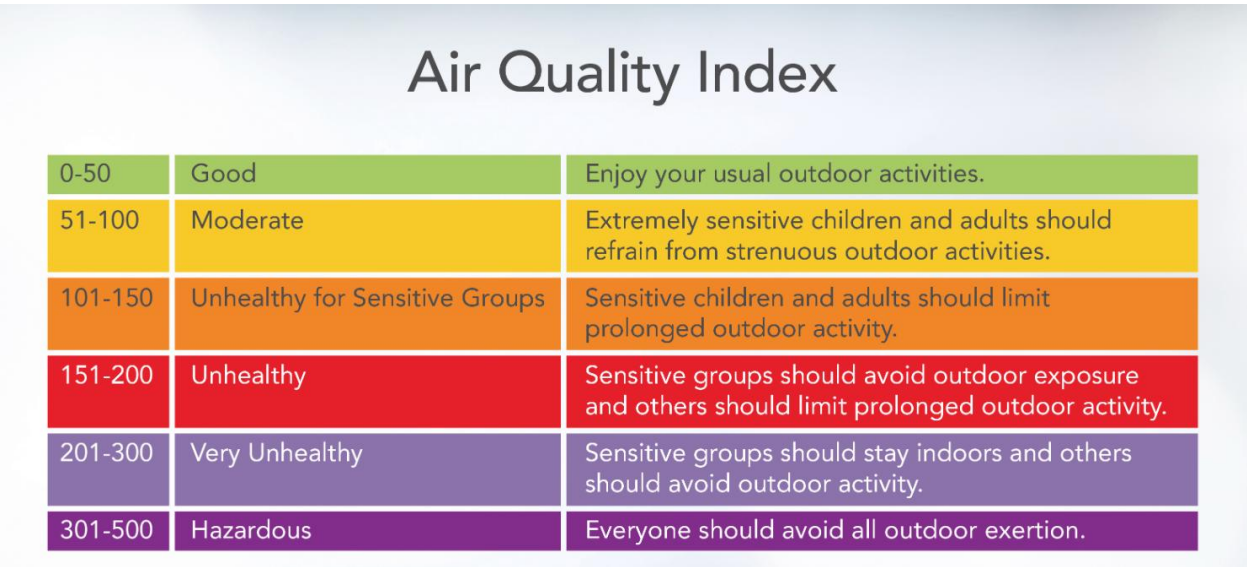


Figure 82: California Air Resources Board Air Quality Index[200]

The 2023 Town PM10 Planning Area Second 10-Year Maintenance Plan submitted by GBUAPCD provides review of daily ambient PM10 monitoring data from the Town monitoring site and shows 41 monitored exceedances of the federal 24-hour PM10 standard (150 micrograms per cubic meter, µg/m3) on 34 days during the three-year period from January 2020 through December 2022. However, 40 PM10 exceedances on 33 days were caused solely by wildfire smoke events and were determined to be Exceptional Events.[201] Figure 83 provides the Town Wildfire Season PM10 aggregate daily average monitoring results between June and October each year from 1992 to 2022 and confirms the above mentioned exceedances in relation to wildfire smoke events.

[200] California Air Resources Board, "Air Quality Index," 2025, https://ww2.arb.ca.gov/smokereadyca.
[201] Great Basin Unified Air Pollution Control District, "Air Quality Plans -Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan," 2023, https://www.gbuapcd.org/District/AirQualityPlans/MammothLakes/.

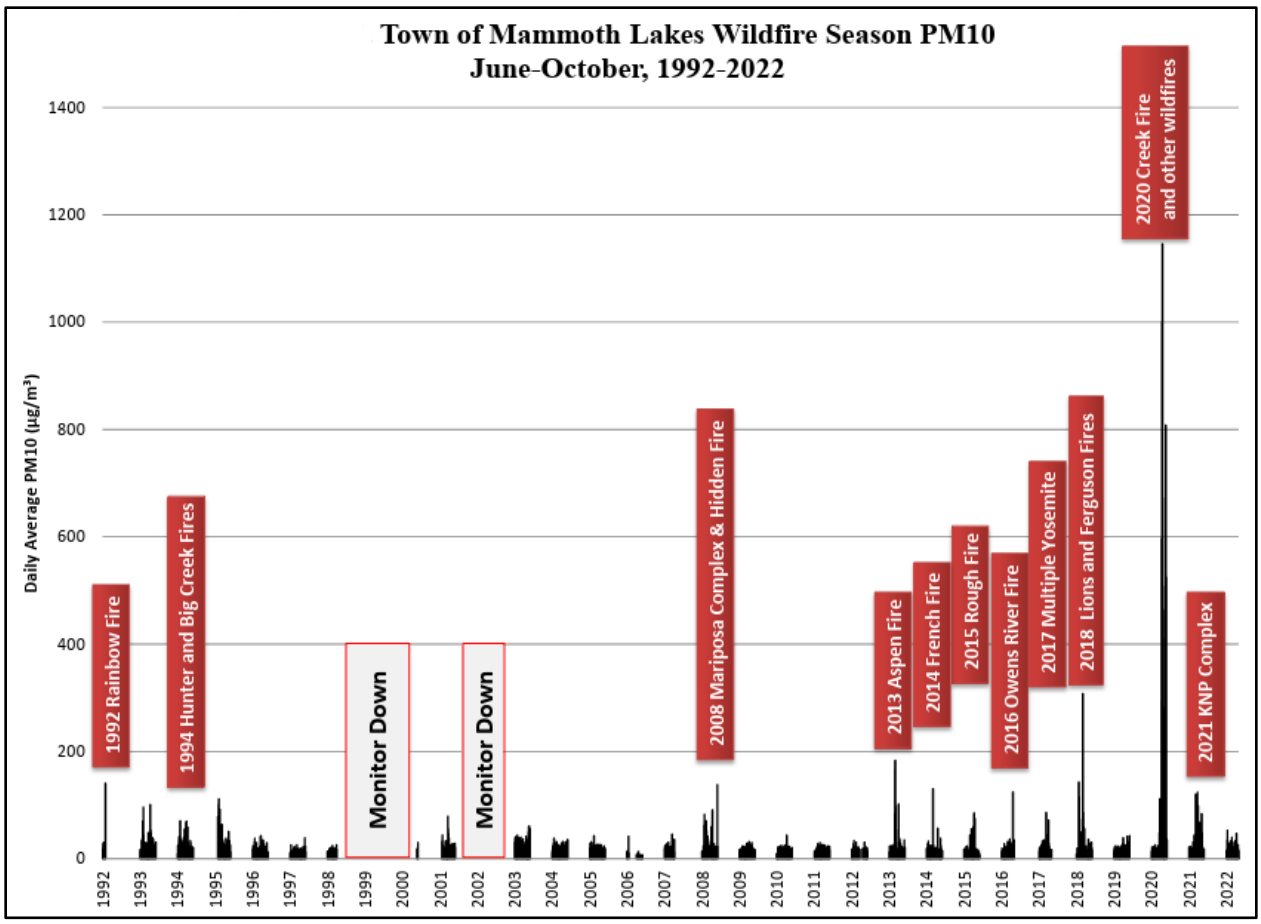


Figure 83: Town of Mammoth Lakes Wildfire Season PM10 June–October 1992–2022[202]

When these exceptional events are excluded from the 2020 to 2022 design value calculation, as provided for in the US EPA Exceptional Events Rule, the resulting design value is 0.6 exceedances per year and the monitoring site is in attainment with the PM10 NAAQS.[203] Figure 84 shows peaks and average aggregated annual PM10, average PM10 indicated by blue dots and maximum PM10 indicated by red dots, and concurrent line graphs to show logged PM10 results from 1990 to 2023.

[202] Great Basin Unified Air Pollution Control District, "Air Quality Plans -Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan," 2023, https://www.gbuapcd.org/District/AirQualityPlans/MammothLakes/.
[203] Great Basin Unified Air Pollution Control District, "Air Quality Plans -Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan," 2023, https://www.gbuapcd.org/District/AirQualityPlans/MammothLakes/.

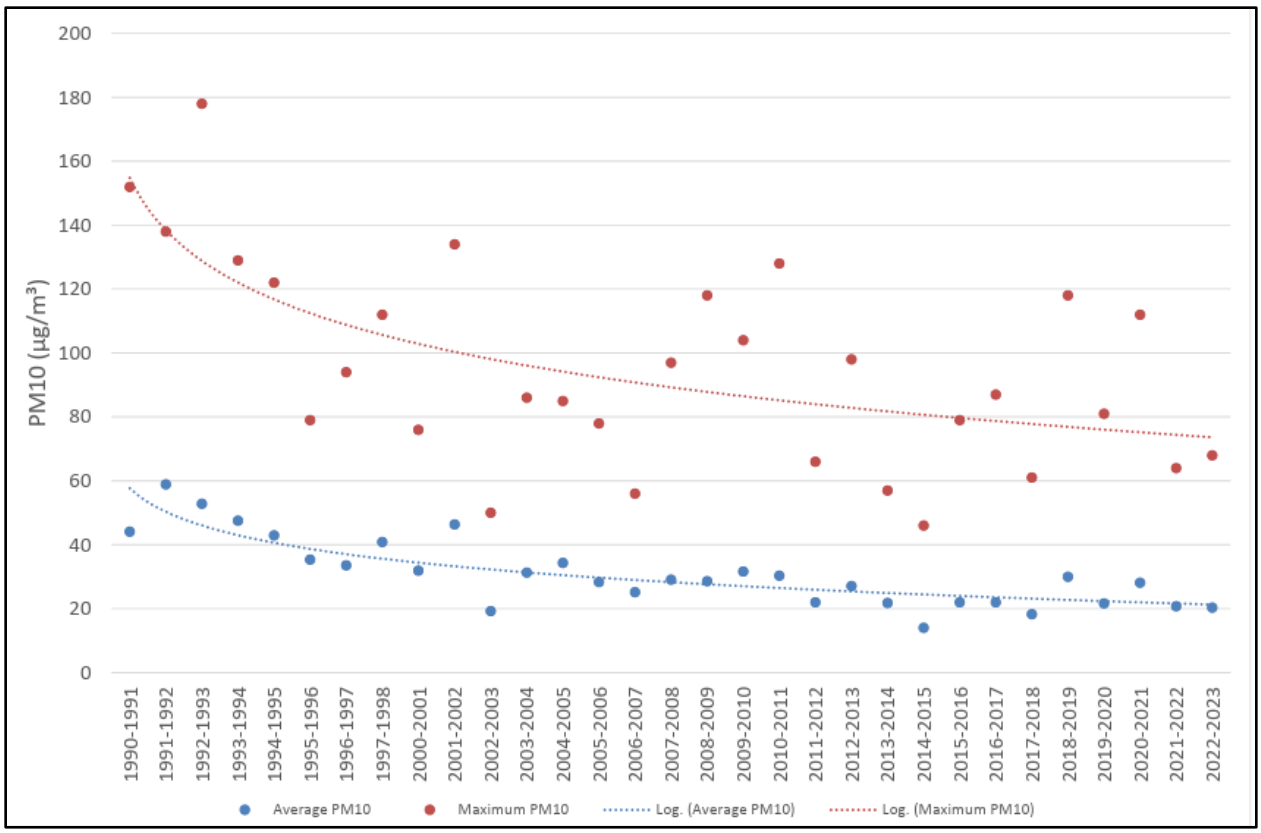


Figure 84: Mammoth PM10 Winter Season Peaks and Averages (1990–1991 to 2022–2023)[204]

History of Previous Hazard Events

The County and the Town have experienced many significant fires throughout their histories. Since the last hazard mitigation plan update, CAL FIRE has recorded 10 fires of at least 10 acres in the County. This section will outline those recent fires as well as give a narrative overview of some significant fires that either occurred in neighboring counties but impacted the County or occurred before the previous hazard mitigation plan update in order to give a holistic view of wildfire history in the County.

FEMA Disasters and Declarations reports there were no major disaster declarations for wildfire in the County since the last plan update.[205] Since the last plan there was one state emergency declared for the Pack Fire in Mono County in November 2025.[206]

[204] Great Basin Unified Air Pollution Control District, "Air Quality Plans -Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan," 2023, https://www.gbuapcd.org/District/AirQualityPlans/MammothLakes/
[205] FEMA. "Disaster Declarations for States and Counties-California, Mono County (2019–2025)." 2025. https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties.
[206] Executive Department of the State of California, "Proclamation of a State Emergency," 2025, https://www.caloes.ca.gov/wp-content/uploads/Legal-Affairs/Documents/Proclamations/12.9.2025-Pack-Fire-SOE.pdf

CAL FIRE reports the following wildfires between 2019 and 2025, date and number of days active, location, the number of acres burned, and cause, when available. (See Table 101.)

Table 101: CAL FIRE Report of Mono County Wildfire Incidents 2015, 2019–2025[207]

Incident	Date	Location	Number of Acres Burned	Cause	Summary
Round Fire	2/6/2015	West of US 395 at Sherwin Grade approximately 9 miles West of Bishop in Inyo County, CA	7,000	Electrical Arc from downed power line	See detailed description below.
Springs Fire	09/06/2019	Southeast of Lee Vining, CA [37.826,-118.872]	4,840	Lightning	Occurred in Inyo National Forest and addressed by USFS. No damage was reported, but several roads were closed near the fire.
Aurora Fire	06/26/2020 (active 6 days)	Bodie Rd, east of Bridgeport [38.22554,-119.00289]	280	Under investigation	Occurred in the Bodie Wilderness Study Area and addressed by the US Bureau of Land Management. No damage reported.
Iris Fire	07/21/2020 (active 22 days)	Iris Meadow and Rock Creek Rd, South of Crowley Lake [37.518879,-118.711135]	120	None provided	Occurred in Inyo National Forest and addressed by USFS. No damage was reported, but Iris Meadow and Big Meadow campgrounds were closed along with Rock Creek Road.
Beach Fire	08/17/2020 (active 11 days)	Hwy 120 and Forest Road 1N23, south of Mono Lake	3,780	Lightning	Occurred in Inyo National Forest and addressed by USFS. No damage

[207] CAL FIRE. "Incidents-Mono County." 2025. https://www.fire.ca.gov/Search-Results?search=Mono%20County&programsCategoryFilters=&activeFilters=&page=1&contenttype=&type=incidents.

Incident	Date	Location	Number of Acres Burned	Cause	Summary
		[37.919382,-119.010655]			reported, but the South Tufa and Navy Beach areas were closed to the public.
Slink Fire	09/01/2020	Slinkard Valley, west of Coleville, California [38.568,-119.568]	26,500	Under investigation	Occurred in Humboldt-Toiyabe National Forest and addressed by USFS. No damaged reported but the Maine Corps Mountain Warfare Training Center was threatened.
Mountainview Fire*	11/17/2020 (active 7 days)	Walker, California	20,879	Power line failure	A power line sparked the Mountain View fire near Walker, causing mandatory evacuations Walker, Coleville, and Topaz. By November 18, 80 structures and one death were reported. The governor proclaimed a State of Emergency in the County as a result of conditions of extreme peril to the safety of persons and property.
Dexter Fire	7/12/2021 (active 18 days)	Wickie Up Rd and Pilot Springs Rd, northeast of Mammoth Lakes [37.8024,-118.8745]	2,965	Lightning	Occurred in Inyo National Forest and addressed by USFS. No damage reported.
Pizona Fire	6/28/2024	North of McBride Springs, Inyo National Forest [38.000167,-118.49]	2,160	Lightning	Occurred in Inyo National Forest and addressed by USFS. No damage reported.

Incident	Date	Location	Number of Acres Burned	Cause	Summary
Cow Camp Fire	7/23/2024 (active 5 days)	Cow Camp Road at Bodie Masonic Road, Bridgeport [38.300167,-119.074167]	292	Under investigation	Occurred in Humboldt-Toiyabe National Forest and addressed by USFS. No damage reported.
Inn Fire	5/22/2025	Off US 395 and Mono Inn Road, South of Mono City [38.009312,-119.156506]	728	Under investigation	Started off of US 395 just south of Mono City. One home was destroyed, Mono Lake County Park was damaged, and power was cut off to Mono City. As of Friday, May 30, the fire was 90% contained.
Pack Fire[208]	11/13/2025–12/3/2025	Near Lake Crowley in the Eastern Sierra Nevada	1,974	Under investigation	On November 13, 2025, a fire broke out near Lake Crowley, destroying 30 residential and commercial structures and damaging six others. The fire spread quickly, prompting mandatory evacuation orders for the Long Valley and McGee Creek communities. Additionally, 1,800 residents were under evacuation orders or warnings.

*Not included in CAL FIRE's database.

[208] Governor Gavin Newsom, "Governor Newsom Proclaims State of Emergency in Mono County for Pack Fire." https://www.gov.ca.gov/2025/12/09/governor-newsom-proclaims-state-of-emergency-in-mono-county-for-pack-fire/.

Table 102 provides burned acres statistics for the County, from 2008 to 2024 and includes data such as incident number, name of fire, dates of fire event, total acres burned and the determined cause of the wildfire.

Table 102: CAL FIRE Statistics on Burned Acres for Mono County (2008–2024)[209]

Incident Number	Fire Name	Dates	Total Acres Burned	Cause of Fire
INF-0656	Sherwin	8/3/2008–8/8/2008	347	Human
OVD-903	Potato	7/24/2010–7/27/2010	686	Lightning
INF-934	Mono	7/26/2010–7/29/2010	1,205	Lightning
OVD-942	Indian	8/8/2012–8/15/2012	12,574	Lightning
OVD-107	Van Dyke	2/6/2015–2/10/2015	509	Undetermined
INF-1319	Walker	8/14/2015–8/31/2015	3,676	Undetermined
INF-992	Marina	6/24/2016–7/4/2016	654	Undetermined
INF-1415	Clark	8/4/2016–8/12/2016	2,819	Lightning
INF-1763	Owens River	9/17/2016–10/15/2016	5,443	Undetermined
INF-1235	Grant	7/31/2017–8/3/2017	400	Lightning
OVD-1478	Slinkard	8/29/2017–9/11/2017	8,925	Lightning
HTF-30870	Chris	11/13/2017–11/16/2017	370	Undetermined
INF-1394	Owens	7/31/2018–8/5/2018	338	Undetermined
OVD-1396	Hot Creek	7/31/2018–8/5/2018	419	Undetermined
INF-1465	Springs	7/26/2019–10/1/2019	4,840	Lightning

[209] Cal Fire, "Past Wildfire Activity Statistics-Redbooks 2008-2024," 2025, https://www.fire.ca.gov/our-impact/statistics.

Incident Number	Fire Name	Dates	Total Acres Burned	Cause of Fire
INF-2140	Beach	8/16/2020–8/28/2020	3,780	Lightning
HTF-30684	Slink	8/29/2020–10/15/2020	26,759	Lightning
OVD-30860	Mountain View	11/17/2020–11/30/2020	20,385	Undetermined
INF-1695	Dexter	7/12/2021–7/28/2021	2,965	Lightning
INF-911	Pizona	6/26/2024–7/5/2024	2,160	Undetermined

Following is a list of significant wildfire events that either occurred outside of the planning area, but impacted the County in some way, or occurred before the previous hazard mitigation plan update.

- **March 30, 2025 – Silver Fire**: The Silver Fire erupted along US 6 in Inyo County, about 5 miles northeast of Bishop in the Owens Valley, near the Nevada border. The California Department of Forestry and Fire Protection reported the fire churned through 1,611 acres of grass and brush off US 6 and Silver Canyon Road, North of Bishop. Residents of about 800 homes near the communities of Laws, Chalfant, and White Mountain Estates were ordered to evacuated after the fire broke out. CAL FIRE reported the potential for 65 mph gusts at the time limited flights by water-dropping helicopters and kept air tankers grounded. The cause of the fire was unknown and under investigation.[210]
- **September 4, 2020 – Creek Fire:** The Creek Fire began on September 4, 2020, most likely triggered by lightning in the dry conifer forests in the Big Creek watershed, a tributary of the San Joaquin River. Fueled by heavy winds, the fire rapidly transformed from a small blaze into a massive inferno and threw a cloud of ash tens of thousands of feet into the air. By the time it was fully contained more than three months later, the Creek Fire had destroyed more than 850 structures, caused 26 injuries, and charred more than 379,000 acres. At the time it was the largest single wildfire in California history. While the Creek fire did not burn through the County, the smoke from the fire brought serious air quality impacts for months while the fire burned. The fire got within 10 miles of the Town before being extinguished by an early winter storm.
- **February 2015 – Round Fire:**[211] On Friday, February 6, 2015, a wildland fire started West of US 395 at Sherwin Grade approximately 9 miles West of Bishop in Inyo County, California. The fire, named the Round Fire, burned approximately 7,000 acres in Inyo and Mono Counties. A total of 53 structures were destroyed or damaged by the fire mostly in Swall Meadows and Paradise. Investigators

[210] CAL FIRE, "Silver Fire, Inyo Mono County," 2025. https://www.fire.ca.gov/incidents/2025/3/30/silver-fire.
[211] CAL FIRE, "CAL FIRE Incident Report: 2015 Round," 2015, https://www.fire.ca.gov/incidents/2015/2/6/round-fire?utm.

determined an electrical arc from a downed power line caused the fire. Strong winds caused the tree to fall, which felled the power lines.

  - Confirmed civilian injuries: 4
  - The fire destroyed a total of 53 structures: 35 residential and 18 non-residential.
  - Number of residential structures rebuilt: 26
  - Structures damaged (residential, commercial, other): 5
  - 41 structures were located within the FRA, and 12 within the SRA.
  - Two of the destroyed structures were located in Inyo County (a large shop and a small outbuilding).
- **June 2002 – Cannon Fire:** The Cannon Fire burned 22,750 acres near Walker in northern Mono County. Three fatalities occurred due to an air-tanker crash, and one person was injured when a water truck was destroyed in a rollover accident. Economic damages from the fire totaled $7.9 million. The fire is thought to be human-caused but was strongly influenced by high winds (20–30 mph), dry fuel conditions, varied fuel types, and mountainous topography. Hundreds of evacuations occurred east and west of US 395 and portions of US 395 were closed.

Mammoth Lakes

Since the 2019 the County hazard mitigation plan update, there have been no significant wildfires that have burned through the Town. Smoke from the 2020 Creek Fire, described above, caused major air quality concerns in the Town.

The most destructive fire that occurred within the vicinity of the Town was the 1992 Rainbow Fire, which began near the Devils Postpile National Monument. In addition to a variety of other conditions, winds between 30 and 60 miles per hour fanned the fire, causing it to expand to more than 8,000 acres within 24 hours. In total, the fire burned 8,347 acres, more than 85% of the Monument's acreage. The Rainbow Fire was ignited by lightning on August 20, 1992, in the Inyo National Forest, south of Devils Postpile National Monument. Fortunately, ideal weather conditions prevented the fire from reaching and spreading into the Town.

Figure 85 shows the historic wildfire perimeters in the planning area according to the National Interagency Fire Center. Large parts of the County experienced wildfire events including at the perimeters of the Town. Wildfire events often follow US 395.

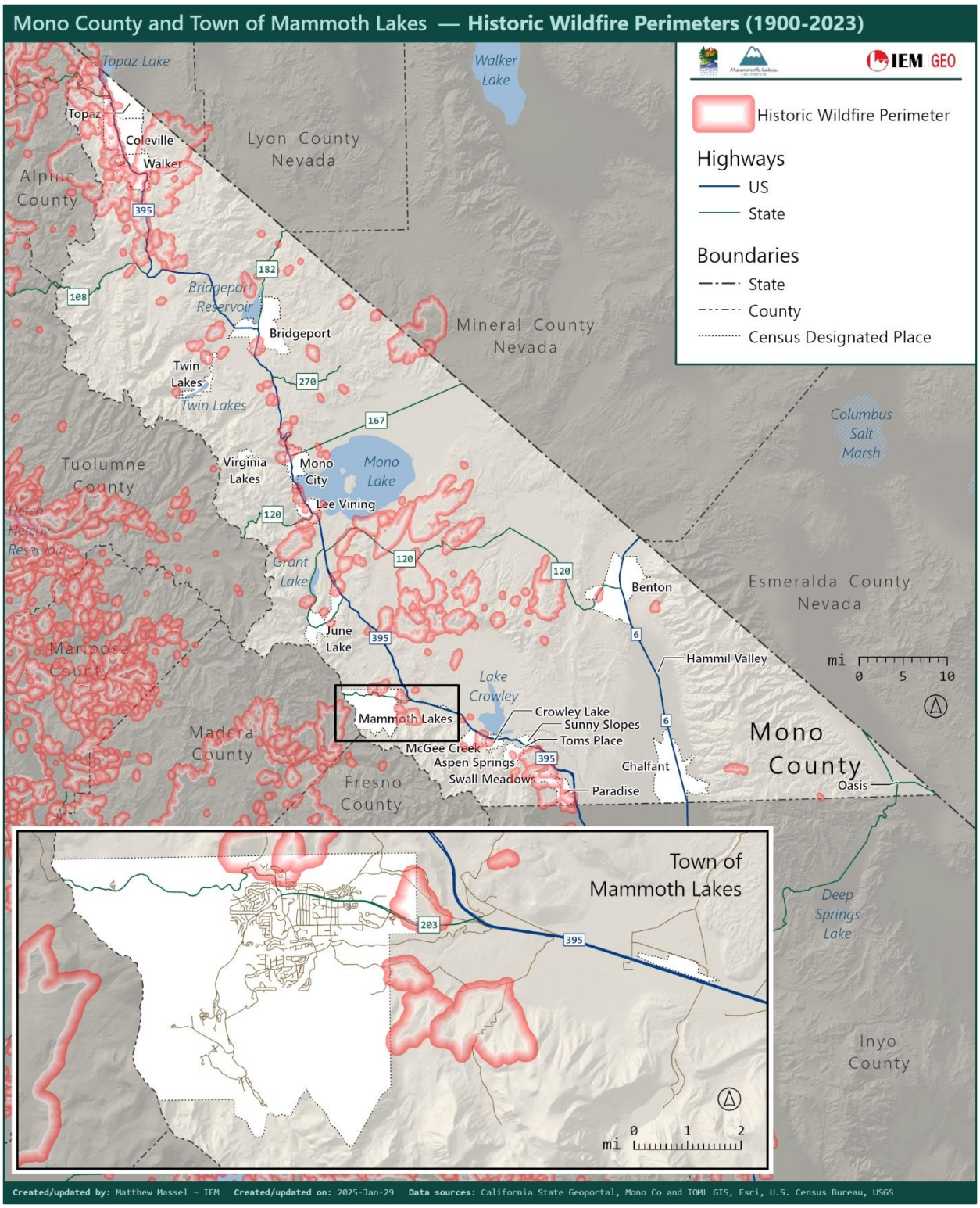


Figure 85: Mono County and Town of Mammoth Lakes – Historic Wildfire Perimeters (1900–2023)

Probability of Future Hazard Events

The 2023 Enhanced California State Hazard Mitigation Plan asserts the following regarding the probability of future wildfire hazard events:

"Due to fuel buildup following a century of fire exclusion, a lengthened fire season predicted by many climate change models, forest management practices which removed many of the older, larger trees, and massive tree die-off following epidemic bark beetle infestations, fires in mixed-conifer forests are likely to continue to grow in both size and intensity."[212]

Given a recent historical average of 10 fires within the last 6 years, as well as the likely increase in frequency and severity due to climate change, the probability of a wildfire occurring in the planning area is highly likely. There is a 100% annual chance of occurrence with between one and two significant fires per year.

CLIMATE CHANGE CONSIDERATIONS

Future climate scenarios of increased temperature and drought means fires are poised to become even larger in the near future. Cal-Adapt estimates an increase of 1,500 to 2,600 hectares of burn area in the County by the year 2099. The estimated burn area in the Town is approximately double that of the annual mean burn area for the last several decades.

According to California's Fourth Climate Change Assessment, if greenhouse gas emissions continue to rise, California is likely to see a 50% increase in fires larger than 25,000 acres and a 77% increase in average area burned by 2100. Numerous climactic drivers will influence wildfire risk in the County:[213]

- **Increasing Temperatures**: High temperatures can impact wildfire risk directly by drying out vegetation and increasing the chances of ignition. They can also impact fire risk indirectly by exacerbating drought stress, weakening forest ecosystems, ultimately increasing the risk of a damaging wildfire.
- **Shifting Water Patterns:** Climate change will cause shifting water patterns in the County that can impact wildfire risk. While predictions on changes in total precipitation in the County are uncertain, it seems likely that snowpack will lessen throughout the century. According to Cal-Adapt, the County will likely see wet years and dry years becoming more intense. Precipitation will likely be delivered in more intense storms and within a shorter wet season. Changing patterns of rainfall will impact plant growth in the desert, thereby altering the amount of fuel for fires. In the inland desert, the potential

[212] 2023 Enhanced California State Hazard Mitigation Plan. "Wildfire-Overall Probability." 2025. https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1-Part-3_11.10.2023.pdf.
[213] Cal-Adapt.org. "California's Fourth Climate Change Assessment, Sierra Nevada Region Report." 2025. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf.

weakening of the North American Monsoon signal could reduce the threat of fire starts due to lightning.

- **Shifting Insect Habitat**: Bark beetle infestations are rising in response to the changing climate, increasing tree mortality—particularly in the southern Sierra Nevada —and reducing carbon storage.
- **Human Impacts:** Across the County, human factors, such as development patterns and risk mitigation strategies, will have a direct impact on communities' ability to mitigate and adapt to the impacts of climate change. Local decisions are a large factor in determining the future health of a community.

Vulnerability

Almost the entire population of the County has a moderate, high, or very high vulnerability to wildfire hazards according to the CAL FIRE Fire Hazard Severity Zones. The Town is entirely within the high and very high hazard severity zones. The combination of highly flammable fuel, long dry summers and steep slopes creates a significant natural hazard of wildland fire potential in most of the County. Wildland fires can result in death, injury, economic loss, and significant public investment in firefighting efforts. Woodlands and other natural vegetation can be destroyed resulting in a loss of wildlife habitat, scenic quality, and recreational resources. Soil erosion, sedimentation of fisheries and reservoirs, and downstream flooding can also result.[214]

STRUCTURES AND CRITICAL INFRASTRUCTURE AND IMPACTS

Fire can damage or destroy structures, including homes, businesses, critical facilities, and other community assets. Embers can travel several miles from the main fire in strong winds and may ignite secondary fires when they come in contact with flammable dry vegetation, rooftops or debris.

Residents closest to the fire may be evacuated, and longer-term displacements are likely if residences are damaged, such as occurred during the 2015 Round Fire (see details in History of Previous Hazard Events). Some households may need to seek public shelter. Homes in foothills may be on dead-end spur roads that may be more difficult to navigate in an evacuation due to narrow lanes and higher traffic volumes. These areas may also be harder to reach by fire trucks. Individuals closest to the wildfire are at risk to burns or other injuries or death. Poor air quality and smoke inhalation can affect people across a large area and is particularly harmful for those with underlying health conditions.

Fires can damage utility systems such as power lines and substations, communication towers, water treatment facilities, and other infrastructure systems. Roads and other transportation networks may need to be closed, which can cause widespread disruption as people seek alternative routes. Some canyon communities only have one major access road, which may leave residents isolated from services or in the

[214] Mono County.gov. "Issues, Opportunities/Constraints-Fire-Wildland Fires." 2025. https://monocounty.ca.gov/generalplan/issues-opportunities-constraints.

case of evacuation, can lead to traffic delays. Emergency response may be delayed by power or communication disruptions, if roadways are inaccessible, or if responding agencies are overwhelmed.

Wildfire can also have significant economic consequences. Businesses can experience damage directly to facilities, inventory, or equipment. Fire can also disrupt power, communication, other utility services, and transportation networks, which can further interrupt business operations. Businesses closed by evacuations or other interruptions will experience loss in revenue. For businesses still operating, they may be short-staffed due to affected employees being unable to report to work. The canyons and forests are important for the County's recreation and tourism industries, and fires restrict use in these areas during the event and may result in long-term reduced visitation in areas burned. The cost of fire suppression, repairs to damaged facilities, and economic losses can all make recovery difficult for a community. A large-scale fire can strain the financial resources of the community and further slow economic recovery.

In addition, fire protection in WUI areas is difficult because the tactics used for wildfire suppression cannot be used for structure protection and suppression. The energy emitted from a wildfire is very dangerous to firefighters and homeowners and makes protection of homes almost impossible. One-third of all firefighter deaths occur fighting wildfires. Many believe that WUI areas significantly increase the risks to firefighters. Legally, federal wildland protection agencies seldom have the responsibility to protect structures. The legal responsibility for protecting structures in non-federal wildlands belongs to California's state firefighting agency, CAL FIRE, and local fire departments depending on where the fire is located.

VULNERABLE POPULATIONS

People over the age of 65 and people who are disabled are more susceptible to air pollution and particulates associated with wildfire smoke. These individuals may also have more difficulty if they need to evacuate. Language barriers can make it difficult to follow directions during an evacuation or to access support after a disaster. Race and ethnicity are strongly correlated with disparities in health and access to aid and resources. Wildfires disproportionately impact people with low incomes because of factors such as inadequate housing and a diminished ability to evacuate or afford relocation expenses.

Larger, more frequent and intense wildfires are a growing public health problem, contributing to reduced air quality for people living near or downwind of fire. Smoke can travel hundreds of miles, so individuals can be impacted even if they are not near an active fire. Health problems related to wildfire smoke exposure can be as mild as eye and respiratory tract irritation and as serious as worsening of heart and lung disease, including asthma, and even premature death.[215]

Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. Smoke plumes from wildfires can contain potentially inhalable carcinogenic matter. Particles of soot and ash that are too small for the respiratory system to filter can cause immediate and

[215] California Air Resources Board, "Particulate Matter," 2025, https://ww2.arb.ca.gov/smokereadyca.

possibly long-term health effects. The elderly or those with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

The County is a major tourist destination with millions of visitors annually. Summer tourists who come to the County for its scenic beauty and recreation opportunities in the County are at particular risk from wildfire. Many tourists do not know the area and inherent risk of wildfire as well as local residents do, increasing the chance that they are unprepared when a wildfire occurs. They also may not be registered for emergency alerts or be aware of evacuation routes in the event of an emergency.

The County has eight recognized Firewise USA communities, with five additional communities in the process of obtaining their designation. The Firewise program, supported by the National Fire Protection Association (NFPA), empowers neighborhoods to reduce wildfire risk through defensible space, home hardening, and community education. The County supports this work through technical assistance, home assessments, and workshops led by the County's Wildfire Mitigation Coordinator. Firewise communities are also better positioned to apply for grants and may qualify for homeowner insurance discounts under California's "Safer from Wildfires" framework.

Mono County's Office of Emergency Management regularly hosts public outreach events—like the June 2025 Firewise workshop in Bridgeport—and continues to promote wildfire resilience through local action. Table 103 shows the residential, commercial and business owner fire insurance policies in force in the County by zip code, from September 2020 to September 2024 and the year-over-year growth percentages from 2021 to 2024. The fire insurance policy purchase trends show the largest year-over-year growth for zip codes 93514, 93529, 93546 and 93517.[216]

[216] California Fair Plan Property Insurance, "Key Statistics and Data, Residential, Commercial, Business Fire Insurance Policy Growth by Fiscal Year (2020-2024), Mono County by Zip Code," 2025, https://www.cfpnet.com/key-statistics-data/.

Table 103: Mono County Fire Insurance Coverage Policy Growth by Zip Code (2020–2024)[217]

Zip Codes/Jurisdiction	9/30/2024		9/30/2023		9/30/2022		9/30/2021		9/30/2020
93517-Bridgeport	37.1%	96	55.6%	70	21.6%	45	42.3%	37	26
96107-Coleville/Walker	52.4%	32	31.3%	21	220.0%	16	0.0%	5	5
93514 – Bishop/ Chalfant, Chalfant Valley, Hammil Valley, Swall Meadows/ Laws, Round Valley, Rovana	159.6%	135	57.6%	52	50.0%	33	15.8%	22	19
93512 - Benton	0.0%	3	0.0%	3	0.0%	3	0.0%	3	3
93529 – June Lake	19.0%	250	20.7%	210	18.4%	174	9.7%	147	134
93541 – Lee Vining/ Mono City, Mono Lake	–2.2%	44	40.6%	45	113.3%	32	36.4%	15	11
93546 – Mammoth Lakes/Crowley Lake/Toms Place	77.9%	936	52.5%	526	70.8%	345	27.0%	202	159
96133 - Topaz	150%	5	100.0%	2	0.0%	1	0.0%	1	0

[217] California Fair Plan Property Insurance, "Key Statistics and Data, Residential, Commercial, Business Fire Insurance Policy Growth by Fiscal Year (2020-2024), Mono County by Zip Code," 2025, https://www.cfpnet.com/key-statistics-data/.

One common challenge in the planning area is isolation, including when it comes to evacuation routes. The communities of Swall Meadows, Lundy Lake, Virginia Lakes, and Twin Lakes all have only one access route. Similarly, certain neighborhoods and subdivisions in the Town also have only one access route. Additionally, Mono City and portions of Tom's Place have secondary access routes that are narrow, poorly maintained dirt roads.

During evacuation and emergency response procedures, the lack of alternative routes could inhibit transportation in and out of most areas. SR 203 is the primary access in and out of the Town, which connects to US 395. The Mammoth Scenic Loop provides a secondary access route to US 395 when not closed during winter months. Certain neighborhoods in the southern portion of the Town do not have secondary access to either SR 203 or US 395.

Impacts

Fire hazard severity has been mapped by CAL FIRE for state and locally owned land in the County. The locally owned areas with fire risk are primarily in the Town and Antelope Valley. Both include areas of moderate, high, and very high fire severity risk. The rest of the areas in the County with wildfire risk are located in state or federal responsibility areas. Impacts to structures and infrastructure as well as people in the fire hazard severity areas include damage or service disruption to critical infrastructure such as utilities, police and fire stations, and healthcare facilities in the Town and County. Additional impacts include loss of access to transportation route in and out of these locations and disruption to local businesses and the tourism trade. Residential communities located in the fire hazard severity areas can experience loss or damage to residential properties, causing displacement and expensive repair or replacement costs. People in the hazard severity areas are in danger of loss of life or injury if not evacuated during these events.

Changes in Development

Much of the privately owned land in the County is located outside of fire protection districts and therefore lacks formal emergency fire protection service. It is difficult for existing fire districts to receive additional property tax revenues for annexation of these unserved areas, or for new fire districts to be formed. Consequently, future development in these areas without adequate fire protection will be limited.[218] Continued population growth into WUI areas with unchanging relative isolation from resources and an increasing frequency of elevated fire weather conditions present major challenges to County residents, increasing vulnerability.[219]

[218] Mono County.gov, 2025, "Issues, Opportunities/Constraints-Fire-Wildland Fires," https://monocounty.ca.gov/generalplan/issues-opportunities-constraints.
[219] 2019 Mono County Multi-Jurisdictional Hazard Mitigation Plan, Community Wildfire Protection Plan, "7.3.2 Location and Magnitude," https://www.monocounty.ca.gov/sites/default/files/fileattachments/planning_division/page/10087/mono-toml_mjhmp_final_may_2019.pdf.

In 2019, following Inyo National Forest's updated forest plan, the Eastern Sierra Climate and Communities Resilience Project (ESCCRP) emerged. The ESCCRP takes a comprehensive view of forest management across a 65,000-acre area in the Eastern Sierra around the Town. Unlike previous approaches that focused on smaller, disconnected parcels, this project addresses the larger, interconnected nature of the landscape to influence how future fires behave in this region by removal of overabundance of fuels. By planning at a broader scale, the ESCCRP aims to enhance forest health, reduce undesired wildfire effects, and create more resilient ecosystems.

This project is a collaboration between many partners including the Town, the Whitebark Institute, USFS, the County, Sierra Nevada Conservancy, Mammoth Lakes Fire Protection District, and Mammoth Community Water District among others. The project has eight goals:

- Reduce vulnerability to the Town
- Allow for safe and effective fire management
- Promote community fire resilience
- Restore ecosystem health and resilience
- Utilize best available science
- Create a fire conscious community
- Cultivate sustainable, long-term partnerships
- Build local capacity

To achieve these goals, the project has identified three foundational needs: workforce development, sustainable funding, and biomass utilization. ESCCRP has completed a needs assessment and environmental analysis and began forest thinning measures in priority areas in the spring of 2025.

To complement the need to remove significant amounts of biomass from the forested area around the Town, the County contracted TSS Consultants to handle pre-development work for a 3+ megawatt bioenergy facility near the Town. This is part of the BioMAT program under Southern California Edison, in collaboration with West Biofuels, Ormat, USFS, and others. In March 2024, West Biofuels was awarded up to $30 million by the Department of Energy to develop biomass-to-electricity plants in rural communities, including the Town.



Figure 86: ESCCRP National Environmental Policy Act Timeline[220]

[220] Whitebark Institute, "ESCCRP Project Overview – Whitebark Institute," May 14, 2025, https://whitebarkinstitute.org/esccrp/.

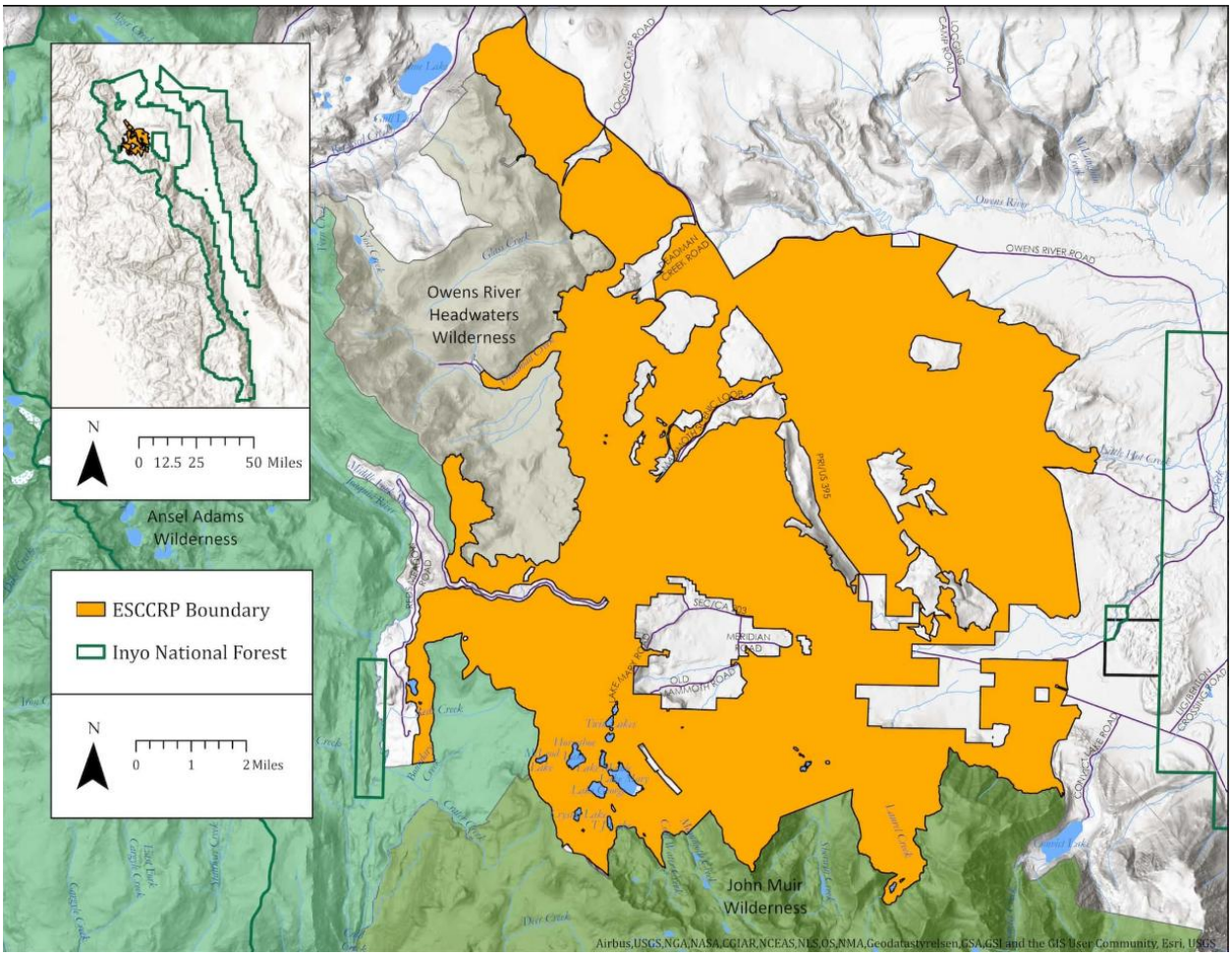


Figure 87: ESCCRP Boundaries[221]

The purpose of strategic fire management zones is to support decisionmakers before a fire ignition occurs, by pre-assessing the risk and benefits from wildland fire (both wildfire and prescribed fire) to areas on the landscape. Forest plan guidance aids wildland fire management decisions to meet the full range of forest plan objectives and use the most appropriate wildfire response within all the zones. The entire spectrum of strategies is available in all the zones, and wildland fire will be actively managed in all the zones to meet objectives.[222]

[221] Whitebark Institute. "ESCCRP Project Overview – Whitebark Institute," May 14, 2025. https://whitebarkinstitute.org/esccrp/.
[222] Whitebark Institute. "ESCCRP Project Overview – Whitebark Institute," May 14, 2025. https://whitebarkinstitute.org/esccrp/.

Wildlife Collisions

Hazard Description

Wildlife Vehicle Collisions (WVCs) are frequent in areas where rural regions meet and interact with developed areas. Collisions can cause vehicle damage, driver injuries, and loss of vehicular control. They generally occur during early morning and evening hours, when animals are active and road visibility is low. Mule deer are the most common species involved in notable wildlife collisions in the County, as US 395 bisects a major migration corridor for two herds. Other wildlife impacted by WVCs includes coyotes, mountain lions, black bears, foxes, and bobcats. ("Notable" refers to a collision worth reporting and/or that has caused damage.)

CASCADING HAZARDS

WVCs pose significant cascading hazards beyond immediate vehicular damage and injuries. These incidents can lead to environmental and socioeconomic impacts, such as disruption of local wildlife populations, increased road maintenance costs, and heightened driver insurance premiums. Additionally, such collisions can trigger ecosystem imbalances by affecting species that rely on the same habitats. As human activity continues to encroach on wildlife corridors, the risk of such collisions is likely to rise—necessitating thorough hazard mitigation planning.

Location

Most WVCs in the County occur along US 395 and SR 203 due to their intersection with the seasonal mule deer migration corridor. Figure 88 displays the highest concentrations of WVCs on US 395 from the intersection of Crowley Lake Drive postmile (PM) R18.03 to the intersection with SR 203 and on SR 203 from Meridian Blvd. (PM 6.9) to just beyond the intersection with US 395. Between Crowley Lake and the Town, Caltrans has identified four WVC hotspots on US 395.

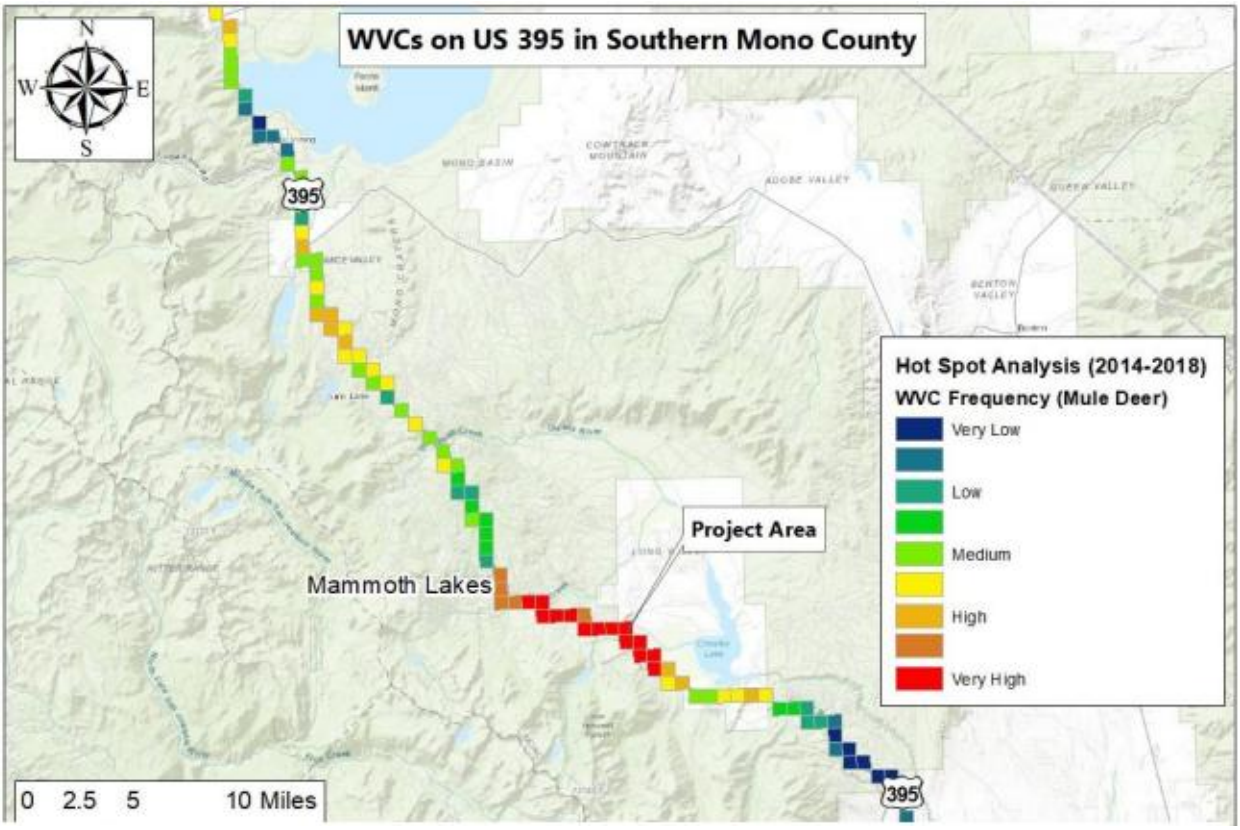


Figure 88: Hotspots for Collisions with Mule Deer in Southern Mono County[223]

Figure 89 displays deer mortality from WVCs on SR 203 and US 395 from 2016 to 2019.[224]

[223] Mono County, "Project Study Report-Project Development Support (PSR-PDS) to Request Approval to Proceed to the Project Approval and Environmental Document (PA&ED) Phase." https://monocounty.ca.gov/sites/default/files/fileattachments/local_transportation_commission_ltc/page/617/09-38160_long_valley_wildlife_crossing_psr-pds_final_with_attachments_06.23.20.pdf

[224] Caltrans, "Wildlife-Vehicle Collisions (WVCs) by the Number." https://dot.ca.gov/caltrans-near-me/district-9/district-9-projects-list/mammoth-lakes-wildlife-crossing-project

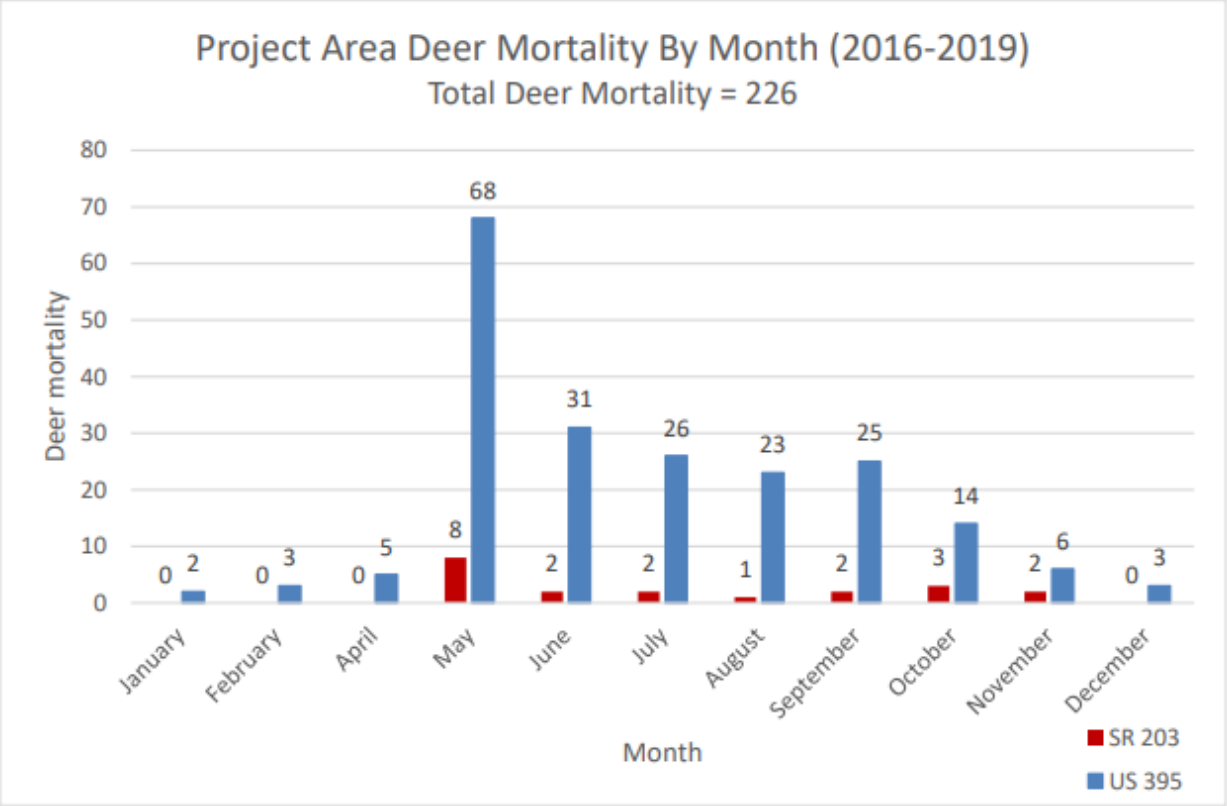


Figure 89: Mono County Deer Mortality, 2016–2019[225]

Table 104 displays overall WVC mortality numbers across the County from 2002 to 2022.[226]

Table 104: Vehicle Collision Hotspots[227]

Location	Miles	Total Mortality (21 Years)	Mortality per Year	Mortality per Year per Mile	Postmiles	Notes
203/395 Junction	3.5	343	16.3	4.7	21.9–26.0	From 203/395 junction to the airport

[225] Mono County, "Project Study Report-Project Development Support (PSR-PDS) to Request Approval to Proceed to the Project Approval and Environmental Document (PA&ED) Phase." https://monocounty.ca.gov/sites/default/files/fileattachments/local_transportation_commission_ltc/page/617/09-38160_long_valley_wildlife_crossing_psr-pds_final_with_attachments_06.23.20.pdf

[226] Mono County Local Transportation Commission, Mono County Community Development Department, Mono County Public Works Department, Town of Mammoth Lakes Community and Economic Development Department, Town of Mammoth Lakes Public Works Department, "2024 Regional Transportation Plan," 2024. https://www.monocounty.ca.gov/sites/default/files/fileattachments/local_transportation_commission_ltc/page/4857/2024_rtp_w-appndx_v12-09-24_adopted.pdf.

[227] Source: Data as of 2022, Ben Carter, California Department of Fish and Wildlife, October 2024.

Location	Miles	Total Mortality (21 Years)	Mortality per Year	Mortality per Year per Mile	Postmiles	Notes
Morrison Curve	1.4	261	12.4	8.9	18.4–20.4	The curve, from Benton Rd. to the Caltrans station.
Sonora	5.1	147	7.0	1.4	89.9–96.0	Sonora junction, from the Walker River bridge to Fales Hot Springs
Buckeye Rd.	1.1	134	6.4	5.8	80.39–82.0	The hills north of Bridgeport
Conway Summit	4.3	131	6.2	1.4	59.8–64.0	From the bottom of the grade to Mono Lake to just over Conway Summit
Lookout Mtn.	1.2	73	3.5	2.9	30.8–32.0	A quarter mile south of the Crestview Rest Area
June Lake turnoff	1.2	58	2.8	2.3	39.8–41.0	South end of the June Lake loop with 395
Long Valley	0.6	56	2.7	4.5	17.3–17.9	Community of Long Valley, a half mile south of Morrison Curve
Bodie Rd.	0.6	40	1.9	3.2	69.4–70.0	Hwy 270 junction
Topaz	1.1	32	1.5	1.4	117.9–119.0	Along the south side

Location	Miles	Total Mortality (21 Years)	Mortality per Year	Mortality per Year per Mile	Postmiles	Notes
						of Topaz Lake
Grant Lake	0.3	23	1.1	3.7	43.7–44.0	One mile south of June Lake Loop (North end)

MONO COUNTY

US 395—the primary route through the County—has a high WVC risk. Thus, residents of the unincorporated County have a greater exposure to the risk of WVCs. US 395 accounts for the vast majority of WVCs reported annually in the County. US 395 falls under the jurisdiction of Caltrans.

MAMMOTH LAKES

Within the Town, WVCs are less common. The incorporated area is more developed and has lower posted speed limits. Additionally, the highway and roadway system does not intersect a significant migration corridor. SR 203 recorded an average of 10 WVCs per year from 2017 to 2019.[228] From 2003 to 2024, there were a total of 343 WVC-related deaths between the junction of US 395 and SR 203 and the Mammoth Yosemite Airport, averaging 16.3 deaths per year.[229]

Extent

While there is not a universally accepted metric for measuring the extent of wildlife collisions, various indices and data points, such as collision rates per mile of roadway or annual mortality by species, are commonly used to assess these incidents.

The County is home to wildlife species that frequently traverse roadways, especially during seasonal migration periods. An analysis of local data indicates a rising trend in WVCs, which pose risks to wildlife populations, public safety, and property.

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[228] Mono County, "Project Study Report-Project Development Support (PSR-PDS) to Request Approval to Proceed to the Project Approval and Environmental Document (PA&ED) Phase." https://monocounty.ca.gov/sites/default/files/fileattachments/local_transportation_commission_ltc/page/617/09-38160_long_valley_wildlife_crossing_psr-pds_final_with_attachments_06.23.20.pdf

[229] Mono County Local Transportation Commission, Mono County Community Development Department, Mono County Public Works Department, Town of Mammoth Lakes Community and Economic Development Department, Town of Mammoth Lakes Public Works Department,"2024 Regional Transportation Plan," 2024. https://www.monocounty.ca.gov/sites/default/files/fileattachments/local_transportation_commission_ltc/page/4857/2024_rtp_w-appndx_v12-09-24_adopted.pdf.

History of Previous Hazard Events

There is an average of 57 WVCs per year in the project area, or approximately 4 WVCs per mile per year.[230] Between 2017 and 2019, there were 225 collisions on US 395 in the project area, with 12 injuries and no fatalities. California Highway Patrol recorded 40 WVCs, three of which resulted in injuries. Based on district carcass data, Caltrans District 9 inferred an additional 137 collisions for 177 WVCs.

Between 2017 and 2019, there were 31 collisions on SR 203 in the project area. No fatalities occurred, but there were seven injury collisions. A total of 16 WVC collisions were captured on the segment. CHP recorded one WVC, and 15 WVCs were inferred based on district carcass data. There were no injuries or fatalities from collisions with deer.[231]

Probability of Future Hazard Events

The probability of future WVCs remains high. While there are projects being planned to address WVCs in the Town and the County that may reduce WVC in the long term, in the short term there will likely continue to be WVCs along highly trafficked areas.

CLIMATE CHANGE CONSIDERATIONS

Climate change significantly influences WVCs in the County through various interconnected mechanisms. Wildlife behaviors and migration patterns can shift as temperatures rise, leading animals to crossroads at unexpected times and locations. Additionally, changing ecosystems can result in altered habitats, making it more likely for wildlife to venture into areas frequented by vehicles. The increased frequency and intensity of extreme weather events can further exacerbate these collisions by reducing visibility and road conditions.

Vulnerability

The diverse ecosystems in the region—home to species such as mule deer, black bears, mountain lions, foxes, coyotes, and various small mammals—contribute to the risk of wildlife-vehicle encounters, particularly near roadways that intersect natural habitats or migration corridors. These collisions can result in serious injuries, fatalities, and substantial vehicle damage, leading to economic impacts on the local community. Additionally, the terrain and weather conditions in the County can exacerbate the danger, making it essential for local authorities and residents to implement awareness campaigns, wildlife crossings, and signage to mitigate risks.

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[230] California.gov, Caltrans, 2025, "Mammoth Lakes Wildlife Crossing Project-Wildlife Vehicle Collisions By the Number," https://dot.ca.gov/caltrans-near-me/district-9/district-9-projects-list/mammoth-lakes-wildlife-crossing-project
[231] Ibid.

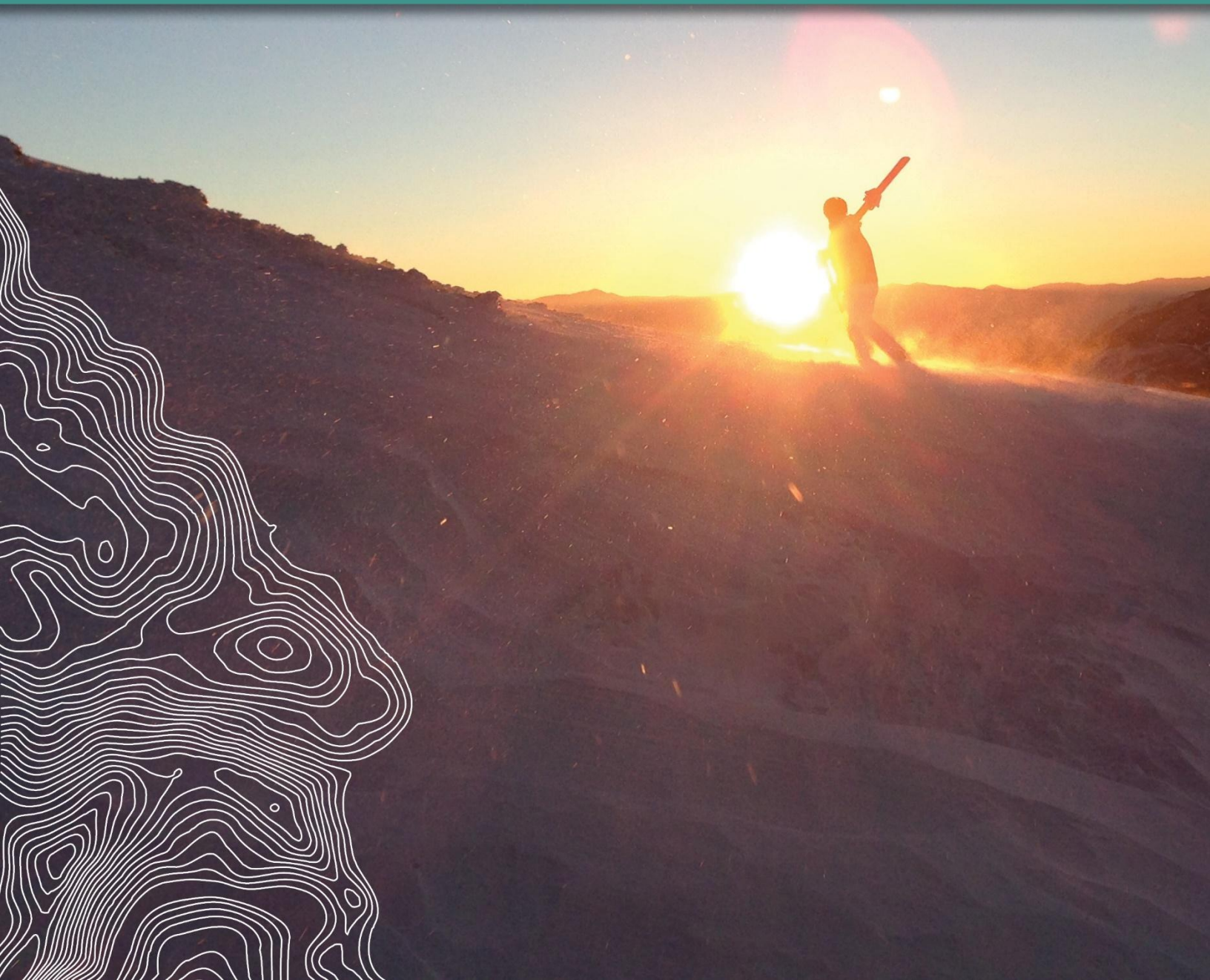
Impacts

Wildlife collisions pose significant risks to both human safety and animal populations in the County, particularly around the Town. The region's unique geography, characterized by mountainous terrain and abundant natural habitats, increases the likelihood of encounters between vehicles and wildlife, especially during migration seasons. These incidents can lead to injuries or fatalities for both animals and drivers, and they may also result in extensive property damage and expensive repair costs. Furthermore, the psychological impact on drivers involved in these collisions can lead to increased anxiety while traveling through these areas.

Changes in Development

As urbanization progresses, habitat fragmentation becomes a significant concern, leading to an increase in WVCs. This can prompt adjustments in land use policies, such as establishing wildlife corridors or implementing fencing along high-risk roads to minimize animal crossings. Moreover, there may be a push to develop educational programs to raise awareness about wildlife safety among residents and visitors. Incorporating wildlife-sensitive planning into future developments will be crucial for balancing growth with preserving local ecosystems and reducing WVC risks, ensuring the safety of wildlife and human communities in the County.

Section 4:
Capabilities Assessment



Capabilities Assessment

The capabilities assessment identifies existing resources the plan participants have that can support the hazard mitigation measures in this plan. Existing resources are broadly defined to include personnel, plans, public policy, and programs, as well as potential financial resources. Each plan participant was individually responsible for assessing their current capabilities during this plan update. This assessment helps determine the ability of the plan participants to reduce damage from hazard events, providing a foundation to develop, consider, and prioritize future hazard mitigation measures.

This assessment also provides the opportunity to evaluate current ordinances, plans, projects, and budgeting considerations for potential mitigation opportunities that reduce risk and/or increase resilience. This plan was developed in accordance with the 2023 FEMA local mitigation planning requirements, including new requirements to evaluate the effectiveness of both pre- and post-disaster capabilities. Each plan participant was then encouraged to select mitigation actions that would address the opportunities for improvement identified in their capabilities assessment.

The specific FEMA-identified types of capabilities addressed by this plan include the following:*

- **Planning and Regulatory:** Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.
- **Administrative and Technical:** Administrative and technical capabilities include staff and their skills. They also include tools that can help carry out mitigation actions. Partners and partnership-building can further strengthen these capabilities.
- **Financial:** Financial capabilities are the resources to fund mitigation actions. Talking about funding and financial capabilities is important to determine what kind of projects are feasible, given their cost. Mitigation actions like outreach programs are lower cost and often use staff time and existing budgets. Other actions, like earthquake retrofits, could require substantial funding from local, state, and federal partners.
- **Education and Outreach:** Education and outreach capabilities are programs and methods that could communicate with the public about mitigation and encourage risk reduction. Partners, especially those who work across jurisdictional boundaries or directly with underserved communities, can help support education and outreach capabilities.

  For detailed capability assessment information for each jurisdiction and the special districts please see the plan annexes.

In addition to the four traditional types of capabilities assessed, National Flood Insurance Program (NFIP) capabilities were also reviewed. NFIP capabilities can include existing resources under each of the four categories. Both the County and the Town participate in the NFIP, but the special districts do not

participate in the NFIP. Their capabilities assessment reflects this fact. Each plan participant's completed capabilities assessment can be found in their individual annexes.

NATIONAL FLOOD INSURANCE PROGRAM OVERVIEW

The NFIP is a federally backed flood insurance program established by Congress in 1968. The program is designed to reduce risk through effective floodplain management and by sharing the risk of flood losses through insurance. In order to participate, communities must adopt and enforce minimum local floodplain management standards. Locally, both the County and the Town participate in the NFIP. The County joined on August 19, 1985, and the Town joined on August 2, 1994. As of April 2025, the County had 29 NFIP policies in force for $9,366,000 in total coverage. Two losses have been paid out, for a total of $46,060. In the Town, there are currently 85 policies in force for $23,105,200 in total coverage. Forty-four prior losses have been paid for a total of $358,675.

Potential Funding Sources

Potential funding sources for hazard mitigation activities are always important to consider. It is the intent of this plan update to enable plan participants to retain their eligibility for federal hazard mitigation grant programs, including FEMA hazard mitigation grants, by adopting the updated hazard mitigation plan. However, FEMA is not the only source of mitigation planning. Exploring a diverse range of funding sources for hazard mitigation, including federal grants, state and local grants, nonprofit, and public–private partnerships helps communities build resilience against potential disasters and expand their financial capabilities to address risk.

As a part of this plan update, plan participants considered what potential funding sources could support each of their mitigation actions. The following funding source information was provided to plan participants for reference. Since this plan was developed during a period of change under the new presidential administration, some programs, particularly at the federal level, may no longer exist. Given the fluctuating nature of federal funding during the planning process, these grants have been kept in for future reference in case there are any changes or replacement grants provided by the federal government at a later point.

Table 105 shows pre- and post-disaster potential funding sources for hazard mitigation.

Table 105: Potential Hazard Mitigation Funding Sources

Name	Description	Hazards
American Red Cross	The American Red Cross provides funding and resources for disaster preparedness and response initiatives, particularly at the community level. It supports programs that educate communities on emergency	Various natural disasters, including floods, hurricanes, and wildfires

Name	Description	Hazards
	preparedness and enhance resilience.	
Building Resilient Infrastructure and Communities (BRIC) Funding	The BRIC program, introduced by FEMA, is designed to fund projects that enhance community resilience and reduce disaster risk. It encourages proactive investment in infrastructure improvements and hazard mitigation planning. The focus is on supporting the development of resilient infrastructure that can withstand future natural hazards and climate-related impacts. Unlike previous programs, BRIC emphasizes incorporating mitigation measures into long-term planning and development processes. BRIC is included for reference in this plan, but may be replaced by another grant program or eliminated as federal policy changes.	Including but not limited to flooding, hurricanes, wildfires, earthquakes, and climate-related events
California Department of Forestry and Fire Protection (CAL FIRE) Grants	CAL FIRE offers various grant programs to reduce wildfire risks and improve forest health. Initiatives can include vegetation management, firebreaks, and community education efforts.	Wildfires and associated hazards like smoke and air quality deterioration
California Natural Resources Agency (CNRA)	The CNRA manages several funding programs, including the Climate Change Research Program and the Land and Water Conservation Fund, to support projects that enhance community resilience and address climate impacts.	Droughts, floods, and wildfires
California Strategic Growth Council's Transformative Climate Communities Program	This program funds projects that combat climate change and improve community resilience, particularly in disadvantaged communities. It supports various initiatives that lead to	Wildfires, extreme heat, flooding, and air quality issues

Name	Description	Hazards
	sustainable, resilient infrastructure.	
Clean Cities Coalitions	Through the US Department of Energy, local Clean Cities Coalitions sometimes provide funding opportunities or grants for alternative fuel projects, including propane ones.	Energy
Community Development Block Grant (CDBG) Program	These grants provide funding to states and localities to address various community development needs, including mitigation of natural hazards. The funds can be utilized for infrastructure improvements, enhancing housing resilience, and upgrading public facilities.	Flooding, severe storms, and other community-based hazards
Crowdfunding Platforms	Local communities may turn to crowdfunding for specific mitigation efforts, allowing residents to fund projects directly related to hazards affecting their neighborhoods.	Multiple hazards
Disaster Relief Fund (DRF)	This fund supports federal disaster response and recovery efforts, including hazard mitigation initiatives as part of the recovery process.	Covers all hazards that result in a federally declared disaster
Environmental Protection Agency (EPA) Grants	The EPA provides various grants aimed at improving environmental health and sustainability. These can include funding for projects that enhance community resilience to natural hazards. The EPA's Brownfields Program sometimes funds projects involving infrastructure improvements, especially related to public health and safety.	Varies widely but may include flood management, air quality, and other environmental hazards
Environmental Quality Incentives Program (EQIP)	Administered by the US Department of Agriculture (USDA), this program may provide financial assistance to	Energy

Name	Description	Hazards
	farmers and ranchers for various conservation practices, such as installing new propane fuel tanks.	
Federal and State Clean Water State Revolving Funds (CWSRF)	These funds focus on water quality improvement projects that significantly aid flood mitigation, including stormwater management and green infrastructure.	Flood
Federal Highways Administration (FHWA) Emergency Relief Program	This funding aids in promptly repairing and reconstructing highways and roads damaged during significant disasters. This can include hazard mitigation components in road safety enhancements.	Floods, hurricanes, landslides, and other events affecting transportation infrastructure
FEMA (Federal Emergency Management Agency) Hazard Mitigation Grant Program (HMGP)	This program provides funding for projects that reduce disaster risk. The funds can be used for long-term hazard mitigation measures such as infrastructure improvements, retrofitting buildings, and planning initiatives.	Flooding, earthquakes, hurricanes, tornadoes, and other natural disasters
FEMA Pre-Disaster Mitigation (PDM) Program	The PDM program aims to support local governments in acting before disaster strikes and encourage proactive mitigation strategies. Funding is provided for the development of hazard mitigation plans and specific projects.	Generally targets the same hazards as HMGP, emphasizing preemptive measures
Flood Mitigation Assistance (FMA) program	The FMA program provides financial assistance for projects that mitigate flood risks by acquiring, elevating, or retrofitting flood-prone structures. The funding can also support the development of flood hazard mapping and comprehensive floodplain management plans.	Flooding

Name	Description	Hazards
Flood Mitigation Assistance (Swift)	This more streamlined FMA program is designed to provide quick funding responses to urgent flood risk situations. The Swift initiative may prioritize projects that can be implemented rapidly or respond to recent severe flooding incidents. This program often emphasizes the rapid deployment of resources and may have different eligibility criteria or quicker application processes than regular FMA grants.	Flooding
Global Climate Change Alliance Trust Fund (GCCA+ Fund)	This fund supports projects to increase resilience to climate change impacts through various initiatives, including disaster preparedness and mitigation measures. It's often administered through partnerships with local nongovernment organizations.	Climate-related impacts, including severe weather events, flooding, and drought
HMGP Post-Fire Grant	A federal funding opportunity designed to support recovery and resilience following devastating wildfires. This program encourages states, local governments, and tribes to implement projects that reduce future risks and enhance community preparedness. Projects must align with the goals of mitigating future hazard risks, particularly in areas affected by recent wildfires.	While specifically focused on wildfires, the HMGP post-fire grant can also support projects to mitigate related threats such as landslides, flooding, and other hazards exacerbated by fire damage and subsequent environmental changes.
Innovative Financing Mechanisms	Tools like green bonds, resilience bonds, and disaster recovery bonds allow municipalities to fund initiatives targeting various hazards while attracting private investment.	Various including flooding and landslides

Name	Description	Hazards
Land and Water Conservation Fund (LWCF)	This fund focuses on land acquisition and recreational projects, which may include floodplain restoration and conservation to mitigate flooding risks.	Flood
Local Government and Municipal Financing	Cities can use general obligation bonds or revenue bonds to fund resilience projects.	Flooding, earthquakes, or other local risks
National Fish and Wildlife Foundation (NFWF)	NFWF grants often target projects that improve ecosystem resilience and can help reduce flooding through initiatives like watershed restoration.	Flood
National Oceanic and Atmospheric Administration (NOAA) Grants	NOAA provides funding opportunities for projects that support weather preparedness and resilience research, particularly those that enhance community response to climatic hazards.	Coastal flooding, hurricanes, and severe weather events
Public Assistance (PA) Mitigation 406 Funding	PA Mitigation 406 funding is a program under FEMA that supports projects aimed at reducing future disaster risks for communities affected by federally declared disasters. This funding is available to state, local, tribal, and territorial governments and can be used to retrofit, reconstruct, or elevate public structures.	Floods, hurricanes, tornadoes, wildfires, and earthquakes
Propane Education and Research Council (PERC)	PERC offers various funding incentives and grants for propane fuel-related projects, including infrastructure like tanks.	Energy
Robert Wood Johnson Foundation	Focused on public health, this foundation funds projects promoting health equity and community resilience, particularly concerning disaster preparedness and response. It	Health impacts of natural disasters, including storms, floods, and other emergencies

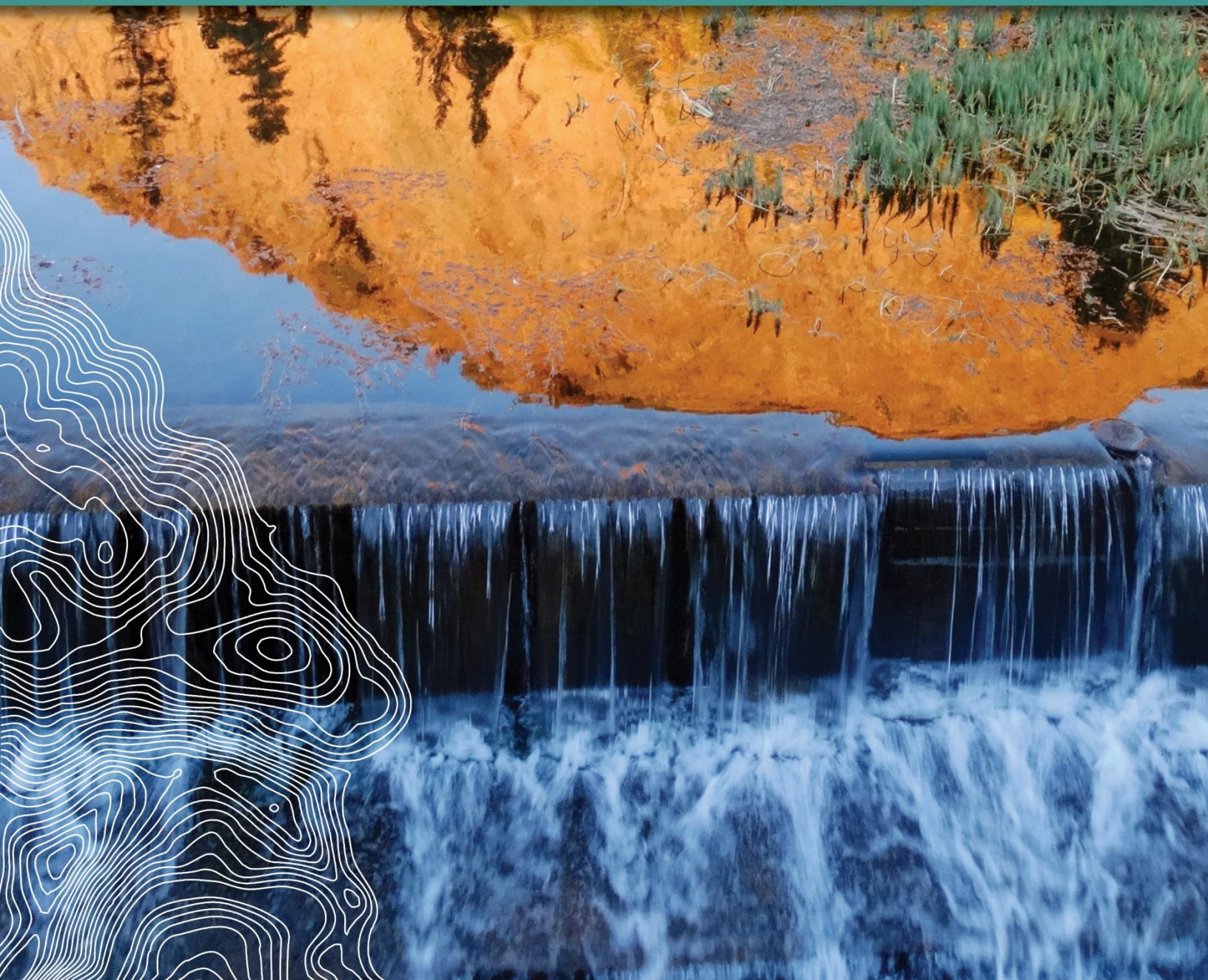
Name	Description	Hazards
	aims to create healthier, more resilient communities.	
Safeguarding Tomorrow Revolving Loan Fund (STRLF)	STRLF is designed to support communities in adapting to the impacts of climate change and enhancing their resilience through sustainable infrastructure projects. It typically aims to provide low-interest loans to municipalities, non-profits, and other eligible entities for projects.	Climate-related challenges, such as flood protection, stormwater management, and energy efficiency improvements
State Disaster Recovery Funds	These funds provide financial assistance for projects aimed at disaster recovery and resilience.	Hurricanes, floods, and wildfires
State Energy Program (SEP)	Many states have energy programs that may offer grants or rebates for installing propane tanks or switching to propane heating systems.	Energy
The Alternative Fueling Infrastructure Discretionary Grant Program	This program supports the development of alternative fueling infrastructure across the United States. It aims to enhance the availability and accessibility of alternative fuels such as electric, hydrogen, biofuels, and natural gas for vehicles. The program provides funding to encourage the expansion of charging stations, refueling sites, and related infrastructure. By promoting alternative fueling options, the program aims to reduce reliance on traditional fuel sources and seeks to improve energy security and mitigate climate change. In addition, the program helps enhance public safety by supporting the infrastructure needed for zero-emission vehicles, which can lead to	Energy reliance and climate change

Name	Description	Hazards
	cleaner air and healthier communities.	
The Community Foundation	Many local community foundations offer grants for specific projects that improve resilience and disaster preparedness in their areas. Funding is often provided for community education, infrastructure improvements, and emergency response planning.	Varies by region but often includes floods, severe storms, and local environmental risks
The Kresge Foundation	The Kresge Foundation supports initiatives that enhance community resilience and improve health outcomes, particularly in low-income communities. Their funding often goes towards projects integrating environmental improvements, disaster preparedness, and health equity.	General natural disasters, including floods and extreme weather events, with a focus on vulnerable communities
The National Earthquake Hazards Reduction Program (NEHRP) Grant Program	NEHRP Grant Program is designed to support research and initiatives to reduce earthquake risks. Established in the 1970s, NEHRP is a coordinated effort among several federal agencies, including FEMA, the US Geological Survey, the National Institute of Standards and Technology, and the National Science Foundation. It provides funding for research, risk assessment and mitigation, technology development, and public awareness and policy support.	Earthquake
The Nature Conservancy	The Nature Conservancy offers grants and funding for projects to conserve natural habitats and promote sustainable land use. Their funding often supports	Flooding, wildfires, and coastal erosion

Name	Description	Hazards
	initiatives that improve natural disaster resilience through ecosystem restoration and protection.	
The Rockefeller Foundation	This foundation focuses on building city resilience through various initiatives, including climate adaptation, disaster risk management, and sustainable urban development. It funds innovative projects that promote community-driven solutions.	Climate change impacts, floods, hurricanes, and other severe weather situations
USDA Rural Development Grants	Various grants address rural areas affected by natural disasters. Programs may include loans or grants for infrastructure improvement, energy efficiency upgrades, and community facility developments that enhance resilience.	Floods, wildfires, and severe storms, construction, and utility upgrades (propane tanks)
USDA Rural Energy for America Program (REAP)	This program provides grants and loans to rural businesses for renewable energy systems and energy efficiency improvements, including propane tanks and equipment.	Energy
Wildlife Conservation and Recreation Fund	While primarily focused on conservation, these funds can also support flood mitigation efforts by preserving natural landscapes like wetlands and forests, which help manage flood risks.	Flood



Section 5:
Mitigation Strategy



Mitigation Strategy

The mitigation strategy is often known as **the heart of the plan**. An effective mitigation strategy serves as a blueprint for reducing the potential losses within the planning area. FEMA reports that, on average, natural hazard mitigation saves six dollars for every dollar spent. Investing in mitigation is a proactive way the plan participants can take to adapt to a changing world and the real risks of future disaster events, which could result in loss of life, property, and livelihoods.

Outlining clear strategies to reduce the impacts of these identified hazards on community members and critical infrastructure provides a clear path forward for the plan participants to achieve the goals set forth in this plan. These actions were intended to be actionable, effective mitigation actions. Some actions may be implemented as funding becomes available. Incorporating these actions into the mitigation strategy prepares the plan participants to apply for applicable mitigation grants as they become available. Individual mitigation actions are outlined for each plan participant in their respective annexes.

The mitigation strategy was developed in four steps:

- **Step 1:** Develop Mitigation Goals
- **Step 2:** Develop Hazard Mitigation Actions
- **Step 3:** Evaluate and Prioritize Mitigation Actions
- **Step 4:** Plan Integration

Hazard Mitigation Goals

Mitigation goals outline and guide the development of policy choices that protect community members, critical facilities, infrastructure, property, and regional natural resources from hazards. The mitigation goals selected for this plan update represent a significant change from the prior plan update as plan participants wanted to adopt more specific and clear goals. The County builds policies from the bottom up. During this plan update, plan participants discussed needs, challenges, solutions, and potential mitigation measures. Then, over the course of multiple mitigation strategy meetings, these suggestions were combined into the selected goals.

These goals shape future actions to be taken by the plan participants to reduce risk and minimize losses from disaster. These goals will continue to ensure that implementation of the MJHMP is aligned with the original intent and can serve as checkpoints for responsible departments to monitor the progress of measures. Eight goals were identified for the plan. All eight goals related to High Hazard Potential Dans (HHPDs). They are as follows:

- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.

- GOAL 2. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- GOAL 3. Prepare for changing climate conditions in Mono County.
- GOAL 4. Maintain adequate emergency response capabilities.
- GOAL 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole community approach to response, recovery, and mitigation.
- GOAL 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- GOAL 7. Study and implement mitigation actions to address potential impacts of compounding hazards such as flood following wildfire.
- GOAL 8. Utilize the mitigation planning process as a call to action demonstrating plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Hazard Mitigation Actions

A comprehensive range of mitigation actions were considered as a part of this plan update. According to FEMA guidelines and industry best practices, hazard mitigation actions are clearly linked to vulnerabilities and capabilities, emphasize reducing risk to existing buildings, structures and infrastructures, limit risk to new development and redevelopment, and consider underserved communities and socially vulnerable populations. Community lifelines were also considered as a part of the plan. Types of actions included in this plan update included the following:

- **Local Plans and Regulations:** These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
- **Structure and Infrastructure Projects:** These actions involve modifying existing structures and infrastructure to protect them from hazards or remove them from hazardous areas. This could apply to public or private structures, as well as critical facilities and infrastructure.
- **Natural Systems Protection:** This type of action can include green infrastructure and low-impact development, nature-based solutions, engineering with nature, and bioengineering to incorporate natural features or processes into the built environment. Additional funding opportunities are available for projects that include this kind of action.
- **Education and Awareness Programs:** These actions keep residents informed about potential natural disasters. Many of them are eligible for funding through the FEMA Hazard Mitigation Assistance (HMA) program.

The prior plan's actions were reviewed and each plan participant provided a status update. Actions that were ongoing, such as phased or incomplete projects were reviewed for whether they should be retained in the current plan or if they were no longer relevant. Non-mitigation actions, such as response activities,

were allowed, but participants were encouraged to focus on hazard mitigation activities with the understanding that these non-mitigation activities would not be reviewed during the state and federal plan review process.

Since the last plan update, new FEMA guidance went into effective that requires each plan participant to identify at least one action per hazard profiled. In order to help facilitate this process, the plan's contractor developed a list of mitigation actions ideas that were incorporated into the Mitigation Strategy Workshops and provided to the plan participants. Stakeholder and public feedback, including specific mitigation action suggestions, were also reviewed at the planning meetings. Plan participants were encouraged to select these actions or a variant thereof as appropriate. A full list of actions considered is included in Appendix B.

While not specifically included since it was still in development at the time of this plan update, it is also the intent of the plan participants to support the mitigation actions outlined in the latest Community Wildfire Protection Plan (CWPP) as part of this hazard mitigation plan update. The CWPP may require additional updates and revisions during the lifecycle of this plan. All revisions and updates to the CWPP are incorporated into the HMP actions without additional adoption required. Refer to the annexes for specific prioritization of these actions in support of CWPP implementation.

Mitigation Action Plans

Each plan participant developed a mitigation action plan for their annex that included a description the specific actions they selected and key information such as lead agency, timeline, and cost estimate. Table 106 lists the components that were included in each mitigation action plan.

Table 106: Mitigation Action Plan Description

Topic	Description
#	Mitigation action number for the individual plan participant
Project Title	Title briefly describing the intent of the mitigation action
Hazard Addressed	List of all hazards addressed: Avalanche; Dam Failure; Disease/Pest Management; Drought; Earthquake/Seismic Hazards; Energy Shortages and Energy Resiliency; Epidemic/Pandemic; Extreme Heat; Flood; Landslides; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire; and/or Wildlife Collisions
Description	A longer description of the action highlighting project activities and benefits
Responsible Agency	Lead agency, department, or position responsible for implementing or managing the mitigation action
Potential Partners	Other agencies, departments, or positions who may support the development and implementation of the action
Potential Funding	Possible funding source(s) for the mitigation action

Topic	Description
Cost Estimate	A rough estimate of the project's cost which may help determine which projects to pursue and when
Timeframe	Timeframes defined as short-term: 1–2 years; medium-term: 2–5 years; long-term: 5+ years
Community Lifelines	Lifelines are the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA Community Lifelines are as follows: • **Safety and Security:** Law enforcement/security, fire service, search and rescue, government service, community safety • **Food, Hydration, Shelter:** Food, hydration, shelter, agriculture • **Health and Medical:** Medical care, public health, patient movement, medical supply chain, fatality management • **Energy:** Power grid, fuel • **Communications:** Infrastructure, responder communications, alerts, warnings and messages, finance, 911, and dispatch • **Transportation:** Highway/roadway/motor vehicle, mass transit, railway, aviation, maritime • **Hazardous Materials:** Facilities, Hazmat, pollutants, contaminants • **Water Systems:** Potable water infrastructure, wastewater management
Priority	Action priority was subjectively defined by the plan participant after considering the benefits when compared to costs of the projects. Action priorities are defined as low, medium, or high based on the following criteria: • **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the jurisdiction but has multiple potential challenges. The action should be implemented as funding becomes available. • **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the jurisdiction, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time. • **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the jurisdiction, with minimal to no concerns. It is essential for the jurisdiction to implement and may be prioritized in the short term.

The plan participants considered STAPLEE criteria to help prioritize the actions:

- **S – Social:** The public must support the overall mitigation implementation strategy and specific mitigation actions. Will the action disrupt housing or cause the relocation of people? Will the proposed action adversely affect one segment of the population? Is the action compatible with present and future community/agency values?
- **T – Technical:** It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. How effective is the action in

avoiding or reducing future losses? Does the action solve the problem or only a symptom? Will the action create more problems than it solves?

- **A – Administrative:** This category examines the anticipated staffing, funding, time, and maintenance requirements for the mitigation action to determine if the jurisdiction/special district has the personnel and administrative capabilities to implement the action or whether outside help will be necessary: a) Staffing (enough staff and training): does the jurisdiction/special district have the capability (staff, technical experts) to implement the action? b) Funding allocated: Does the jurisdiction/special district have the funding to implement the action, or can it be readily obtained? c) Time: can it be accomplished in a timely manner? d) Maintenance/Operations: can the jurisdiction/special district provide the necessary maintenance? It is important to remember that most federal grants will not provide maintenance funding.
- **P – Political:** This considers the level of political support for the mitigation action. Is there political support for implementing and maintaining this action? Have political leaders participated in the planning process so far? Is there a local champion willing to help see the action to completion? Is there enough public support to ensure the success of the action? Have all stakeholders been offered an opportunity to participate in the planning process?
- **L – Legal:** The jurisdiction/special district must have the legal authority to implement the action or consider what new laws or regulations would be needed to carry out the mitigation action. Evaluate whether the proper laws, ordinances, and resolutions are in place to implement the action. Are there any potential legal consequences? Is the action likely to be challenged by stakeholders who may be negatively affected?
- **E – Economic:** Economic considerations must include an evaluation of the present economic base and projected growth. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are more likely to be implemented than actions requiring general obligation bonds or other instruments that would incur long-term debt in a jurisdiction/special district. A detailed benefit–cost analysis will be performed as project-specific funding becomes available. What financial benefits will the action provide? Does the cost seem reasonable for the size of the problem and the likely benefits? What burden will be placed on the tax base or local economy to implement this action? Does the action contribute to community economic goals, such as capital improvements or economic development? Are there current sources of funding that can be used to implement the action?
- **E – Environmental:** The impact on the environment is an important consideration because of the public desire for sustainable and environmentally healthy communities. Also, statutory considerations, such as the National Environmental Policy Act (NEPA), must be considered when using federal funds. How will this action impact land/water? Consider the impact on endangered species: How will this action impact endangered species? How will this action impact hazardous materials and waste sites? Is this action consistent with community environmental goals? Is the action consistent with federal laws, such as NEPA?

For each priority category, plan participants ranked their responses:

1. Many questions or concerns: Further research, outreach, or engagement is needed to determine if this action would be acceptable.

2. Some questions or concerns: This action sounds good, but more information or support is still needed.
3. Neutral: There may be questions or concerns, but they are unknown at this time.
4. No questions or concerns: The STAPLEE criteria have been considered, and this action effectively addresses them.

Additionally, upon evaluating STAPLEE, some participants including the County, the Town, and Southern Mono Healthcare District developed their own mitigation action prioritization methodologies. More details are included in each annex.

Plan Integration

An updated plan must explain how the plan participants incorporated the previous mitigation plan, when appropriate, into other planning mechanisms over the last five years. This demonstrates progress in local mitigation efforts. Planning mechanisms refer to the governance structures used to manage local land use development and community decision making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Each plan participant identified if the prior plan was integrated into another planning mechanism. This integration could include the following:

- The integration of the hazards to which the community is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to carry out in the future

Each plan participant also identified the local planning mechanisms where the updated hazard mitigation information/actions may be integrated in the future. Each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms was described where differences exist or work is ongoing, such as the ongoing development of the Countywide Community Wildfire Protection Plan (CWPP), which intends to align with this plan.

Where no differences in plan integration approach are identified, the plan participants including the individuals who represented each plan participant during this plan update intent to integrate this plan into other planning mechanisms by current draft hazard mitigation plan and specifically referencing existing data, goals, and mitigation actions in other planning mechanisms.

Mitigation Success Stories

Mitigation success stories are an optional component of the hazard mitigation plan. By including mitigation success stories, the planning team wishes to acknowledge the ongoing efforts of partners across the planning area as well as inspire future local initiatives to reduce hazard risk.

Mono Basin Fire Safe Council recently completed its **Kirkwood Springs Project** in Bodie Hills community in the North Shore of Mono Lake, the County, erecting a 3,500-gallon water storage tank on land off Dobie Meadows Road, with awarded $5,000 grant through a partnership with Edison International and the Whitebark Institute Community Direct Grant Program funding, along with in-kind donations of labor and machinery from private landowners.[232] The water storage tank will serve a dual role in providing a water supply to protect the area from wildfire and in providing water storage for livestock. The design chosen was an intake from the pond to the tank with the pipe terminating at the road with a valve box. The valve box provides more flexibility to include a bulkhead fitting for a water truck, the NFPA firehose fitting, and a poly tube connector for a standard spigot for the corral. (See Figure 90.) A training with local fire protection districts is being scheduled, at which time recharge data can be included.[233]

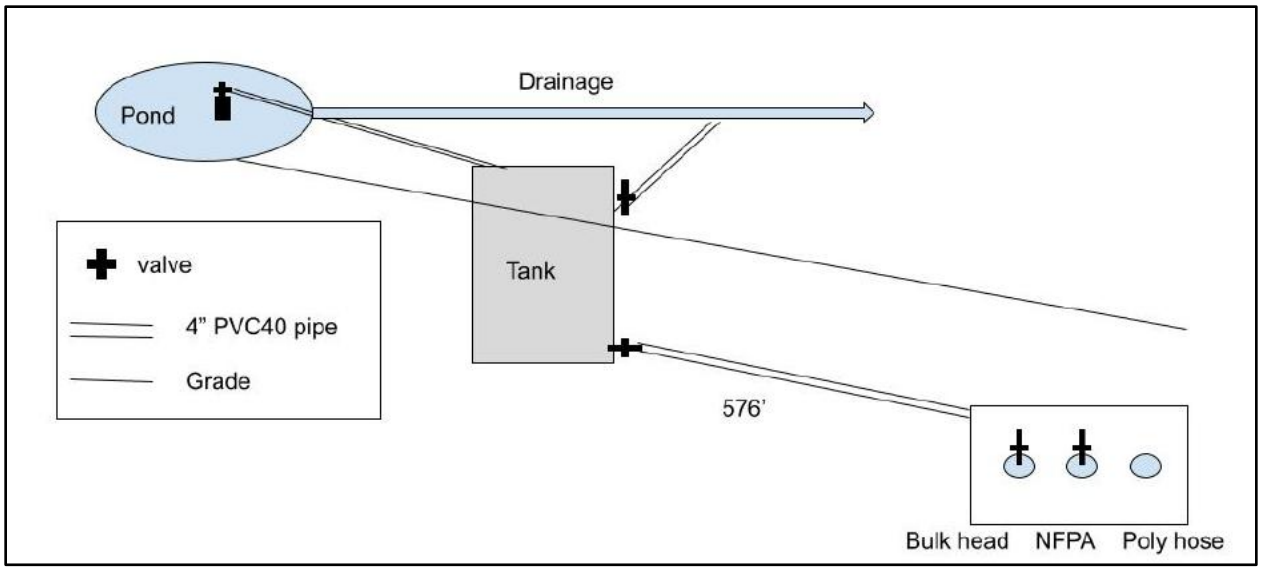


Figure 90: Drawing of Kirkwood Springs Water Storage Tank Design[234]

Figure 91 shows the trench dug within the private road, at a depth to protect from freezing. Figure 92 shows the intake pipe and the 3,500-gallon tank with restored road where the pipe ditch is located.

[232] Whitebark Institute.org. "Community Direct Grant Program." 2025. https://whitebarkinstitute.org/community-directed-grants/.
[233] Mono Basin Fire Safe Council Kirkwood Springs Report provided by Robert Di Paolo.
[234] Mono Basin Fire Safe Council Kirkwood Springs Report drawing provided by Robert Di Paolo.



Figure 91: Trench for Piping Connected to Water Tank

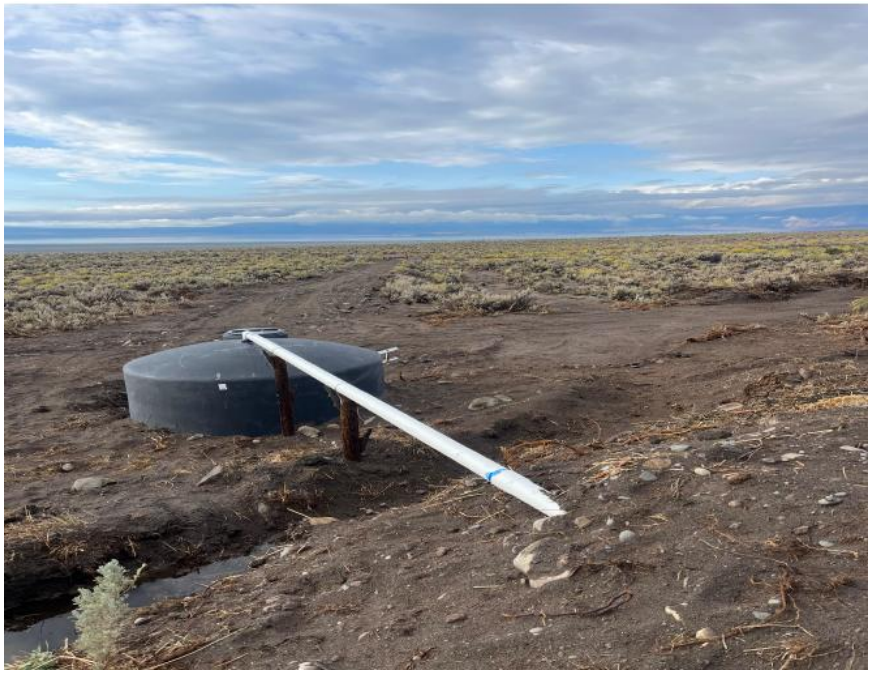
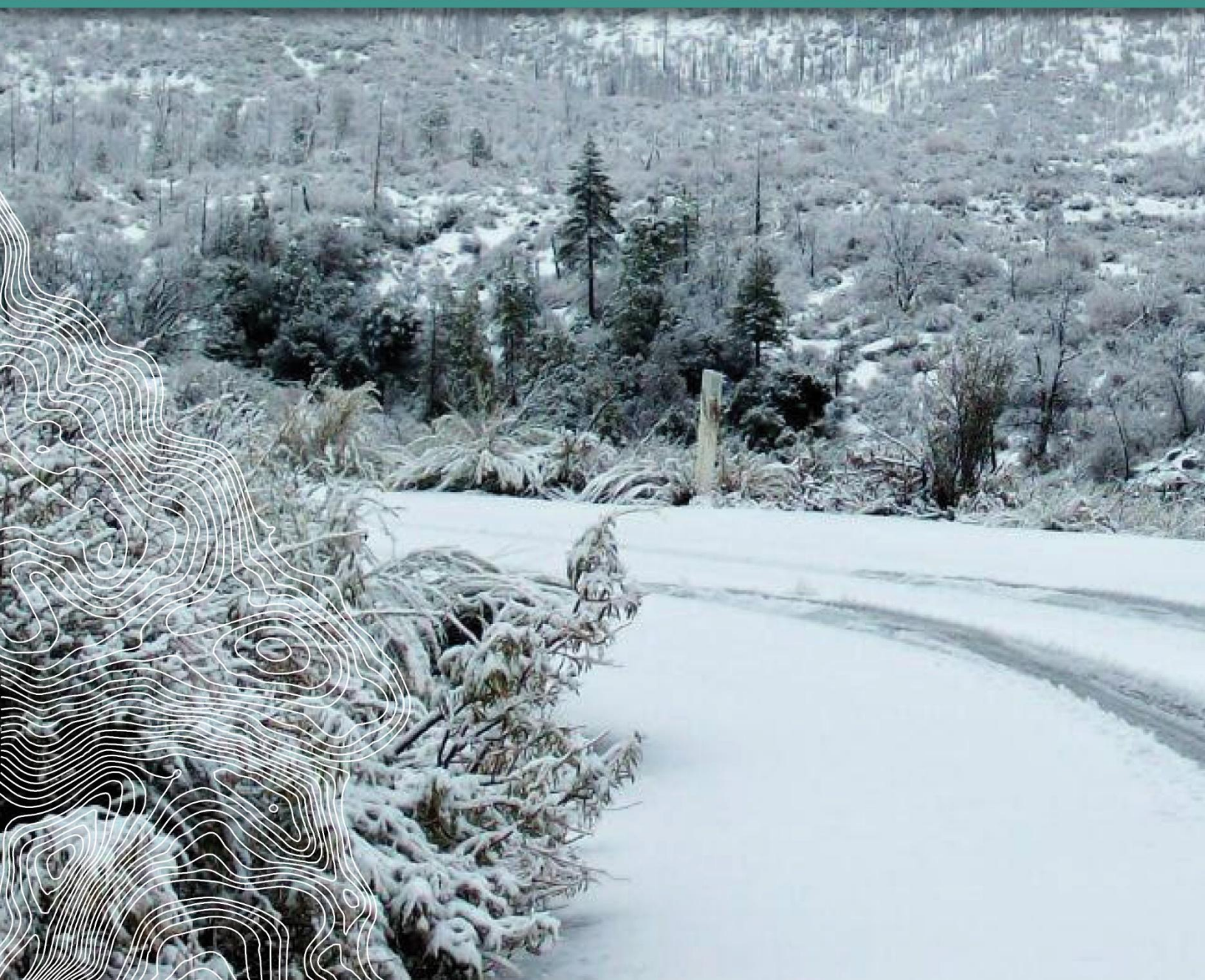


Figure 92: Intake Pipe and 3,500-Gallon Tank with Restored Road Where Pipe Ditch Is Located

Section 6:
Plan Maintenance



Plan Maintenance

Keeping the MJHMP up to date helps ensure that it continues to reflect the best available data and community priorities, incorporates new disaster considerations as they occur, and informs an easier plan update next time. Updating the plan at least every five years also ensures that the plan participants continue to remain eligible for federal and state funding. To keep the MJHMP living and active, this chapter describes the processes for updating this Plan to ensure that it is usable, relevant, locally appropriate, and compliant with applicable state and federal requirements. The Plan's structure allows the plan participants to update individual sections as information becomes available and needs arise, making it easier to keep the Plan current. Appendices with additional information can be amended into the plan as well, enabling records of ongoing activities and strategies to be incorporated into the current plan throughout the plan's five-year planning cycle.

Plan Adoption

To comply with DMA 2000, the plan participants will each adopt the plan within one year of achieving FEMA "Approvable Pending Adoption (APA)" status. The adoption of the MJHMP recognizes the participant's commitment to reducing the impacts of the hazards that could affect the planning area. Sample adoption resolution letters are presented in Appendix C.

Plan Update and Coordinating Body

The MJHMP will be updated every five years. Maintaining and updating this Plan is the responsibility of the County and the Town. Departments involved in overseeing the plan update include the Mono County Community Development Department, the Mono County Office of Emergency Services, the Town Administration Department, and the Town Engineering Department. These departments will be responsible for identifying and appointing an MJHMP project manager. This individual will coordinate maintenance of this Plan, conduct the formal evaluation process, and prepare each five-year update.

The five-year update includes funding the plan update, identifying a scope of work for the project, establishing a timeline, informing decision makers, and contacting the plan participants. The project manager should solicit a Letter of Intent from each plan participant and each special district invited to participate in this draft plan update. The project manager will be responsible for confirming the final list of plan participants. If a planning contractor is required, the County and the Town will apply for grant funding no later than four years before the plan expires. The 2026 MJHMP update was initiated in alignment with the 2019 MJHMP's plan maintenance timeline; however, the update process was not completed prior to the plan's expiration due to the extensive time required for the federal grant application process (nearly two years). Applying for grant funding early will be crucial to ensuring that this plan does not expire. The plan participants will determine within the first year of plan approval if grant funding will be needed to enable at least one to two years to develop and submit the grant application.

The plan update should begin no later than six months after receiving grant funding. The MJHMP project manager or planning contractor will be responsible for convening and facilitating planning team meetings with the plan participants. This staff member will assign tasks, which may include collecting data, developing new mitigation actions, updating sections of the Plan, and presenting the Plan to other departments, stakeholders, and elected officials. Responsibility for implementation and evaluation of the Plan will be shared among all plan participants as appropriate.

Evaluation and Monitoring

Prior to the formal five-year update, the Mono County Office of Emergency Services will send out annual email check-ins to plan participants. Plan participants will be invited to share plan implementation, project success, and lessons learned; revise their priorities and propose plan amendments, if necessary; and evaluate the plan.

These annual check-ins will commence in 2026 and should be timed with overall departmental planning and budgeting (fourth quarter of the fiscal year), leading up to the Town and County's annual budget development. As part of this evaluation and monitoring process, members of the team should look at the following:

- Any hazard events that occurred during the previous year and the impact of these hazards on the community and plan participant assets.
- Status of current mitigation actions and upcoming activities.
- Mitigation actions in the Plan that have been successfully implemented.
- Issues not covered by existing mitigation actions that could be addressed by new mitigation actions.
- Potential or actual changes in new funding opportunities, including grants, which may be used in mitigation-related activities.
- New scientific or mapping data that could inform updates to the Plan.
- Any other planning programs or initiatives in the community that involve hazard mitigation.

Appendix D includes the plan maintenance form plan participants will use to evaluate the MJHMP and the progress of their mitigation actions.

It is the intent of the Planning Team to incorporate a revised Community Wildfire Protection Plan (CWPP) before the next five-year update. CWPP meetings can serve as an opportunity to discuss hazard mitigation and mitigation planning efforts, including aligning the current MJHMP with the revised CWPP. Plan amendments will be directed by the County and the Town in collaboration with Cal OES, as shown in Figure 93. The State will be responsible for submitting the plan amendment to FEMA once it passes state review.

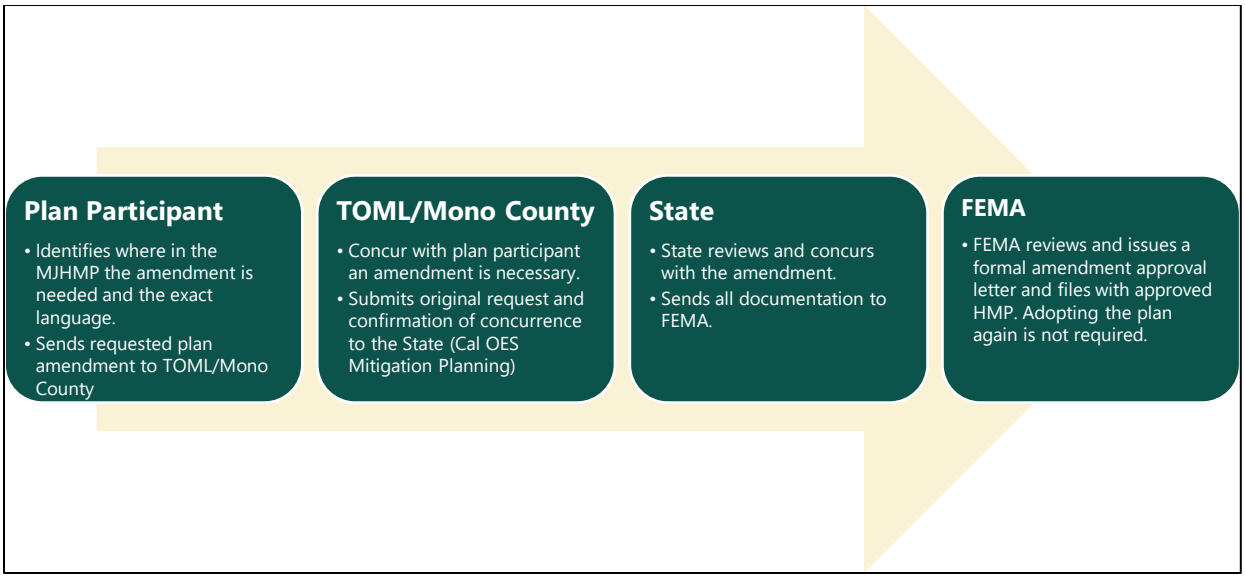


Figure 93: Process for Amending the Multi-Jurisdictional Hazard Mitigation Plan

The Mono County Office of Emergency Services will solicit action status updates from the plan participants on an annual basis through the check-in email. Each individual agency representing the plan participants will be responsible for providing progress reports on each of their selected actions. They will be responsible for tracking and incorporating their own selected actions into their day-to-day workflow. Notable updates, such as progress on significant mitigation measures, will be shared with the local media and the public as appropriate. Summaries of action status updates will be shared on the ArcGIS StoryMap for this project, which is available through the County website and ReadyMono.

Plan Integration

Another important maintenance mechanism is to incorporate the recommendations and underlying principles of the MJHMP into other community plans and mechanisms, such as comprehensive planning, capital improvement budgeting, economic goals and incentives, countywide efforts, and regional plans. All plan participants will be responsible for incorporating the MJHMP into other relevant planning mechanisms. Unless otherwise specified, such as through the acquisition of a planning consultant, the representatives of each plan participant will be responsible for integrating the MJHMP into their applicable planning mechanism. Incorporation of the MJHMP will occur as plans and policies are updated and when new plans and policies are developed. Incorporation may include but is not limited to incorporating hazard data, past history events, maps, loss estimates, mitigation goals, and mitigation actions into other planning mechanisms. Key documents that have been identified for incorporating elements of the MJHMP include the following:

- General Plans
- Emergency Operations Plans
- Capital Improvement Plans

- Local budgets

Continued Public Involvement

The public will be invited to continue to participate in the planning cycle and to provide feedback on the current plan through the online ArcGIS StoryMap site developed for this project. The site includes a detailed description of the plan, including the planning process and the mitigation actions selected. Progress updates will be posted on this website. The public will be encouraged to provide feedback on the plan by emailing the Mono County Office of Emergency Services. Contact information is available on this website. By continuing to engage the public over the five-year planning cycle, the plan participants are reiterating their commitment to promote resilience in the planning area to protect lives, property, and livelihoods from future hazard risks.

Section 7:
Appendices



Appendix A: Meeting Documentation

Appendix A: Meeting Documentation

Mammoth Lakes Stakeholder Meeting #1 – Risk Assessment

ATTENDEES

Name	Title	Jurisdiction/Agency
Mike Curti	Assistant Fire Chief	Antelope Valley Fire Protection District
Rich Nalder	Fire Chief	Antelope Valley Fire Protection District
Brian Atkins	Chief Operations Officer	Bishop Payute Tribe
Luke Hammack	Supervisor for Facilities	Bridgeport Fire Dept
Matt Edmiston	Division Chief	Cal Fire – Eastern Sierra Division
Tim Higgins	Regional Disaster Medical Health Specialist	Cal Mutual Aid Region 6
Tina Fern	Senior Emergency Services Coordinator	Cal OES – Local Planning Unit
Jody Newton	Hazard Mitigation Planner	Cal OES – Local Planning Unit
Michael Lingberg	PIO	Cal Trans District 9
Josh Lundquist	Maintenance Superintendent	Cal Trans Mono County
Rob Mckoske	Planner	CDD
Kevin King	Adjunct Professor	Cerro Coso Community College
Stephanie Hamilton	Seargent	CHP – Mammoth Lakes
Terrin Holman	Senior Public Affair Specialist	Community Affairs Group
Trina Orral	Supervisor	District 1 Mono County
Steve Mace	Director of Operations	Eastern Sierra Avalanche Center
Clancy Nelson	Lead Forecaster	Eastern Sierra Avalanche Center
Phil Morres	Executive Director	Eastern Sierra Transit Authority
Billy Czeschin	Wastewater Operator	Hilton Creek Community Services District
Sue Burak	Avalanche Specialist	Inyo and Mono County
Annamaria Echeverria	Safety Planning Officer	Inyo National Forest
Laura James	Law Enforcement Patrol Captain	Inyo National Forest
Chance Traub	Fire Manager	Inyo National Forest
Paul McFarland	District 3 Supervisor	Lee Vining Fire Protection District/Public utility district
Scott McGuire	Chief	Long Valley Fire

Name	Title	Jurisdiction/Agency
Sierra Waugh	Deputy Airport Manager	Mammoth Airport
Elizabeth "E" Weeks-Comeau	Emergency Preparedness Coordinator	Mammoth Community Hospital
Michael Draper	Principal Administrative Analyst	Mammoth Community Water District
Jason Wingard	Fire Management Officer	Mammoth District – Inyo National Forest
Britt Sherex	Past Chair	Mammoth Lakes Chamber of Commerce
Gerard Oliveira	Board Member	Mammoth Lakes Community Services District
Mike McCarthy	Division Chief for Prevention	Mammoth Lakes Fire Protection District
Ales Tomaier	Fire Chief	Mammoth Lakes Fire Protection District
Michael Vanderhurst	Chair	Mammoth Lakes Planning Commission
Jason Hielman	Sergeant	Mammoth Lakes Police Department
Kim Anaclerio	Executive Director	Mammoth Lakes Recreation
John Urdi	CEO	Mammoth Lakes Tourism
Steve McCabe	Senior Director	Mammoth Mountain Ski Area
David Andrews	Director of Risk Management	Mammoth Resorts
Julie Brown	VP of Operation – June Mountain Ski Area	Mammoth Resorts
Soibian Spring	Operations Manager	Mammoth-Yosemite Airport
Lisa Bernard	Account Manager	Mono County
Tom Boo	Officer	Mono County
Christine Bouchard	Acting Human Resources Director	Mono County
Bri Chappel-McGovern	Public Health Emergency Preparedness and Response Manager	Mono County
Wendi Grasseschi	Wildfire Mitigation Coordinator	Mono County
Eric Miller	GIS Specialist	Mono County
Sarah Moore	GIS Specialist	Mono County
Chris Mokracek	Emergency Manager	Mono County
Irene Parvin	Program Manager	Mono County
John Pelichowski	Seargent	Mono County
Linda Salcido	Supervisor - District 5	Mono County
Anna Sahl	GIS Analyst	Mono County
Milan Salva	Business Operations Manager – IT Department	Mono County

Name	Title	Jurisdiction/Agency
Karyn Spears	Assistant Public Works Director	Mono County
Wendy Sugimura	Community Development Director	Mono County
Jimmy Lee	Quality Assurance Coordinator	Mono County Behavioral Health
Kelly Karl	Planning Analyst	Mono County Community Development
Liz Grans	Economic Development Director	Mono County Economic Development and Tourism
Brian Bullock	Chief	Mono County EMS
Eric Bucklin	System Administrator	Mono County IT
Dylan Whitmore	Deputy Probation Officer	Mono County Probation Department
Kailyn Dodd	Engineer	Mono County Public Works
Ingrid Braun	Sheriff-Coroner	Mono County Sheriff's Office
Clint Dohmen	Undersheriff	Mono County Sheriff's Office
Lester Perpall	Executive Officer	Mono County Superior Court
Rebecca Wong	Superintendent	National Park Service
Chris Smallcomb	Meteorologist-In-Charge	National Weather Service
Casey O'Neill	Manager of Fiscal Services	School District
Magnolia Barra-White	Communication Coordinator	Sierra Business Council
Meg Richardson	Dam Safety Regulatory Compliance	Southern California Edison
Matt Paruolo	Government Relations Manager	Southern California Edison – Government Relations
Nolan Bobroff	Community and Economic Development Director	Town of Mammoth Lakes
Dan Casabian	Chief of Police	Town of Mammoth Lakes
Haislip Hayes	City Engineer / Chair of Long Valley Advisory Committee & CSA 1	Town of Mammoth Lakes
Pam Kobylarz	Assistant to Town Manager	Town of Mammoth Lakes
Mike Martinez	IT Director	Town of Mammoth Lakes
Rob Patterson	Town Manager	Town of Mammoth Lakes
Bill Sauser	Council Member/Mayor	Town of Mammoth Lakes
Stuart Brown	PIO	Town of Mammoth Lakes - Parks and Recreation
Christina Ackerman	Assistant to the Chief/PIO	Town of Mammoth Lakes Police Department
Jessica Halterman	Executive Administrator	Walker River Irrigation District

Name	Title	Jurisdiction/Agency
Robin Bolser	Chair	Wheeler Crest Fire Safe Council
Janet Hatfield	Program Manager	White Bark Institute

MEETING NOTES

INTRODUCTIONS

On November 6, 2024, Mono County and the Town as well as the participating special districts welcomed a wide range of internal and stakeholders to attend the first stakeholder meeting on the Risk Assessment. This meeting was held in the Town in a hybrid format.

Pam Kobylarz introduced the project and the planning consultant, IEM. Everyone introduced themselves and the intent of the plan. Jeanne Bunting from IEM introduced the concept of hazard mitigation: any sustained action to reduce or eliminate the long-term risk to human life and property from hazards.

We discussed stakeholders vs. plan participants and who else should be involved.

Liz Grans suggested Visit California.

Jeanne introduced the concept of a Risk Assessment. One concept identifies hurricanes as a concern and they identified that Inyo County too was in a unique area. Vulnerable populations were discussed including the unhoused population. The planning area does not have much homelessness in the traditional sense, but there are people living in their cars due to the high cost of housing.

Hazards identified included hurricane. Suggestion to change extreme heat to extreme temperatures. One person additionally wanted to add rain on snow events.

Wants to use the plan to promote their adaption to climate change. Can share on California policy on climate change.

Phil shares he is concerned about the carless population during an evacuation.

MAPPING EXERCISE

Look at the maps provided, what areas have experienced changes in development? What vulnerabilities are you aware of and where are they on the map?

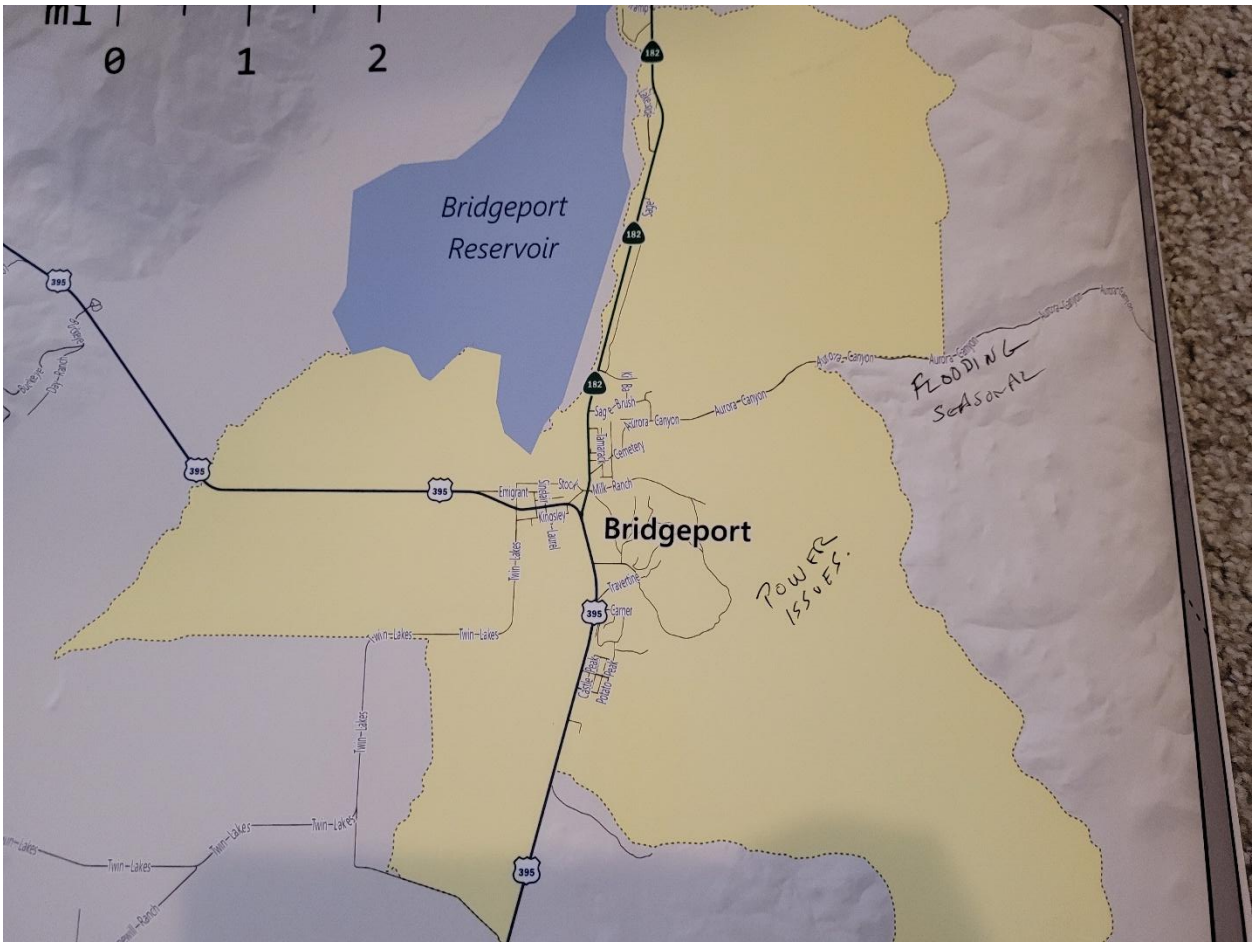


Figure 94: Map of Bridgeport with Vulnerabilities

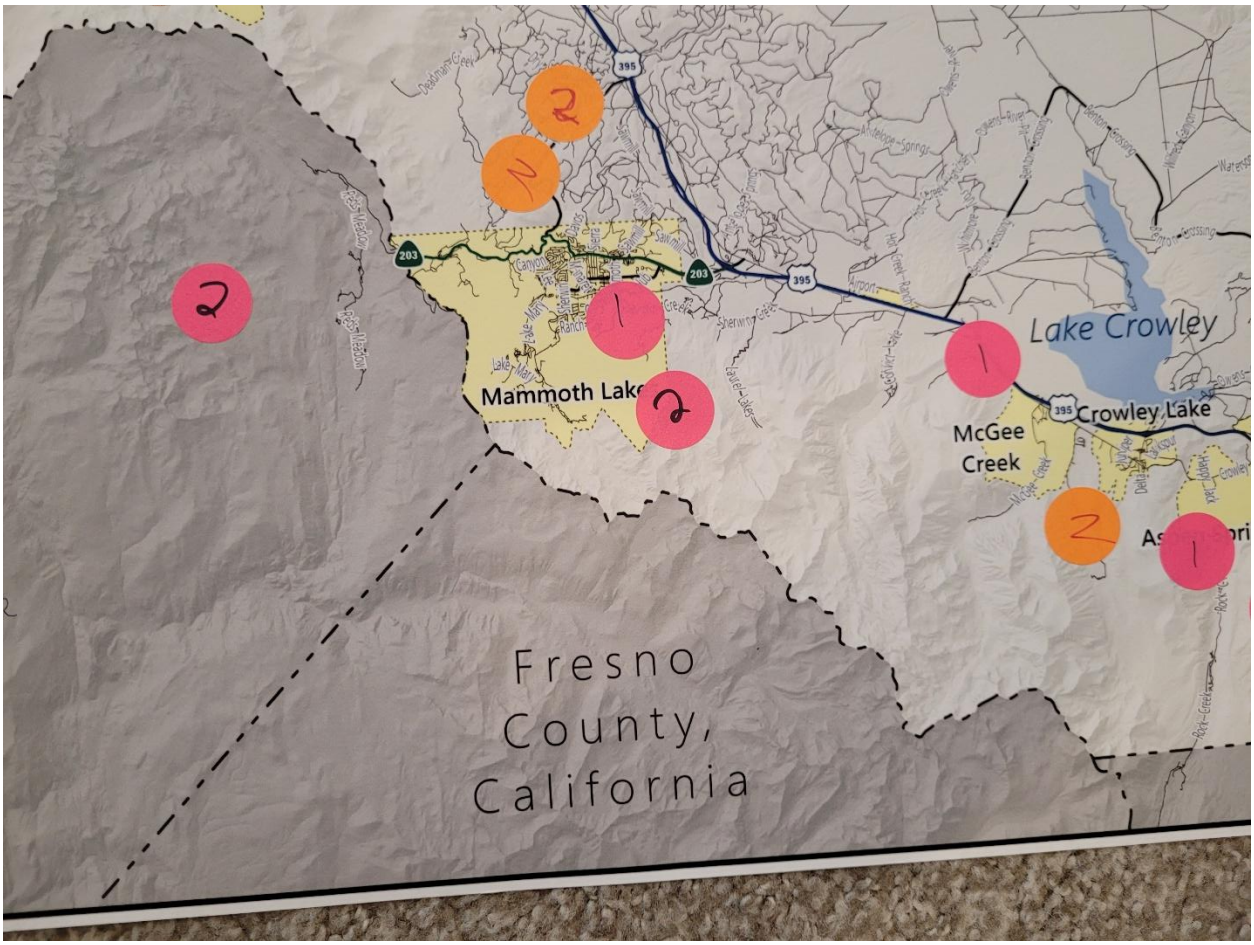


Figure 95: Map of Mammoth Lakes with Hazards Located

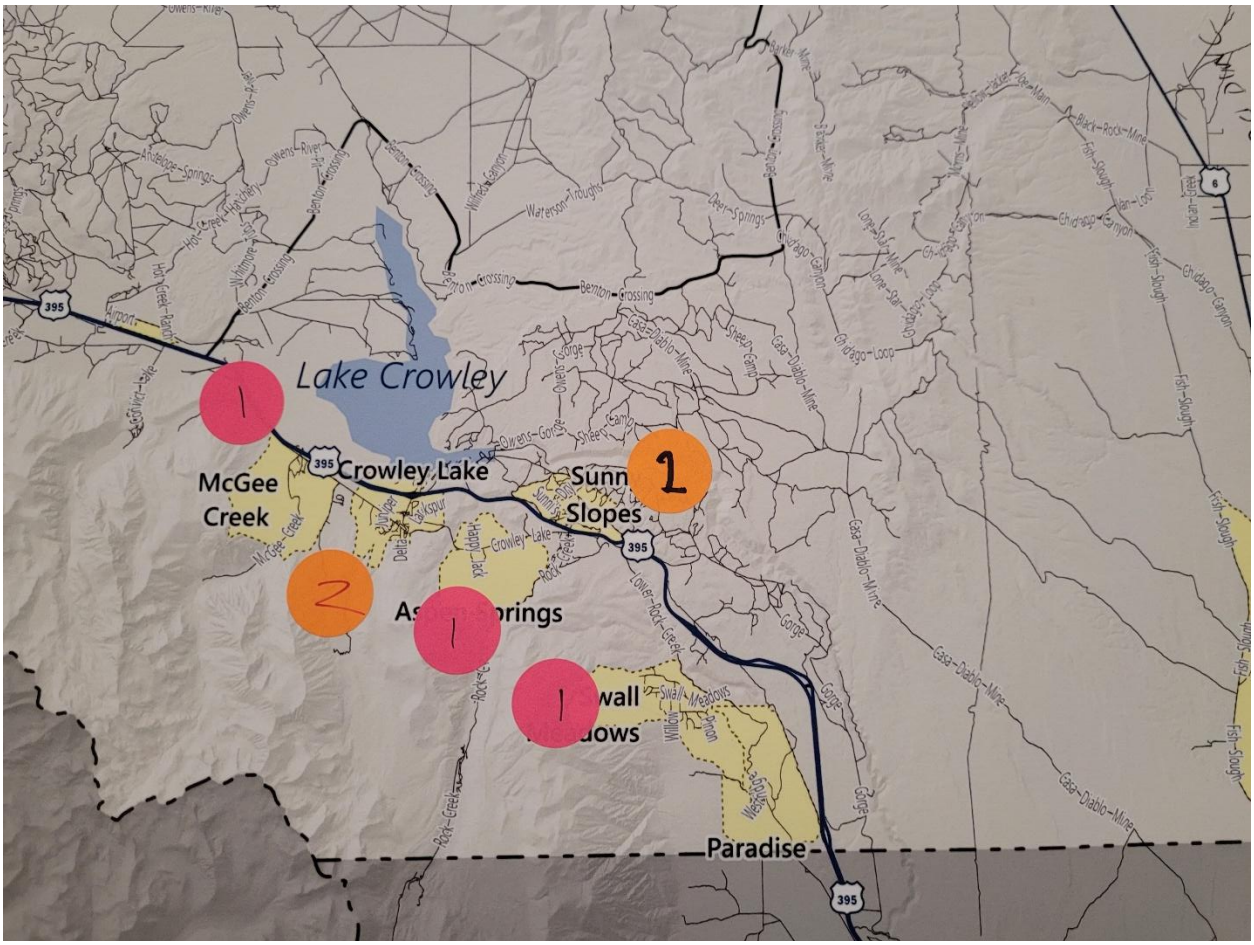


Figure 96: Map of Crowley Lake and Surrounding Area with Hazards Located

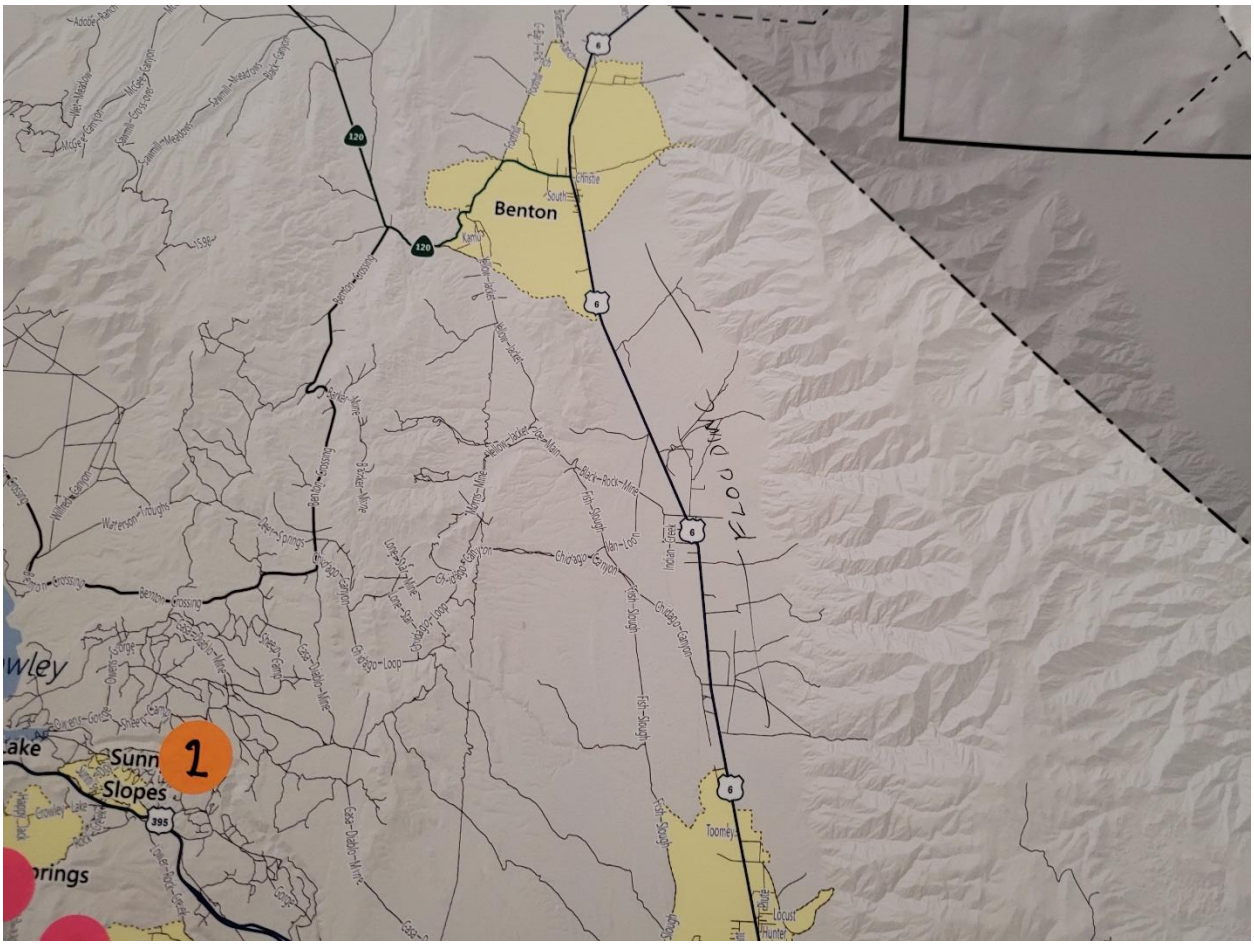


Figure 97: Map of Benton Area with Flooding Area Identified Along Route 6

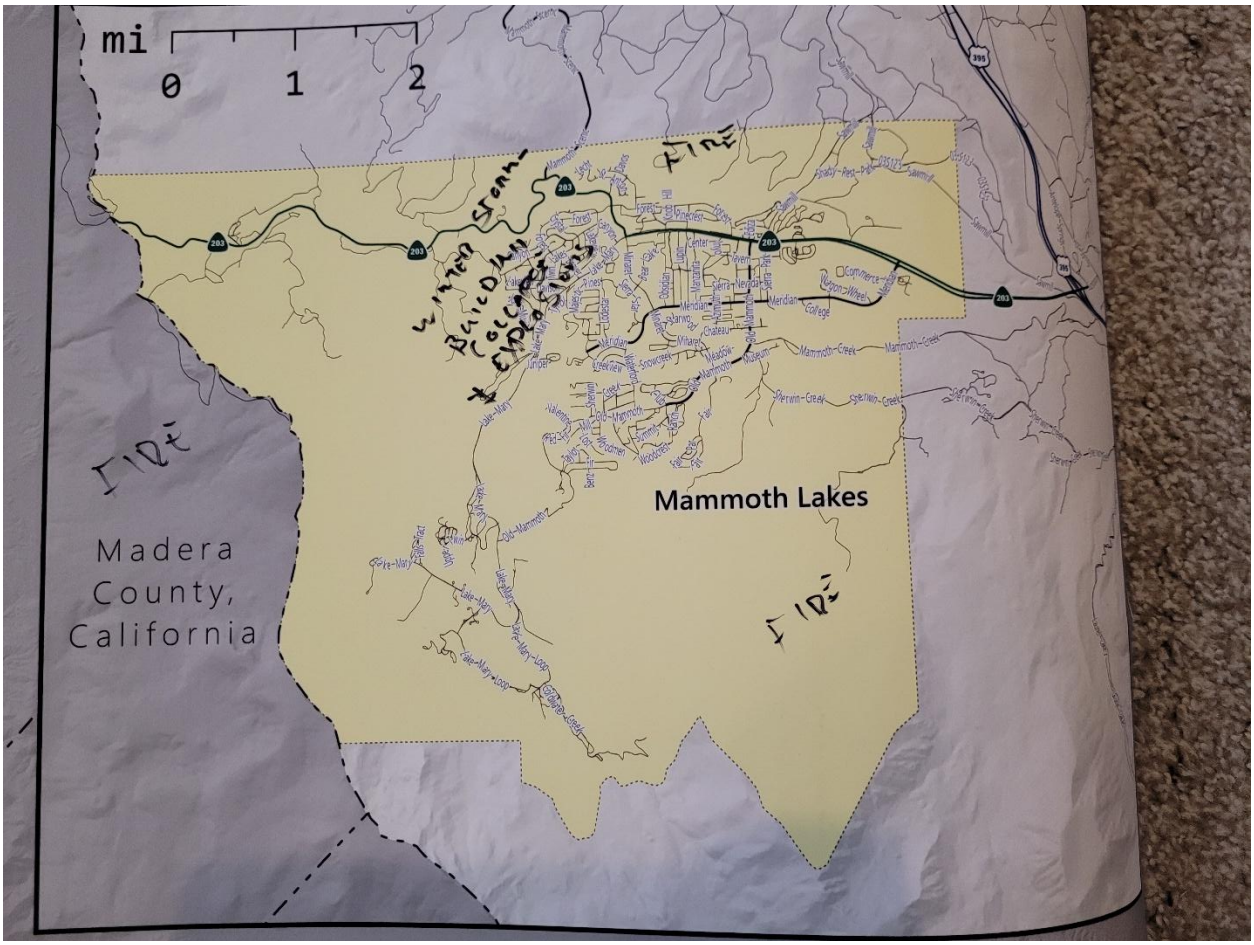


Figure 98: Map of Mammoth Lakes with Vulnerabilities

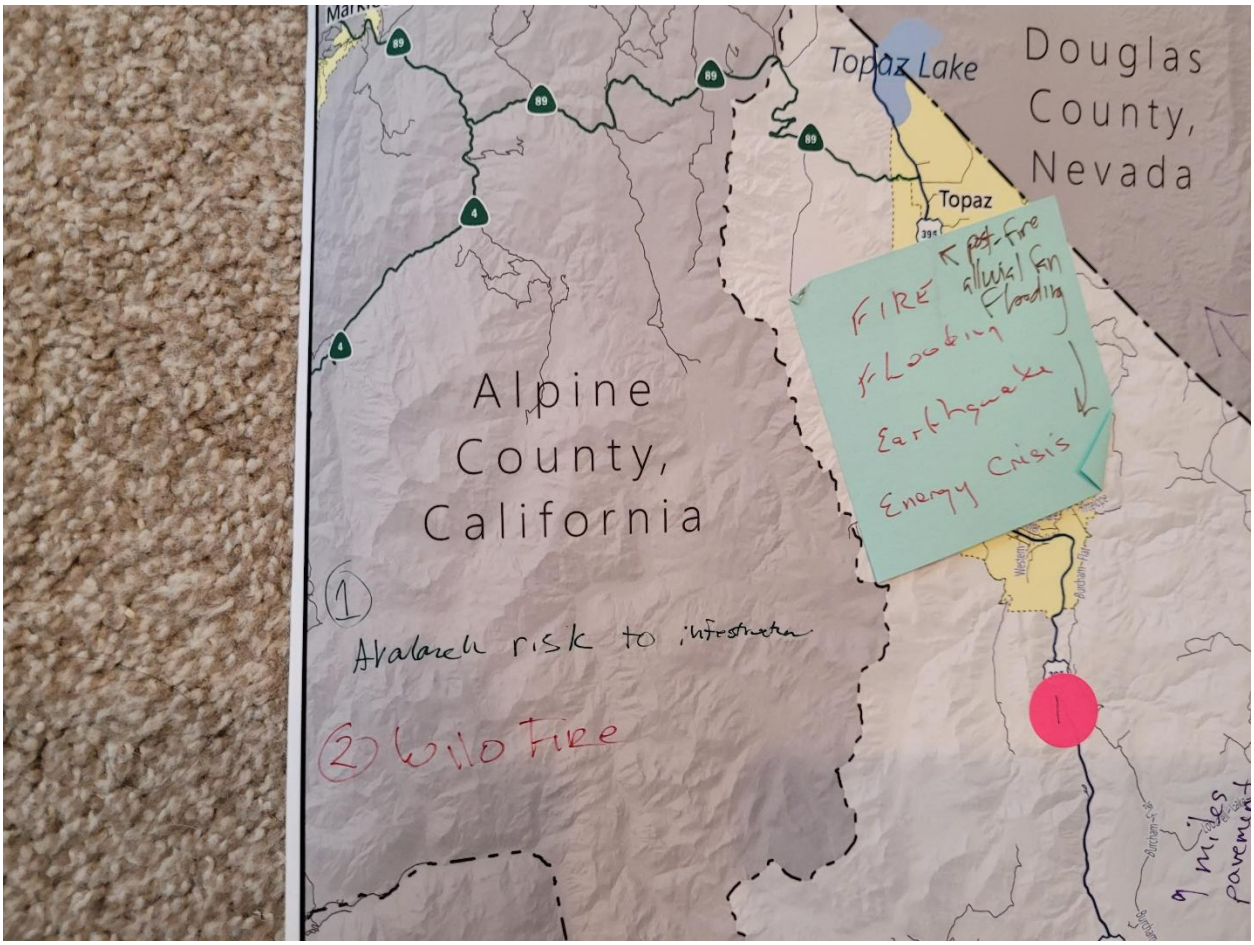
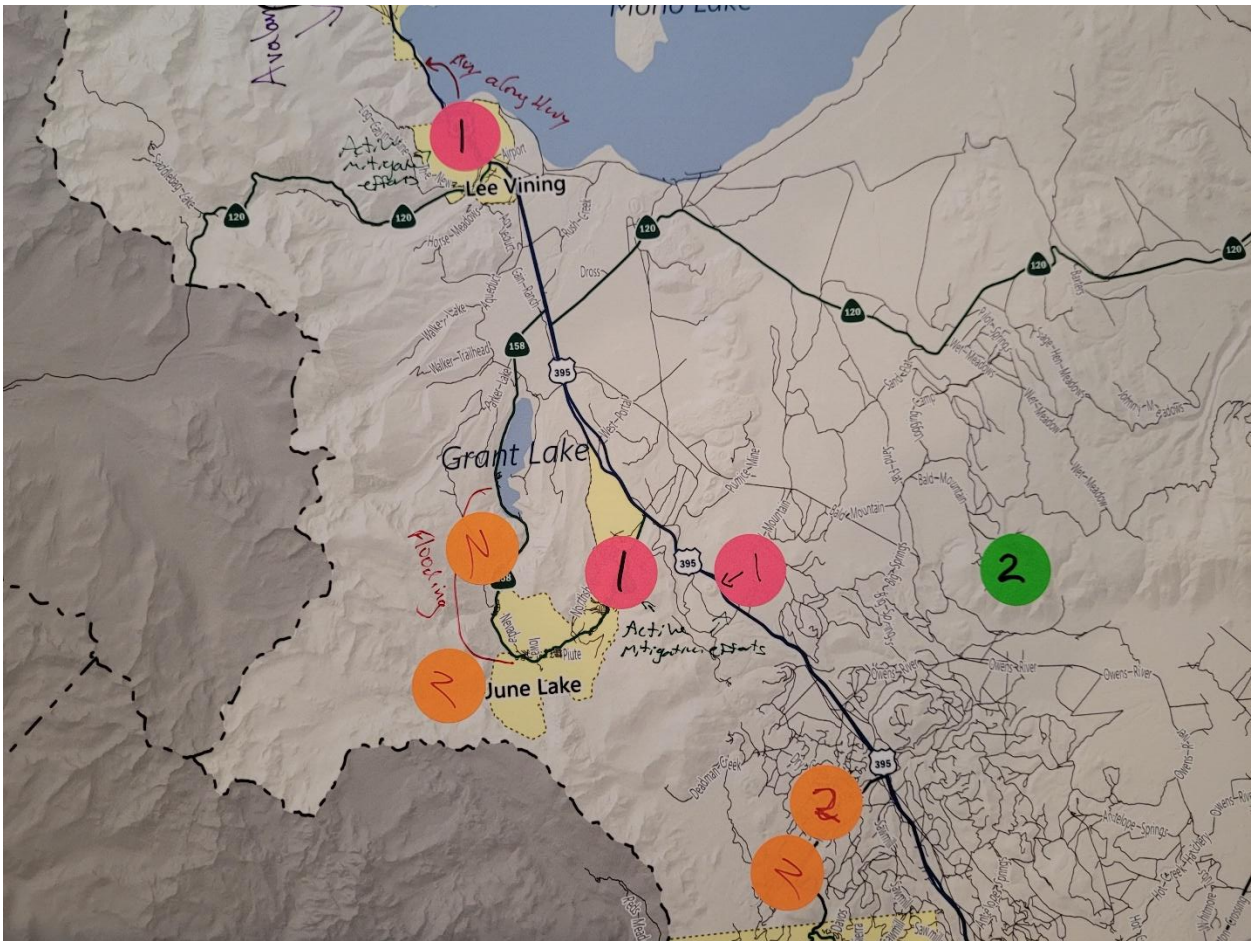


Figure 99: Map of Topaz Area with Hazards Located



Figure 100: Map of Mono City, Lee Vining, Twin Lakes, and Bridgeport with Hazards Located


Lee Vining
Grant Lake
June Lake
Active Mitigation efforts
Flooding
Active Mitigation efforts
Owens River
Owens River
Owens River
Deadman Creek
Rock Creek
Rock Creek
Mono Lake
Aeolian Buttes
Walker River
Walker River
Walker River
Walker River
Dixie Mountain
Bald Mountain
Bald Mountain
Bald

- One question on hazardous materials and what that meant was asked. Attendees confirmed that this was a relevant hazard due to concerns with propane, transportation on highways, high pressure gas lines, and a superfund site within the Town. Chris Smallcombs from the National Weather Service (NWS) identified wildfire smoke as a good reason to have an HMP as it may identify projects that are eligible. Janet Hatfield shared that she would agree that wildfire smoke is a prolonged hazard when living in the east side. She stated that the area is not only impacted by local events, but most smoke from Sierra or Sequoia National Forests are transported directly into the eastern Sierra. In 2020 she noted they were under hazard air quality condition for months.
- One participant offered to share information on the superfund site with IEM.
- Prolonged snow in the community.
- Public Safety Power Shutoff (PSPS) is a real concern.

Avalanche

- Kate Smith shared.
- Challenges identified included running out of fuel, prolonged access issues, and isolation of communities.
- One previous occurrence resulted in the County being broken in half with no way to reach the opposite side of the County. People had to drive around, go to Nevada, or medicine was dropped in by the national guard.
- One person says that the County warnings are not reliable, and they are historically unreliability and they have to manage their own personal risk. Tourists might have different access to warnings than permanent residents.
- One person identified there was a need for a public education plan for avalanche. He shared he was surprised that the community members were not prepared.
- Sue shared there is a new advanced warning system which hopefully will be integrated into mitigation in the future. She shared there is substantive research on the impacts of climate change on avalanche occurrence, timing, frequency and type of avalanche. In 2017 and 2023, avalanches occurred that threatened communities and roads.
- Families of atmospheric rivers produce the multiday events that create unusually large avalanches that exceed previously recorded runout areas.
- Sue noted that Mono County GIS is developing a Countywide map of avalanche paths. Sarah Moore is the contact.

Dam Failure

- Kate Smith presented.
- Southern California Edison shared that they operate a number of dams. They do have scenarios for this hazard, as well as others. They do have robust EAPs and do full exercises annually. They plan for

partial failure, imminent failure, high flow events. They have also taken mitigation steps, including restriction levels for operating and impounding water due to seismic activity in the rush creek system. They touch all of these hazards.

- Michael Mammoth Community Water District has water retention devices in the lake basin, currently doing a seismic analysis of their dams. Should follow up and get this date. They partner with Forest Service on their property.
- Need to add Crowley Lake to location Perpall Lester said.
- Bri noted FERC drills. She also if the dams above Inyo had failure, it would still affect Mono, by closing 395, and highly impacting all the healthcare infrastructure, including Dialysis, SNFF, hospital, all health clinics in North Inyo.
- Someone is conducting a seismic analysis of dam failure in the Lakes Basin. Town Manager and wants to make sure we follow up and get their data.
- Ownership of these dams is in the federal forest service and they are responsible for these plans.
- One person shared the Mammoth Donner Project with the White Bark Institute – very high profile project including the state wildfire task force. They also are looking at a biomass plant but they recommend getting in touch with them.
- Chief McGuire noted in addition to retention damns in Lakes Basin, both Rock Creek and Convict Lake have retention dams and do not seem to show up on dam lists.

Disease/Pest Management

- Kate Smith presented.
- Forest Service says there has been some significant beetle invasions which has led to significant forest die off including north of the Town. This can also lead to increased wildfire risk.
- One person shares that this also relates to how the community may be 8,000 people but on any other day you may get up to 40,000 people, so you have to account for them as well.
- There are some agricultural factors to consider, but unsure.
- Fishing industry could be impacted by invasive species. There are aquatic invasives that can change the fishability of local water.
- Bri noted increase in vector-borne illness.

Drought

- Many local utility districts provide water through the local natural spring systems, which had substantial decreases in production during the recent droughts.
- Los Angeles Department of Water Power – it may be a different kind of drought that impacts them even outside of Mono County. Different kind of drought when water supply is not available due to excess demand, considered it a man-made drought.

- Economic impacts can be felt as well. The winters are crucial for tourism and the local economy. Everything can be exacerbated by a drought.

Earthquake and Seismic Hazards

- One person noted that the planning area is surrounded by faults and the caldera. The possibility of a quake occurring at 6.6 or higher is always there. The old elementary school site, for example, was deemed unsafe after the earthquakes of the 80s. Those fault lines are still present and mitigation is still needed.
- The dam at Crowley could go if a big earthquake hits.
- Communications, including incoming lines, could be taken out.
- Older structures may be more prone to damage.
- Could cause a situation where they are isolated.
- All the water infrastructure crosses fault lines.
- A large earthquake down south will create a huge refugee population surging into our area. Bri will send the southern earthquake plan.

Energy Shortages and Energy Resiliency

- Kate Smith presented.
- Someone noted that they are feeling PSPS fatigue due to high winds and concerns with low moisture. There is extremely robust wildfire mitigation plans that includes PSPS as a last resort, including millions in mitigation to ensure equipment is not the cause of ignition and to do fuels mitigation projects.
- Robust mitigation plan that calls for PSPS to the used as a last resort. Includes cyber security. They have lots of incident management teams (IMTs) that can be stood up during disasters.
- Cyber security, inclement weather, access and functional needs (AFN) communities, elderly, and youth all have to be accounted for. Power is critical to water systems, heating and cooling homes.
- Rolling Hills is in the news for slides causing issues as an example of what can be done to address them and deliver power.
- Bri shared PSPS directly affect our AFN and vulnerable populations.
- Rebecca Wong noted that while Reds Meadow Valley is technically outside of Mono County, the only road access it is from Mono County. She said there are some seasonal residents who live in that valley and thousands of visitors each day in the summer. Thus, it would be great to include things like avalanche and landslide dangers to this plan from that perspective.
- Digital 395 and Connected Sierra was identified as potential resources. All the systems are dependent upon it. Also recommends connecting with the Eastern Sierra Council of Governments on this.

- Janet Hatfield shared that she would love to see the acknowledgement in this plan (if it's not already baked in) that wildfire has a direct effect on flooding and landslides both, and that recent wildfires greatly increase the potential for those other disasters to occur.

Epidemic/Pandemic

- Tom shares that they are just concerned with the next one. There are no resources to deal with the next one.
- Bri shared that novel infectious disease (like H1N5) and more locally acquired vector-borne illnesses that are new to our area.

Extreme Heat

- One participant indicated that there may be more extreme heat in Las Vegas and Nevada that leads to migration into the planning area.
- Bri said especially in conjunction with wildfire smoke or when there are PSPS, it is a double disaster. Tom emphasized this.
- Nick Holt asked if July's recording-breaking heat wave meet the criteria for an extreme heat event. IEM will look into this. Chris Smallcomb from NWS shared one item to keep in mind is that since 2019 Mammoth Lakes has not had an official NWS daily observation site, so we have to rely on automated stations from the ski area and SCE, but those don't necessarily have long historical context for temperature.
- Tom and Bill noted that people at higher elevation probably don't have much cooling capacity. There are many places that don't have air conditioning and that rely on opening a window to cool down the house.
- Kelly shared for communities that do have specific cooling systems in the area may or may not be usable if there is wildfire smoke in the area (e.g., swamp coolers).

Flood

- Participant shared that it's different in different parts of the County. The mountain experiences downstream events vs. in the Town where there are rain on snow events that are not captured by FEMA FIRM maps.
- Bri shared again access (access to medical/medicine), which creates isolation. There is a lack of resources and ability to repair and rebuild after damage. Main road closures Hwy 6.
- Tom noted that CDPH was doing some studies on effectiveness of DIY swamp cooler rigging. It's a real issue.

Landslides

- One question was asked about debris flows. Along I-6 corridor and… debris flows.

- Kelly noted that regarding landslides, I believe there was a significant debris flow that closed part of the June Lake Loop a few years ago.
- Landslide hazard maps are available at https://www.conservation.ca.gov/cgs/maps-data.

Hazardous Materials

- Superfund site located in Mono County.
- Large chlorine container that could leak down the valley.

Severe Wind

- They have a problem with trees falling due to severe wind which blocks off of transportation routes when they fall over the road. There are many dead trees near the roads which could fall during severe winds. It has even taken out houses before.
- Bri noted that severe wind usually increases PSPS probability.
- Participant noted that the locations listed where there are very unique concerns in these areas including in his community near Crowley Lake which had sustained 100 mph.
- Janet Hatfield noted that severe wind also removes our ability for aerial fire suppression efforts, making mitigation all the more vital for public safety.
- Added PSPS as a new hazard since 2018. Spring and fall winds tend to be the most problematic for PSPS while winter winds tend not to be as big of concern.
- Closes Highway 395, can't move kids in buses. People regularly get stranded in different communities.
- Chris Smallcomb shared that the high wind season roughly October through May. Gusts over 60 mph along Hwy 395. We've had 100 mph events near Mono Lake and Mammoth Airport in recent years.
- From a law enforcement perspective, there's more issues with crashes.

Severe Winter Weather and Snow

- One of the challenges with the roads being closed is that people look at Google and Apple maps and try to get around and they will get stuck and have to be rescued every year. Cal Trans can update these maps, but local government can't. It is not just a problem with tourists but locals as well.
- Chris Smallcomb noted one big picture thing with weather hazards in the Eastern Sierra is predictability. Due to the complex terrain and how weather models handle that, predictability of snow and wind is lower than it might be in other regions of the country. Predictability is a factor in how we prepare and mitigate hazards.

Volcano

- There are considerations with carbon monoxide. The forest service has closed camp ground before.
- Too late for building codes.

- They are sitting in the caldera of a volcano.
- The glass mountains is the back rim of the caldera.
- Kelly shared there is a nexus with volcanic hazards and tourism/recreation, especially in the Mammoth Lakes Basin and Hot Creek in Long Valley Caldera.
- Bri shared Stu with USGS would be able to give you those percentages.

Wildfire

- There is not any new wildfire risk and there is active mitigation going on one participant says. He recommended the Inyo National Forest Land Management Plan. He works on the Cal FIRE interagency team and the ISAP process. There are three pillars to this process.
- Storage facilities for HazMat including Gazex for avalanches. Pre-identifying these areas will help mitigate this risk. One person noted that the Gazex is reviewed.
- Identifying partners including department of water and power and SoCal Edison is really important.
- When looking at probability and impact, there have been two communities in the County that lost 10%–20% of their structures, so it is really about *when* not *if* this will occur. Look at Wheeler Crest Paradise as an example.
- Robin from Wheeler Crest said that she wants to register a community concern with mitigation strategy for fuel breaks. The community members are not necessarily concerned with the fuel break; it's a problem when invasive weeds and more flammable natives move in more quickly and this is a concern because it may make the community more at risk. Concerns include cheat grass, rabbit brush, and Russian thistle – these are the most invasive plants you can get.

Wildlife Collisions

- No comments.

NEXT STEPS

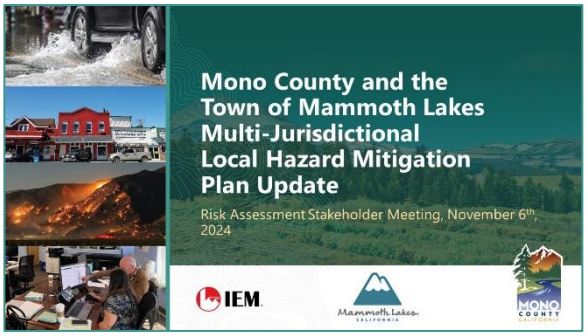
- Stakeholder Survey
- Public Survey: In English and Spanish
- Following Meetings
  - Bridgeport Stakeholder Meeting #2 – Dec 9
  - Mammoth Lakes Stakeholder Meeting #2 – Dec 11
- Public Plan Review

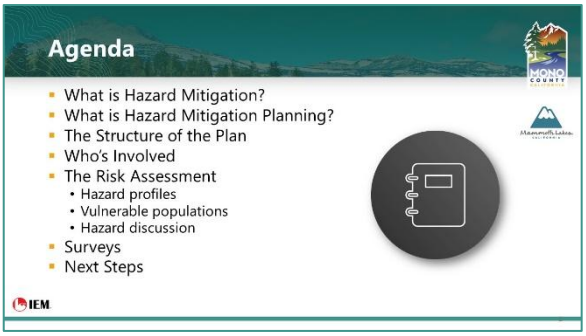
QUESTIONS?

- Will these hazards be integrated into a larger strategy that includes funding opportunities?

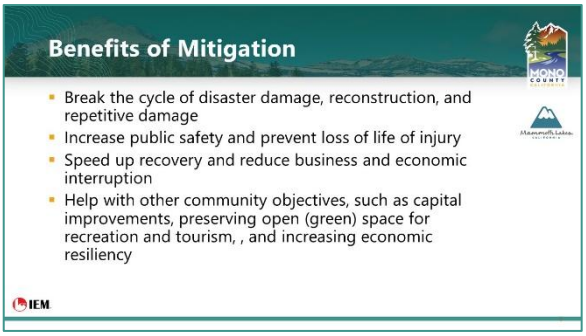
- This process is very helpful in preparing for grant applications

PRESENTATION SLIDES

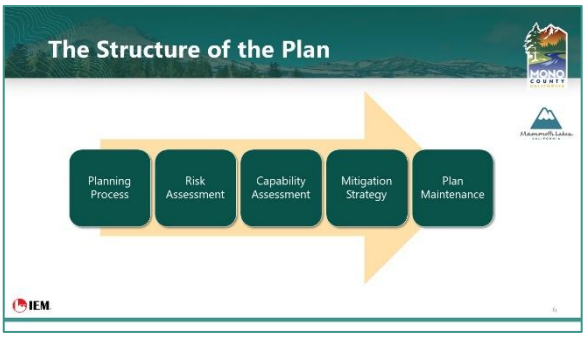




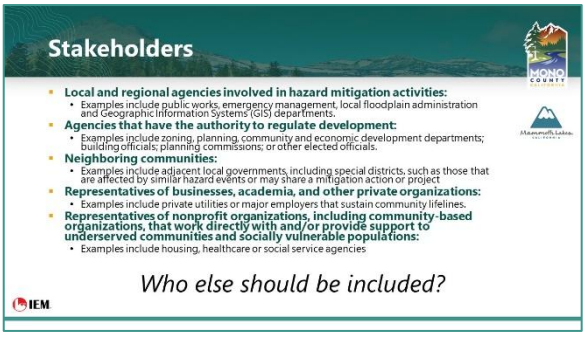












The Risk Assessment

- Updating the risk assessment includes:
  - Identifying hazards
  - Describing hazards
  - Identifying community assets
  - Analyzing impacts
  - Summarizing vulnerability

IEM

Hazard Profiles

- Described the location, extent, previous occurrences, future probability including climate change, vulnerability, impacts of each identified hazard as well as changes in development.
- Includes GIS mapping and HAZUS loss estimates.
- Incorporates local data and perspectives.

IEM

Let's Talk Specifics

- Jurisdiction-specific vulnerabilities and changes in development must specifically be identified.
- **Vulnerability**: assets, including structures, systems, populations and other identified community assets, that are at risk from the effect of the identified hazard
- **Changes in Development**: recent development (construction since 2019), potential development, changing conditions (population, land use, climate)

IEM

Vulnerable Populations

- The most vulnerable are often disproportionately impacted by disasters.
- Vulnerable populations may include:
  - Elderly and youth
  - Populations with disabilities
  - People with low socioeconomic status
  - Individuals experiencing homelessness
  - Rural communities
  - Renters
  - Populations with limited English proficiency



CEJA identified disadvantaged communities

IEM

Hazards

- Hazards included in this plan update include:
  1. Avalanche
  2. Dam Failure
  3. Disease/Pest Management
  4. Drought
  5. Earthquake and Seismic Hazards
  6. **Energy Shortages and Energy Resiliency**
  7. **Epidemic/Pandemic**
  8. Extreme Heat
  9. Flood
  9. Hazardous Materials
  10. Landslides
  11. Severe Wind
  12. Severe Winter Weather and Snow
  13. Volcano
  14. Wildfire
  15. Wildlife Collisions

IEM

13

Exercise

- Look at the maps provided. What areas of have experienced changes in development? Circle all that apply.
- What vulnerabilities are you aware of? Put an " X " on the map and describe (i.e. "localized flooding", "past wildfire")

IEM

Hazard Ranking

Hazard Type[1]	Probability	Impact			Overall Rank
		Location	Primary Impact	Secondary Impacts	
Wildfire	3.7	3.1	3.1	3.4	3.4
Severe Winter Weather & Snow	3.9	3.6	2.6	2.7	3.2
Earthquake & Seismic Hazards	2.6	3.0	2.9	3.0	2.9
Volcano	1.1	2.7	3.7	3.6	2.8
Climate Change	2.3	3.3	2.3	3.0	2.8
Drought	2.7	3.3	2.0	2.3	2.6
Severe Wind	2.9	2.6	2.3	1.9	2.4
Flood	2.6	2.6	2.1	1.9	2.3
Landslide	2.6	2.6	1.9	1.9	2.2
Avalanche	2.6	1.7	2.0	2.1	2.1
Dam Failure	1.1	1.7	2.4	2.9	2.0
Hazardous Materials	2.1	2.3	1.4	1.8	1.9
Disease/ Pest Management	1.0	2.0	1.7	1.7	1.6

[1] Wildfire collisions and extreme heat were added as a priority hazard after the Planning Team completed the hazard ranking worksheet and are therefore not included in this table.

IEM

Avalanche

- **Recent Events**: Highway 395 closure (2023), Walker Canyon (2021, one injury)
- **Resources**: prior studies, NOAA's Storm Center data, Eastern Sierra Avalanche Center data
- **Location**: Bridgeport Valley, June Lake, Lee Vining, Long Valley, Mammoth Vicinity, Mono Basin, Wheeler Crest, Outside Community Planning Area



IEM

Dam Failure

- **Recent Events**: None – record snowpack in 2023 managed with no dam failures.
- **Resources**: National Inventory of Dams, EAPs.
- **Location**: unincorporated Mono County only – Bridgeport, June Lake, Mono Basin, Outside Community Planning Area.

IEM

Disease/Pest Management

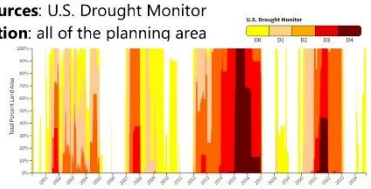
This included mosquitos, rodents (including hantavirus careers), pandemic influence (such as avian and swine flu), fir engraver beetles and Jeffery pine beetles.

- **Recent Events**: Ongoing, one death of hantavirus (2019)
- **Resources**:
- **Location**: both Mono County and Town of Mammoth Lakes

IEM

Drought

- **Recent Events**: 2011-2017 and 2021-2023 including extreme drought.
- **Resources**: U.S. Drought Monitor
- **Location**: all of the planning area



IEM

Earthquake and Seismic Hazards

"Earthquake and seismic hazards" include ground shaking, liquefaction, tectonic subsidence,

- **Recent Events**: annually, 4.4 earthquake near Walker (2022), 6.0 earthquake south of Tahoe (2021).
- **Resources**: USGS, Third Uniform California Earthquake Rupture Forecast.
- **Location**: the entire County, except for a small portion of the Sierra crest.

IEM

Energy Shortages and Energy Resiliency

- **Recent Events**: Power Safety Power Shutoff (PSPS)
- **Resources**: Ready Mono
- **Location**: both unincorporated Mono County and the Town of Mammoth Lakes

NEW hazard

IEM

Epidemic/Pandemic

- **Recent Events**: COVID-19 pandemic
- **Resources**: Mono County Public Health
- **Location**: both unincorporated Mono County and the Town of Mammoth Lakes, particularly more heavily populated areas.

NEW hazard

IEM

Extreme Heat

Mono County: 97°F / Town of Mammoth Lakes: 81°F

- **Recent Events**: According to NOAA 0 days since 2019
- **Resources**: weather station in Benton,
- **Location**: small portions of Mono County, generally in areas of altitudes below 5,000 feet, such as in the Tri-Valley.

IEM

Flood

- **Recent Events**: According to NOAA 4 flood events since 2019
- **Resources**: FEMA FIRMs
- **Location**: both unincorporated Mono County and the Town of Mammoth Lakes, including Antelope Valley, Pickel Meadow, Bridgeport Valley, June Lake Loop, Tri-Valley Area

IEM

Landslides

"Landslides" include landslides, rockfalls, mudflows, slope failures, and shallow debris flows.

- **Recent Events**: ~annual event
- **Resources**: California Geological Survey
- **Location**:
  - Northeast boundary of the Long Valley Caldera, from Bald Mountain to Glass Mountain
  - Eastern escarpment canyons along the eastern escarpment of the Sierra Nevada, from the county's southern border to the peaks north of Pickel Meadow
  - Steep slopes north of Lee Vining
  - Western slope of Slinkard Valley to the county border
  - Slopes along Coyote Creek at the Nevada border
  - Throughout the Bodie Hills area

IEM

Hazardous Materials

Hazardous materials includes propane, gasoline, household chemicals, waste, and radon.

- **Recent Events**: HWY 108 crash (2020)
- **Resources**: California Department of Toxic Substances Control, State Water Resources Control Board, Mono County Integrated Waste Management Plan
- **Location**: US 395, Town of Mammoth Lakes (higher density)

IEM

Severe Wind

Severe wind refers to winds above 47 mph.

- **Recent Events**: According to NOAA 109 days since 2019 with high wind.
- **Resources**: NOAA Storm Database.
- **Location**: across the planning area including near Crowley Lake, Coleville, Lee Vining, Swall Meadows, US 395.

IEM

Severe Winter Weather and Snow

"Severe winter weather" can include heavy snowfall, extreme cold, and hail.

- **Recent Events**: According to NOAA 70 days with heavy snow event since 2019, 0 days with extreme cold.
- **Resources**: NOAA Storm Events Database.
- **Location**: both unincorporated Mono County and the Town of Mammoth Lakes.

IEM

Volcano

- **Recent Events**: ~1 eruption/100 years. Period of instability 1970s-1990s.
- **Resources**: National Volcano Early Warning System, USGS California Volcano Observatory
- **Location**: both unincorporated Mono County and the Town of Mammoth Lakes (Long Valley-Mono Basin Region)

IEM

Wildfire

- **Recent Events**: According to NOAA 176 days with wildfires since 2019
- **Resources**: Fire Hazard Severity Zones (FHSZ) maps, Community Wildfire Protection Plan (CWPP), Cal Fire
- **Location**: both Mono County (large percentages of Mammoth Vicinity, Swauger Creek, Mono Basin, and June Lake are in high wildfire severity zones) and Town of Mammoth Lakes (Valentine Reserve Ecological Study Area and neighborhoods south of Old Mammoth Road)

IEM

Wildlife Collisions

- **Recent Events**: common occurrence
- **Resources**: (previously) deer mortality study
- **Location**: along US 395 & SR 203, near Mammoth Yosemite Airport, more common in rural areas

IEM

Stakeholder Survey

What else should we be aware of?

Complete the stakeholder survey:

https://forms.office.com/r/niSmKND3Gr



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Public Survey

- Can you share this public survey? It will be open till **January 31st**



- English: https://forms.office.com/r/wnr9HmvAyW
- Spanish: https://forms.office.com/r/kk1HJe258A

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Next Steps

- Mitigation Strategy Stakeholder Meetings –
  - **Bridgeport Stakeholder Meeting #2 - Mitigation Strategy** - 3-5pm, December 9th, 2024 - 74 N. School St. Bridgeport, CA (building behind historic courthouse and next to the Bridgeport Library)
  - **Mammoth Lakes Stakeholder Meeting #2 - Mitigation Strategy** - 3-5pm, December 11th, 2024 - 437 Old Mammoth Road, Mammoth Lakes, CA 93546 (second floor, above Minaret Cinemas and next to Vons)
- Public plan review
  - *Please check the County website for updates!*
- Submit plan for State and FEMA plan review
- Each plan participant adopts the plan
- Implement the plan

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Questions?

Contact Information

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Jeanne.Bunting@iem.com

Kelly Karl
Planning Analyst
760.924.1809
kkarl@mono.ca.gov

Bridgeport Stakeholder Meeting #1 – Risk Assessment

ATTENDEES

Name	Title	Jurisdiction/Agency
Jason Titus	Geologist	BLM – Bishop Field Office
John Peters	County Supervisor	Board of Supervisors
Lauren Breitenbach	Climate Adaptation and Resilience Specialist	Cal Trans District 9
Josh Lundquist	Maintenance Superintendent	Cal Trans Mono County
Dan Youngren	Chief Ranger	California State Parks in the Sierra District
Rob Mckoske	Planner	CDD
Steve Mace	Director of Operations	Eastern Sierra Avalanche Center
Christina Nuno	Emergency Services Coordinator	Inyo and Mono Counties
Annamaria Echeverria	Safety Planning Officer	Inyo National Forest
Tod Kidwell	General Manager	June Lake PUD
Brent Calloway	Analyst	Mono County
Jaime Jerrett	IT Specialist	Mono County
Mike Martinez	IT Director	Mono County
Chris Mokracek	Emergency Manager	Mono County
Karyn Spears	Assistant Public Works Director	Mono County
Kelly Karl	Planning Analyst	Mono County Community Development
Amanda Carlson	Economic Development Coordinator	Mono County Economic Development
Brian Bullock	Chief	Mono County EMS
Penny Galvin	Fiscal and Administrative Officer	Mono County EMS
Krista Cooper	Adult Services Manager	Mono County Health and Human Services
John Pelichowski	Seargent	Mono County Sheriff's Office and Bridgeport Fire Department
Luke Hammack	Supervisor for Facilities	Mono County/Bridgeport Fire Dept
Jackson T. Doan	Colonel	Mountain Warfare Training Center
Brian Brong	Science and Operations Manager	NWS - Reno

Name	Title	Jurisdiction/Agency
Marcella Rose	Sustainable Recreation Coordinator	Public Works – Mono County
Steve R Noble	Business Owner	RPAC
Nick Way	Fire Chief	RPAC - BPFD
Matt Paruolo	Government Relations Manager	Southern California Edison
Meg Richardson	Dam Safety Regulatory Compliance	Southern California Edison
Jessica Ball	Volcanologist	USGS – Volcano Observatory
Jessica Halterman	Executive Administrator	Walker River Irrigation District
Taro Pusina	Ranger	White Mountain District
Serenity Anderson	Director	Yosemite Area Regional Transportation

MEETING NOTES

On November 6, 2024, Mono County and the Town as well as the participating special districts welcomed a wide range of internal and stakeholders to attend the first stakeholder meeting on the Risk Assessment. This meeting was held in Bridgeport in a hybrid format.

Jeanne introduced the concept of hazard mitigation and how the hazard mitigation plan is intended to meet the needs of the local communities. She emphasized the benefits of hazard mitigation including the ability to break the cycle of disaster damage, destruction, and reconstruction.

Casey went over the definition of stakeholders and asked attendees to share other stakeholders that should be involved.

EXERCISE: MAPPING

Look at provided maps, what areas have experienced changed in development? What vulnerabilities are you aware of?

Note to add to the map from Jami Jerret: Please add: Get a backup generator from SCE that provides power to the community of Bridgeport in case of storm, road closures, etc. People rely on it for heat/food/livelihood and the community has a lot of power outages and potential hazard scenarios.

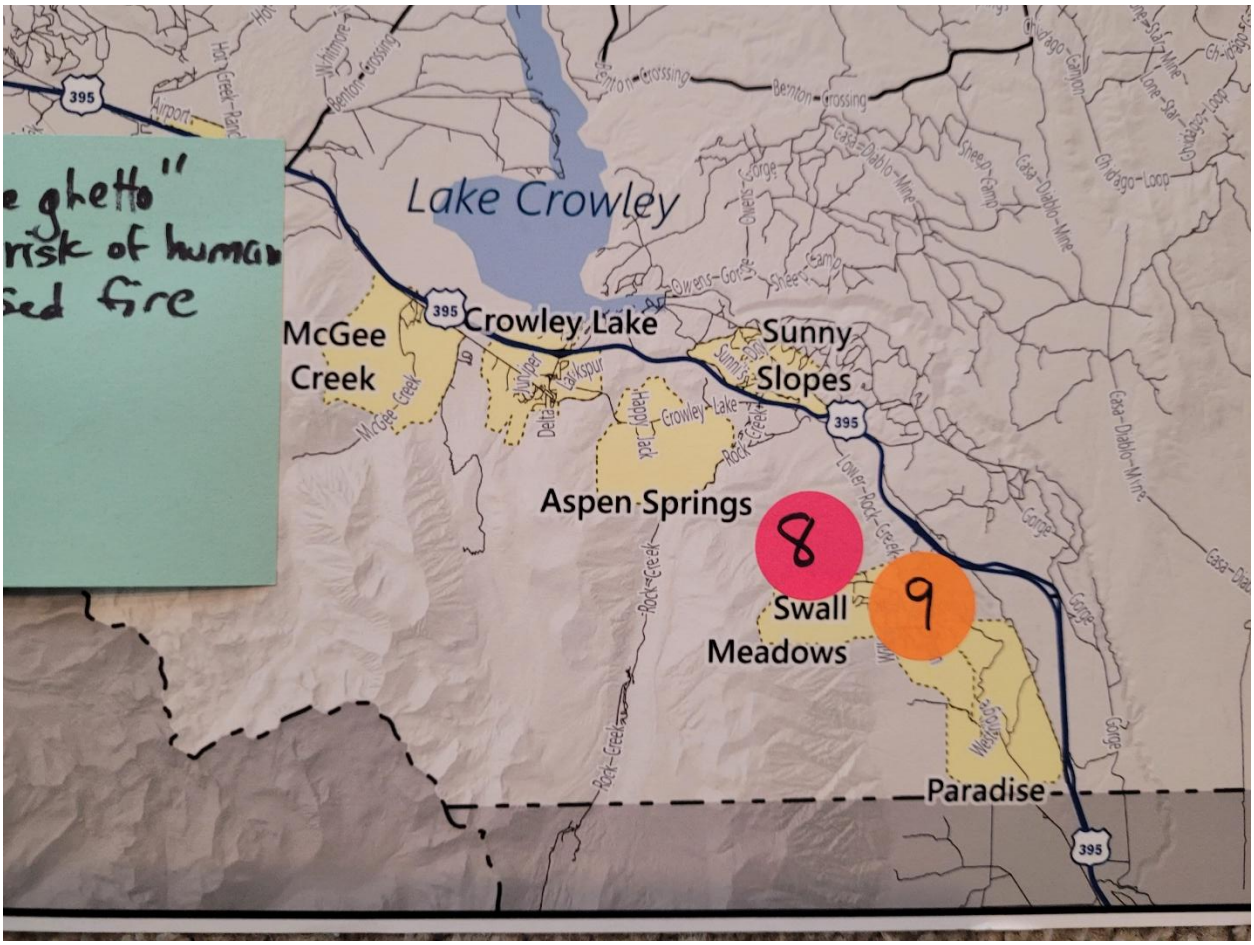


Figure 102: Map of McGee Creek, Crowley Lake, Aspen Springs, Sunny Slopes, Small Meadows, and Paradise with Hazards and Vulnerabilities Located

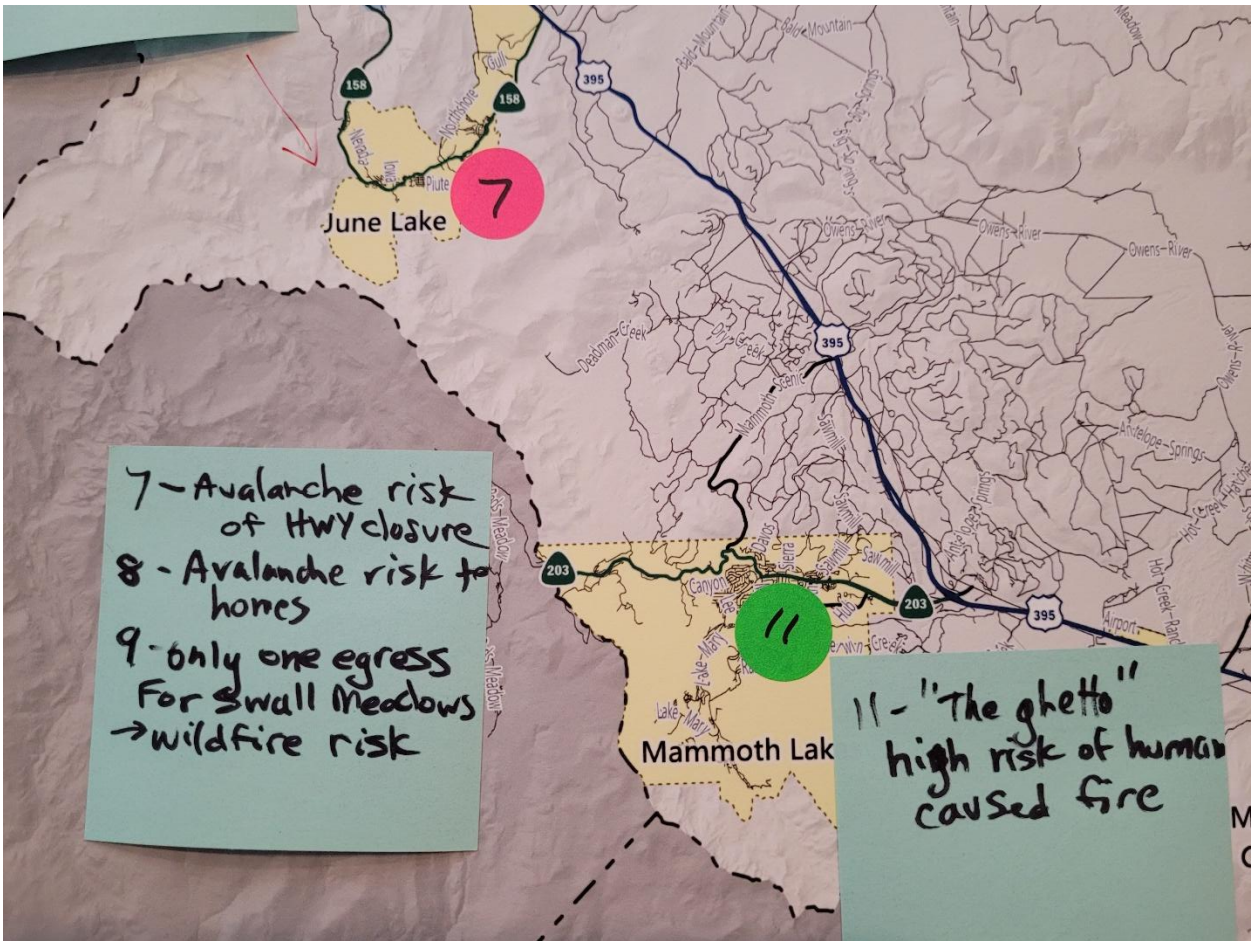


Figure 103: Map of Mammoth Lake and June Lake with Hazards and Vulnerabilities Located



Figure 104: Map of Lee Vining and June Lake with Hazards and Vulnerabilities Located

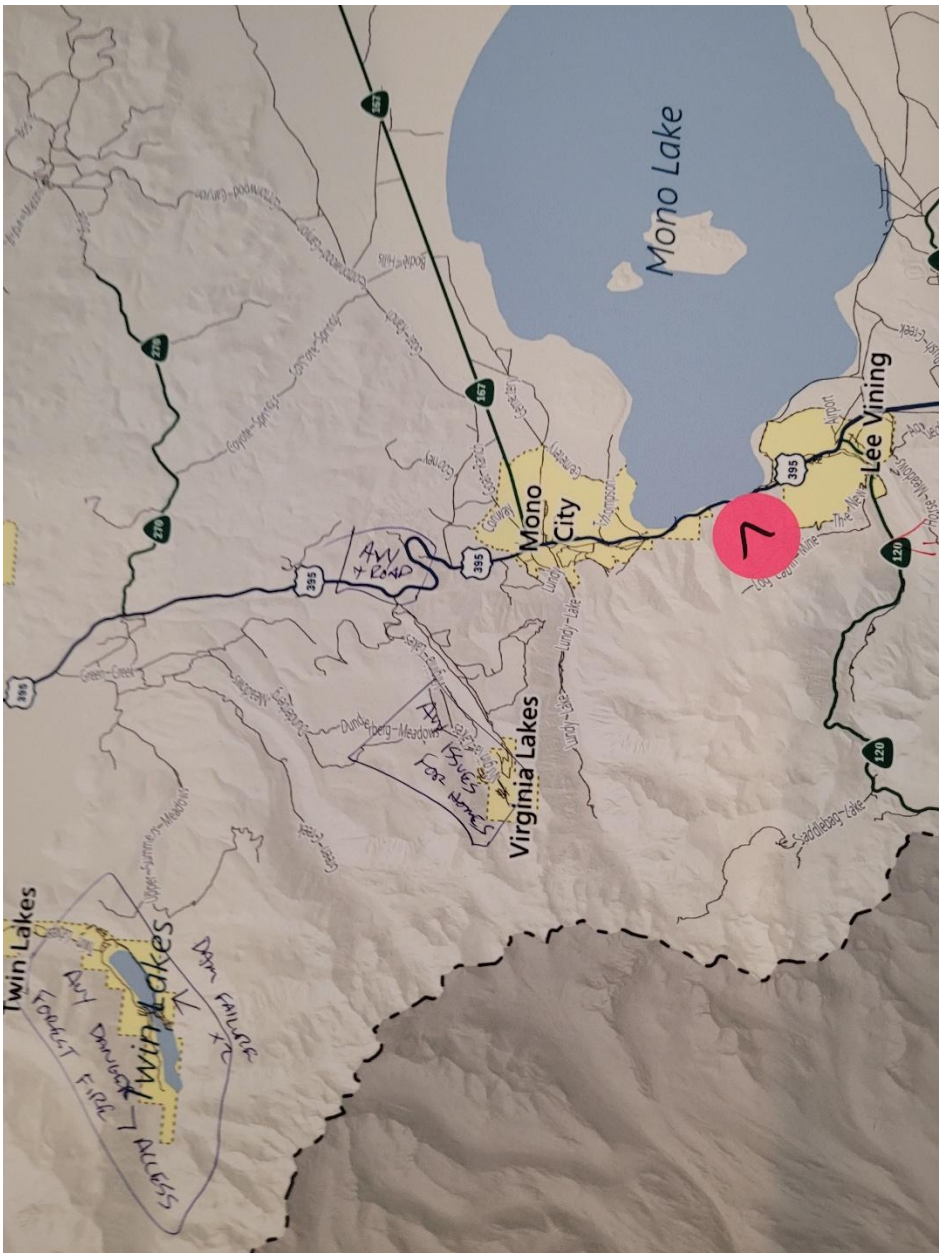


Figure 105: Map of Mono City, Lee Vining, Virginia Lakes, and Twin Lakes with Hazards and Vulnerabilities Located

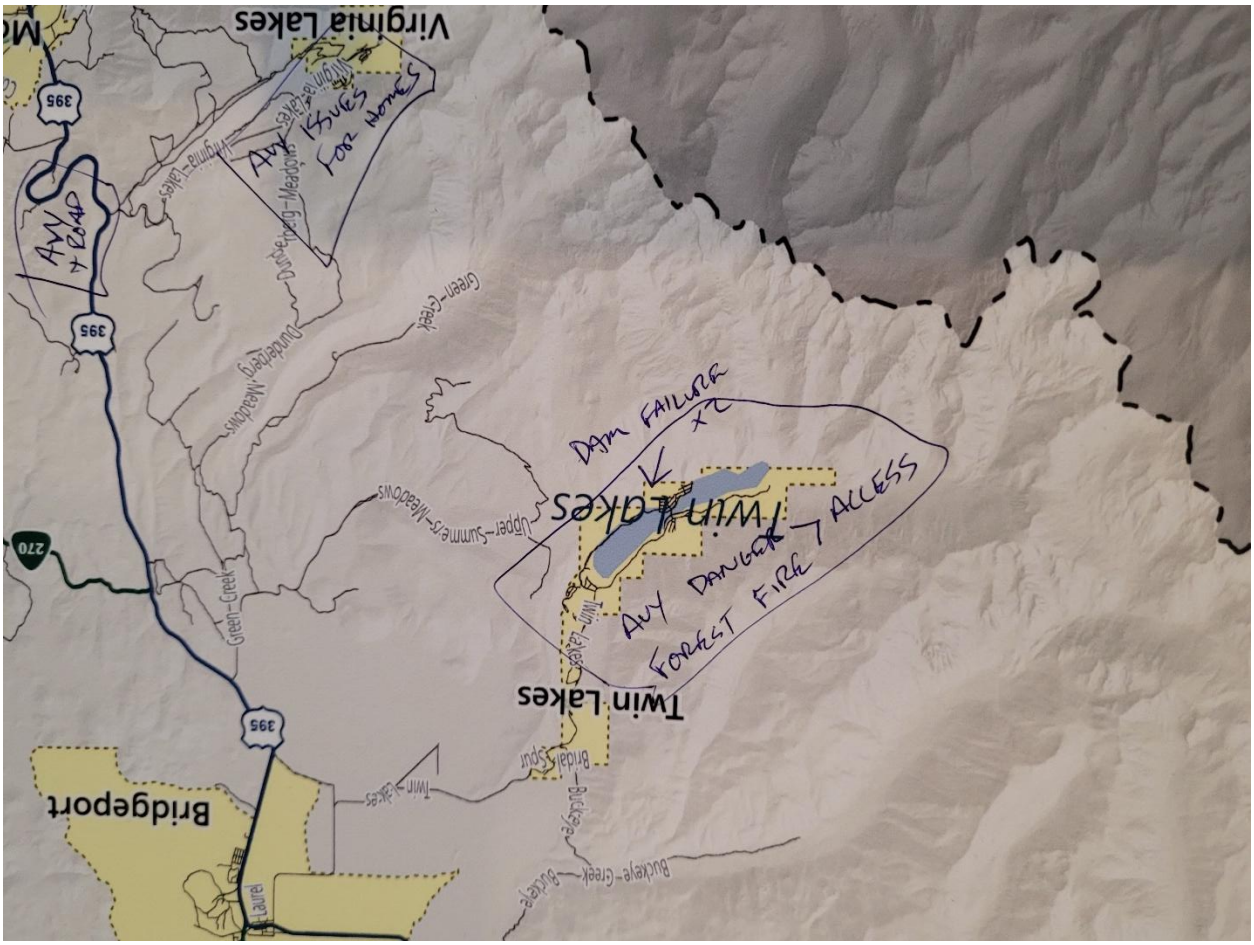


Figure 106: Map of Twin Lakes and Virginia Lakes with Hazards and Vulnerabilities Located

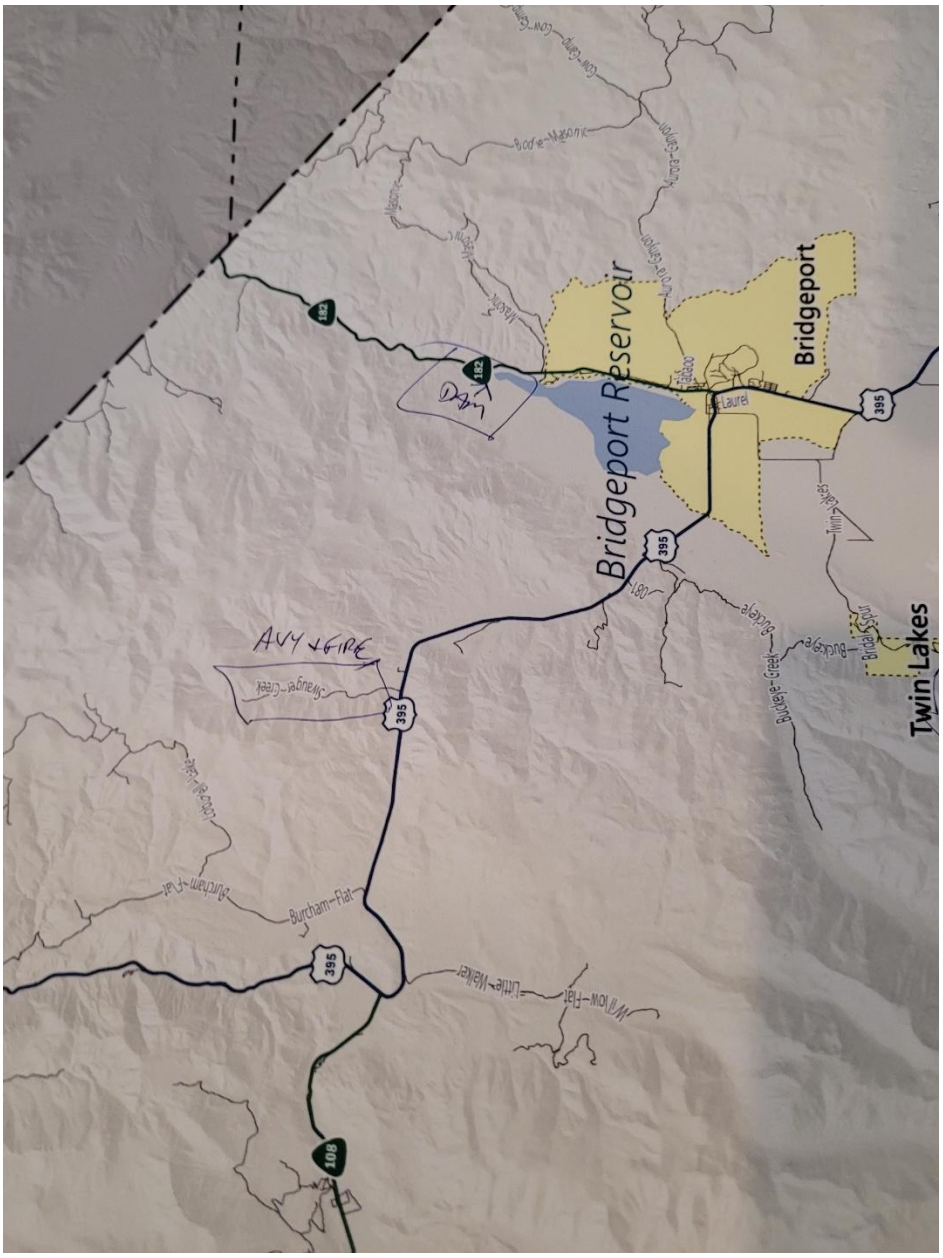


Figure 107: Map of Bridgeport with Hazards and Vulnerabilities Located



Figure 108: Map of Walker and Coleville with Hazards and Vulnerabilities Located

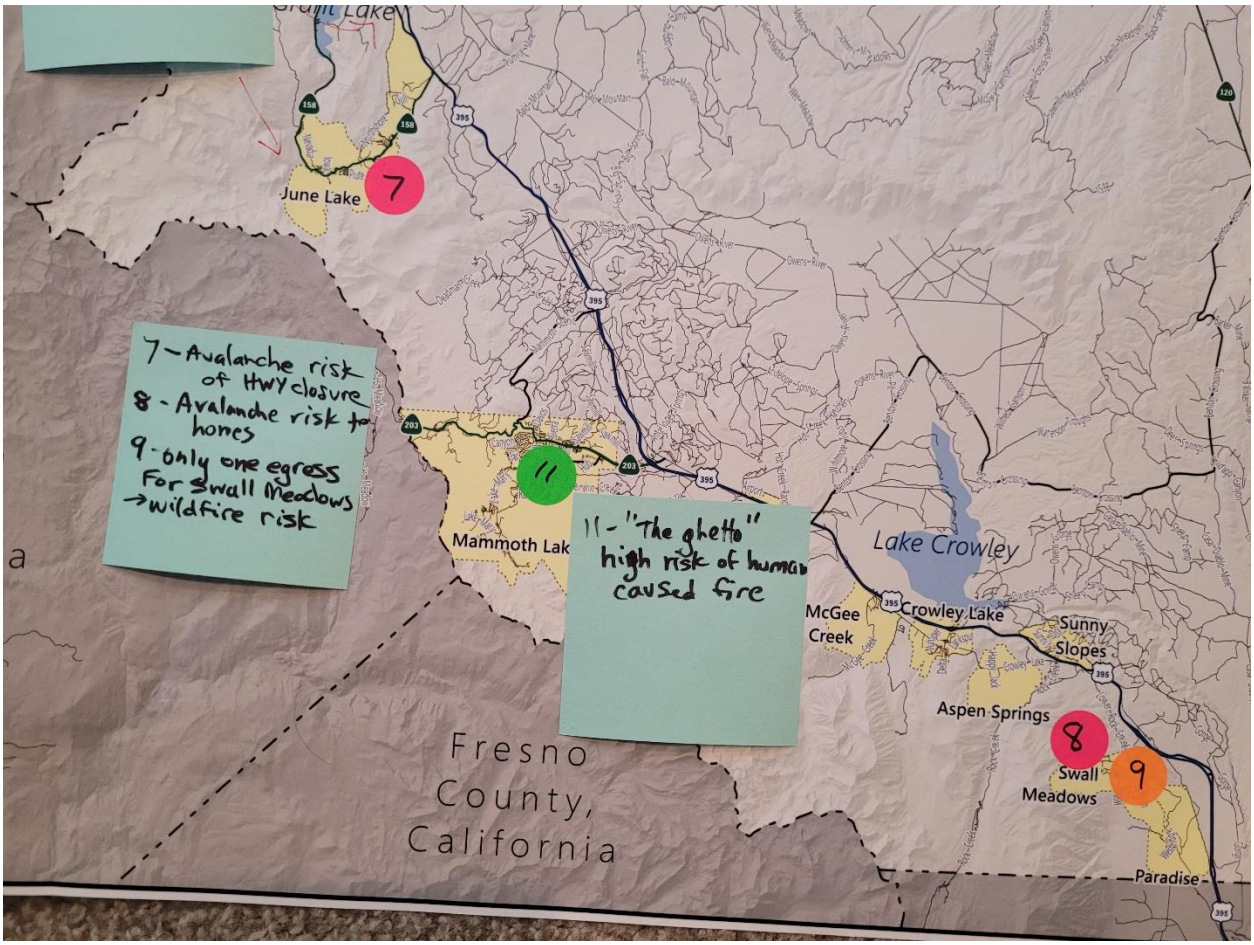


Figure 109: Map of Southern Mono County with Hazards and Vulnerabilities Identified

HAZARD DISCUSSIONS

Hazard Ranking

- Kate Smith, IEM, gave an overview of the current hazard ranking, with wildfire, severe winter weather and snow, and earthquake and seismic hazards being the top three.
- Todd Kidwell noted they were awarded grant funding for a portable generator. He is happy to look into providing it to surrounding areas in event of an emergency that does not impact our district simultaneously.

Avalanche

- There is only one highway through the County and anything that affects that can affect the standard of living in the County.
- In the photo on the slide, the trees burned in a previous wildfire. Previously, they used to hold up on the snow.

- Steve Mace with Eastern Sierra Avalanche Center says there are two avalanche center including one in Bridgeport and the Gazex devices which are managed by Cal Trans. Steve says he thinks about the threat of avalanche to transportation and communities but also to backcountry hikers. He suggests communication would be good.
- Todd wonders if the lake could be used to transport goods from one side to the other if roads were not accessible.

Dam Failure

- No comments received.

Disease/Pest Management

- No comments received.

Drought

- Has seen some large droughts in recent past.
- Can impact snow pack, recreation, and other cascading hazards include wildfire.
- Beetles can make the impacts of drought worse.
- Typically use US Drought Monitor for data.
- Janet Hatfield noted that there are old Integrated Regional Water Management Plans that are worth referencing related to drought: https://inyo-monowater.org/our-work/planning/.

Earthquake and Seismic Hazards

- The secondary hazards included landslides and liquefaction, Jessica Ball noted. Jessica Halterman suggested dam failure as a secondary hazard as well.
- 6.0 earthquake was in Walker in 2021 – power lines were a concern, including fiber optics and how they would fare (Digital 395).
- Jessica Ball shared that disruption to water supplies and any buried infrastructure as well would be a concern.

Energy Shortages and Energy Resiliency

- There are concerns with getting propane and having access to that form of energy.
- They have to open community centers when there are PSPS, but sometimes when generators won't start, you can't do it (Liberty Energy).
- One person (Southern California Edison) says at the end of the day, it comes down to isolation. Being isolated means you can't get as many people in here.

- People have had to go as far as Reno to get 911 services when there is no cell service or the highway is down.
- "You have to be resilient to live here." We're here to help people and prepare for it.
- Struggle with access and egress.

Epidemic/Pandemic

- No comments.

Extreme Heat

- Discussion on extreme heat and what is available as not many people have air conditioning.
- Kelly noted related to energy shortages, heating mechanisms for locals become an issue during power outages/PSPS events. Not everyone has wood burning stoves, and those homes/buildings that use pellet stoves or heating systems that require energy to operate are without heat during storms or extreme cold events.

Flood

- People mentioned rain-on-snow flooding again.
- One person noted that it usually doesn't impact a whole region, but still can cause structural flooding.
- Wendy Sugimura shared, "Mike Curtis just referenced the January 1, 1997, rain-on-snow event also. In Walker, it did cause some damage – I'm not sure who would have that documentation. We can ask around. One result was that Mono County acquired a bunch of flood parcels in order to prevent development on them because they are deemed flood hazards and therefore not appropriate for development. APNs: 002140033000, 002490007000, 002490008000, 002490001000, 002490002000, 002490010000, 002490011000."

Landslides

- Landslides are primarily isolated or along the highway/canyon systems. Every spring it seems like there are landslides and transportation routes get cut off.
- Jessica Ball – RE landslides – the USGS also has a landslide team which responds to events.
- Kate noted that during the exercise the USGS was looking at some landslides along alluvial fans and what they noted.
- Lauren Breinbach (DOT) shared rockfall during wind and flash flooding along Hwy. 120, blue slide area.

Hazardous Materials

- One participant noted battery bank.

- Water treatment plan could also be an issue.
- Another one noted where the 395 corridor is a main concern, and isolation is a big issue. There is no HazMat team here. The closest one is in Sacramento. There have been incidents with trucks.
- Trucks have even fallen into the river carrying chemicals.

Severe Wind

- Influences wildfire.
- Debris and downed trees are an associated hazard.

Severe Winter Weather and Snow

- Propane tanks and the ability to keep things shoveled.
- Participant shared that people have died from this hazard before. Someone said they happen in extremes in Mono County. During COVID, a clinic was supposed to open in Antelope Valley and there was a storm with 4 feet of snow. Sometimes even the flu shot is challenging to get to people as you are fighting snow. Often, things happen at one time – Bridgeport got cut off in 2023 due to an avalanche. In 2023, it took a whole community approach to bring everyone together just to survive.

Volcano

- Back in the 80s you would carry four to five air filters as a fireman. There is greater need for air filtration and making sure they are able to keep the trucks running.
- One participant asked about the caldera plan and how the forest service had a whole caldera trailer full of supplies. County staff were not familiar.

Wildfire

- Suggested going to the CWPP as well as the feds for wildfire history and severity. Typically, it is conjunction.
- Suggestion to add Twin Lakes to the wildfire. One participant says he will send a list. Also recommended to reach out to fire safe council.
- Janet Hatfield with the Whitebark Institute does a lot with land management agencies to do wildfire mitigation. She says that often the data is not representative of real life and on the ground realities. In particular, insurance risk maps are almost inverted. She thinks it's important to emphasize the different fuel types and how to engage with them. She says there is a lot of transition between shrub and forest dominant community, and there is no one-size-fits-all way to mitigate this.
- There's an initiative with fire safe communities to connect with the insurance agencies and take the steps necessary to show that the communities have done what is needed. One person added there is a wildfire mitigation communities and developing wildfire mitigation communities in order to get a

reduction of insurance rates. Kate notes that becoming a Firewise community can be an action included in the mitigation plan.

- Insurance is a problem. In communities at risk from wildfire, they are looking at policies of $25,000–$30,000 a year.
- Chris noted that he wants to make sure there is plan alignment between the CWPP and EOP and this mitigation plan update as well.
- Kate emphasized how we incorporate these specific vulnerabilities into the mitigation actions. Any additional information will help us do this.

Wildlife Collisions

- There are some tunnels completed under the underpass but still anticipate collisions.
- Wendy suggested utilizing the wildlife collision study for the US 395 corridor that Caltrans.

NEXT STEPS

- Take the stakeholder survey.
- Share the public survey if possible.
- Next meetings
  - Bridgeport Stakeholder Meeting #2: Mitigation Strategy – Dec 9
  - Mammoth Lakes Stakeholder Meeting #2: Mitigation Strategy – Dec 11
- Public Plan review coming up – check County website for updates.

QUESTIONS?

- None.

Mammoth Lakes Mitigation Strategy Meeting, 12/11/2024

PARTICIPANTS

Name	Title	Agency/Jurisdiction
Katrina Martinez	Family Formation Director	Bishop Paiute Tribe
Jody Newton	Hazard Mitigation Planner	CAL OES Local Mitigation Planning Unit
Constantin Raether	Program Manager	CAL OES local Mitigation Planning Unit
Beau Romero	Contracts and Emergency Operations Analyst	Caltrans
Rebecca Carr Wong	Superintendent,	Devils Postpile National Monument, NPS
Clancy Nelson	Lead Avalanche Forecaster	ESAC
Jess Blackwell	Program Manager	High Sierra Energy
Pam Close Bold	Executive Director	High Sierra Energy Foundation
Myrna Chase	Planner	IEM
Casey Garnett	Lead Planner	IEM
Kate Smith	Planner/GIS	IEM
Lisa Cox	Public Affairs Officer	Inyo National Forest-US Forest Service
Christina Nuno	Emergency Services Coordinator	Inyo-Mono CDSS
Scott McGuire	Fire Chief	Long Valley Fire
Elizabeth Weeks-Comeau	Emergency Preparedness Coordinator	Mammoth Hospital
Dan Casabian	Police Chief	Mammoth Lakes
Betsy Truax	VP of Community Engagement	Mammoth Lakes
Kim Anaclerio	Executive Director	Mammoth Lakes Recreation
John Urdi	President & CEO	Mammoth Lakes Tourism
Chad Marquette	USMCMWTC	MCMWTC
Christina Ackerman	Executive Associate to the Chief	MCPD
Clint Dohmen	Undersheriff	MCSO
Mike McCarthy	Division Chief	MLFPD
Ingrid Braun	Sheriff-Coroner	Mono County
Bri Chappell-McGovern	Public Health Emergency Preparedness and Response Manager	Mono County

Name	Title	Agency/Jurisdiction
Chris Mokracek	Emergency Management	Mono County
Lynda Salcido	District Supervisor	Mono County
Magnolia Barra	Unknown	Sierra Business Council
Nolen Bobroff	CED Director	Town of Mammoth Lakes
Haislip Hayes	Public Works Director	Town of Mammoth Lakes
Pam Kobylarz	Assistant to Town Manager	Town of Mammoth Lakes
Steve Mace	Director Eastern Sierra Avalanche Center (ESAC)	Town of Mammoth Lakes
Matt Paruola	Government Relations Manager	Town of Mammoth Lakes
Bill Sauser	Council Member	Town of Mammoth Lakes
Brent Truax	Council Member	Town of Mammoth Lakes
Sierra Waugh	Deputy Airport Manager	Town of Mammoth Lakes
Janelle Walker	Program Manager	USFS R5 Mountain Resorts
Stuart Wilkinson	Technician	US Geological
Jessica Ball	Hazards and Communication Specialist	USGS California Volcano Observatory
Jennifer Lewicki	Acting Scientist in Charge	USGS California Volcano Observatory
Jessica Halterman	Executive Administrator	Walker River Irrigation District (WRID)
Dave Doonan	Fire Chief	White Mountain Fire
Laura Beardsley	Executive Director	Whitebark Institute
Janet Hatfield	Resilience Program Director	Whitebark Institute

WELCOME AND INTRODUCTIONS

Casey Garnett, IEM Lead Planner, began the discussion.

DISCUSSION

- Agenda
  - Hazard Mitigation
  - The Hazard Mitigation Plan
  - The Mitigation Strategy
  - Hazards
  - Community Lifelines

  - Exercise
    - Brainstorming session
  - Mitigation Goals/Objectives
  - Surveys
  - Next Steps
- What is Hazard Mitigation
- Mitigation Strategy
  - Goals, objectives, and actions
  - Comprehensive range of actions
    - Local plans and regulations
    - Structure and infrastructure projects
    - Natural systems protection
    - Education and awareness programs
  - Make sure to add an action for the geothermal plant
- Must have at least one action for each jurisdiction for each hazard
- Hazards:
  - Avalanche
  - Dam Failure
  - Disease/Pest Management
  - Drought
  - Earthquake and Seismic Hazards
  - Energy Shortages and Energy Resiliency
  - Epidemic/Pandemic
  - Extreme Heat
  - Flood
  - Landslides
  - Hazardous Materials
  - Severe Wind
  - Severe Winter Weather and Snow
  - Volcano
  - Wildfire

  - Wildlife Collisions
- Definitions
  - Goals: Broad policy-type statements reflecting the long-term outcomes you want.
  - Objectives: Define the steps necessary to achieve the goals.
  - Actions: A measure, project, plan, or activity proposed to reduce current and future vulnerabilities described in the risk assessment.
  - Mitigation Action Plan: A matrix describing each action, including the timeline, funding, and priority.
- California State HMP goals:
  - Significantly reduce the risk to life, community lifelines, the environment, property, and infrastructure by planning and implementing the whole-community risk reduction and resilience strategies.
  - Build capacity and capabilities to increase disaster resilience among historically underserved populations, individuals with access and functional needs, and communities disproportionately impacted by disasters and climate change.
  - Incorporate equity metrics, tools, and strategies into all mitigation planning, policy, funding, outreach, and implementation efforts.
  - Apply the best available science and authoritative data to design, implement, and prioritize projects that enhance resilience to natural hazards and climate change impacts.
  - Integrate mitigation principles into laws, regulations, policies, and guidance to support equitable outcomes for the whole community.
  - Significantly reduce barriers to timely, efficient, and effective hazard mitigation planning and action.
- Goals
  - GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from earthquakes and other geologic hazards.
  - GOAL 2. Avoid exposure of people and improvements to unreasonable risks of damage or injury from flood hazards.
  - GOAL 3. Avoid exposure of people and improvements to unreasonable risks of damage or injury from fire hazards.
  - GOAL 4. Avoid exposure of people and improvements to unreasonable risks of damage or injury from avalanche hazards.
  - GOAL 5. Avoid exposure of people and improvements to unreasonable risks of damage or injury from dam failure hazards.

  - GOAL 6. Avoid exposure of people and improvements to unreasonable risks of damage or injury from disease and pest hazards.
  - GOAL 7. Avoid exposure of people and improvements to unreasonable risks of damage or injury from drought hazards.
  - GOAL 8. Avoid exposure of people and improvements to unreasonable risks of damage or injury from volcano hazards.
  - GOAL 9. Avoid exposure of people and improvements to unreasonable risks of damage or injury from hazardous materials.
  - GOAL 10. Avoid exposure of people and improvements to unreasonable risks of damage or injury from severe weather, heat, cold, and snow hazards.
  - GOAL 11. Avoid exposure of people and improvements to unreasonable risks of damage or injury from wind hazards.
  - GOAL 12. Reduce the risks from natural hazards by planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multiagency approach to emergency response.
  - GOAL 13. Prepare for changing climate conditions in Mono County.
  - GOAL 14. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play.
  - GOAL 15. Maintain adequate emergency response capabilities.
- Community Lifelines and group exercise
  - The most fundamental services in the community that, when stabilized, enable all other aspects of society to function.
    - **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
      - **Stakeholder Suggestions:**
        - Update emergency operations plan
        - Emergency operations center connectivity
        - Communications plan (PACE), to include Cal OES
        - OEM Exercises
        - ICS Training
        - Evacuation plan development and training
        - Multi-agency trainings and collaborations to strengthen response
        - Integration of response coordination
        - Assist with snow removal at private residents

- Reduction of theft/crime during hazard incident
- Advance evacuation planning
- Vegetation management to reduce wildfire risk
- Engage business community to support its workforce during disaster response and recovery
- Increase ESAC resources to provide weather data, buy, install, maintain weather stations for avalanche warnings to back country recreation areas
- Establish security plan to protect private property during evacuation event

- **Food, Hydration, and Shelter**: Food, Hydration, Shelter, Agriculture
  - **Stakeholder Suggestions:**
    - Establish means of warming homes during winter power outages
    - Energy resilience to ensure electricity available for cooking during emergencies
    - Develop, update, publish and exercise the mass care plan annex
    - Public messaging for residents and lodging properties on commodities distribution plan pre-planned and published
    - EOC warming and cooling centers
    - Promote and support robust local food systems
    - Supply chain redundancy plan for highway closures/failures
    - Establish Mono County Red Cross Shelters, locations
    - PSA on location of heating/cooling centers, to include charging stations for people with access and functional needs and medical equipment
    - Pre-designated evacuation centers with commodity supplies in central locations
    - Water system backup
    - Support a robust water supply system of surface and ground water wells and water storage
    - Utilize community centers as points of distribution in EOP and during exercises
- **Health and Medical: Medical Care,** Public Health, Patient Movement, Medical Supply Chain, Fatality Management
  - **Stakeholder Suggestions:**
    - Increase medical staff/EMS
    - Increase availability of hospital beds
    - Stockpile local supply of commonly used medications

        - Install backup generators to medical facilities
        - Regional collaboration on medical evacuation and healthcare infrastructure
        - Fire-hardened facilities and adjacent
        - Clean air centers for respite from smoke during wildfire incidents
        - Household filtration system improvements
        - Public awareness programs on emergency supplies
        - Public awareness program on enrolling for medical baseline program for SCE customers requiring electricity for medical devices
    - **Energy: Power Grid, Fuel**
        - **Stakeholder Suggestions:**
            - Implement ERAP-Energy Resilience Action Planning Program
            - Update infrastructure mapping
            - Implement Public Awareness Program: "Up to You for 72," access and functional needs for prolonged power outages
            - Backup fuel for critical infrastructure, snow removal equipment
            - State authorization to allow propane delivery from Nevada
            - More renewable local energy sources
            - Distributed energy resources
            - Microgrid and battery storage for critical facilities
            - Awareness program on geothermal plant and potential risks
            - Vegetation management around critical infrastructure
            - Community Resilience Center, funding and execution
    - **Communications:** Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911, and Dispatch
        - **Stakeholder Suggestions:**
            - Coordinate emergency alerts
                - Access and Functional Needs Registry, Awareness program
                - Town dispatch center
                - Regional Emergency Dispatch Center
                - Redundant communications infrastructure, to include training and planning
                - Updated contact information list for residents and vacation property owners

        - Geo-forced alert system that will alert visitors in area of incidents/evacuation routes
        - Pre-scheduled emergency mass notification messages
        - The Town PIO and social media director
        - English/Spanish translation services
        - Energy resilience to support OES and communications during emergencies
        - Interagency cohesion in messaging and timing
        - Avalanche warnings coordination between the Town and County
- **Transportation:** Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation
    - **Stakeholder Suggestions:**
        - Acquire right-of-way for additional roads in and out of the Town
        - Establish and publish pre-planned evacuation routes
        - Create helipads and support infrastructure at Mammoth/Yosemite Airport
        - Access and functional needs training for transportation coordinators
        - Provide evacuation information and commodities distribution coordination to residents and visitors without personal transportation
        - Use alternative controls for rockslide debris so fencing doesn't end up in snow debris
        - Mutual aid agreements with the state to ensure equipment remains operational and road/highway are cleared of snow
        - Establish safe access egress routes
        - Vegetation management/mitigation for hardened egress routes
        - Indoor storage facility for the Town snow removal equipment to increase operational efficiency
        - Provide housing in Town for essential workers of critical services during emergencies
- **Hazardous Materials:** Facilities, HAZMAT, Pollutants, Contaminants
    - **Stakeholder Suggestions:**
        - Develop spill/containment plan with stakeholder input and publish plan
        - Access to containment or response needs, with known location and availability
        - Identify all hazardous storage facilities in the Town
        - Monitor and enforce hazardous materials storage ordinances
        - Integrate hazmat training and response for all first responders
        - Vegetation management near know hazardous materials storage facilities

        - Lists of resources in accessible areas of hazmat teams and resources
    - **Water Systems:** Potable Water Infrastructure, Wastewater Management
        - **Stakeholder Suggestions:**
            - Develop water systems backup
            - Maintain safe drinking water and waste water systems during hazard events
            - Fire hydrants evenly distributed and at location with high wildfire hazards
            - Vegetation management around infrastructure
            - Backup power for mass distribution
            - Ensure that major valves are one way flow
            - Develop mitigation actions to address earthquake and volcanic hazards
            - Contracts/MOUs with large back up water systems for prolonged outages
            - Develop a plan for fire response water systems
            - Develop mitigation actions to build resilience in water access
            - Hardened water systems infrastructure
- Mitigation Actions Discussed
    - Reorganizing locations for shelter, food, etc., and coordinating those so they are closer to each other.
    - Sources are fragmented; discussion of more integration between agencies. There is no overarching coordination. Need a regional dispatch center.
- Public Outreach Input
    - Further community participation in Firewise education and preparation, particularly in Twin Lakes, the Town proper, the Evans tract, and up SR 182
    - Establish a CERT team
    - Fuel reduction projects and related programs, such as the biomass project in the Mammoth area
    - Generators – can we incentivize them?
    - Can a FEMA floodplain be established for Dream Mountain?
    - Alternate route to bypass the avalanche area – the road along the front of the USFS Visitor Center to the marina
- Sharing of public outreach QR code survey
    - Survey closed on January 31, 2024
- Sharing of Stakeholder QR Code

NEXT STEPS

- Plan participant plan review
- Public plan review
- Please check the County website for updates!
- Submit plan for State and FEMA plan review
- Each plan participant adopts the plan
- Receive final FEMA approval once the plan is adopted
- Implement the plan

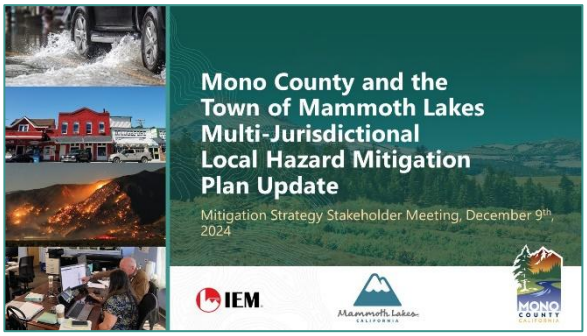
QUESTIONS AND COMMENTS

- TEMA Questions for IEM
  - None

NEXT MEETINGS AND UPCOMING DEADLINES

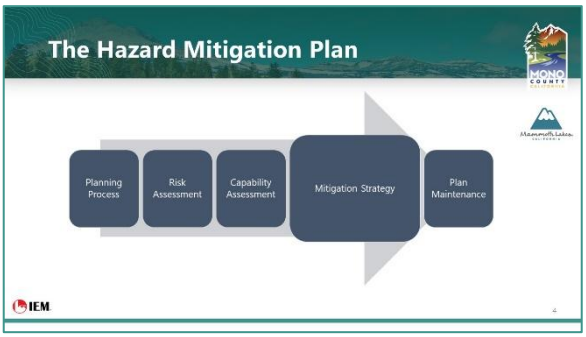
- Public Survey closes January 31, 2024

PRESENTATION SLIDES









The Mitigation Strategy



IEM

Let's Talk Specifics

- Includes goals, objectives, and actions
- A comprehensive range of actions:
  - Local plans and regulations
  - Structure and infrastructure projects
  - Natural systems protection
  - Education and awareness programs
- At least **one action** for **each plan participant** for **each hazard**

IEM

Hazards

- Hazards included in this plan update include:
  1. Avalanche
  2. Dam Failure
  3. Disease/Pest Management
  4. Drought
  5. Earthquake and Seismic Hazards
  6. Energy Shortages and Energy Resiliency
  7. Epidemic/Pandemic
  8. Extreme Heat
  9. Flood
  9. Landslides
  10. Hazardous Materials
  11. Severe Wind
  12. Severe Winter Weather and Snow
  13. Volcano
  14. Wildfire
  15. Wildlife Collisions

IEM

Definitions

Goals	Broad policy-type statements that reflect the long-term outcomes you want to achieve
Objectives	Define the steps necessary to achieve the goals
Actions	A measure, project, plan, or activity proposed to reduce current and future vulnerabilities described in the risk assessment
Mitigation Action Plan	A matrix describing each action including the timeline, funding, and priority

IEM

Example

Goals	Protect people, property, and cultural and historic resources from losses due to a natural hazard-like flooding
Objectives	• Reduce the number of high-risk structures in the floodplain • Enhance stormwater management capacity
Actions	• Support acquisitions, demolitions, mitigation reconstruction, or other flood protection measures for SRL/RL properties • Prepare and adopt a community Stormwater Management Plan • Install detention basin between River St and Main St

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Mitigation Goals – State

- 2023 California State HMP Goals:
  - Significantly reduce the risk to life, community lifelines, the environment, property, and infrastructure by planning and implementing the whole-community risk reduction and resilience strategies.
  - Build capacity and capabilities to increase disaster resilience among historically underserved populations, individuals with access and functional needs, and communities disproportionately impacted by disasters and climate change.
  - Incorporate equity metrics, tools, and strategies into all mitigation planning, policy, funding, outreach, and implementation efforts.

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Mitigation Goals – State

- 2023 California State HMP Goals:
  - Apply the best available science and authoritative data to design, implement, and prioritize projects that enhance resilience to natural hazards and climate change impacts.
  - Integrate mitigation principles into laws, regulations, policies, and guidance to support equitable outcomes to benefit the whole community.
  - Significantly reduce barriers to timely, efficient, and effective hazard mitigation planning and action.

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Mitigation Goals

- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from earthquakes and other geologic hazards.
- GOAL 2. Avoid exposure of people and improvements to unreasonable risks of damage or injury from flood hazards.
- GOAL 3. Avoid exposure of people and improvements to unreasonable risks of damage or injury from fire hazards.
- GOAL 4. Avoid exposure of people and improvements to unreasonable risks of damage or injury from avalanche hazards.
- GOAL 5. Avoid exposure of people and improvements to unreasonable risks of damage or injury from dam failure hazards.

IEM

Mitigation Goals

- GOAL 6. Avoid exposure of people and improvements to unreasonable risks of damage or injury from disease and pest hazards.
- GOAL 7. Avoid exposure of people and improvements to unreasonable risks of damage or injury from drought hazards.
- GOAL 8. Avoid exposure of people and improvements to unreasonable risks of damage or injury from volcano hazards.
- GOAL 9. Avoid exposure of people and improvements to unreasonable risks of damage or injury from hazardous materials.
- GOAL 10. Avoid exposure of people and improvements to unreasonable risks of damage or injury from severe weather, heat, cold, and snow hazards.

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Mitigation Goals

- GOAL 11. Avoid exposure of people and improvements to unreasonable risks of damage or injury from wind hazards.
- GOAL 12. Reduce the risks from natural hazards by planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multiagency approach to emergency response.
- GOAL 13. Prepare for changing climate conditions in Mono County.
- GOAL 14. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play.
- GOAL 15. Maintain adequate emergency response capabilities.

IEM

Community Lifelines

- The most fundamental services in the community that, when stabilized, enable all other aspects of society to function.



IEM

Community Lifelines

- **Safety and Security** - Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter** - Food, Hydration, Shelter, Agriculture
- **Health and Medical** - Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy** - Power Grid, Fuel
- **Communications** - Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911 and Dispatch
- **Transportation** - Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials** - Facilities, HAZMAT, Pollutants, Contaminants
- **Water Systems** - Potable Water Infrastructure, Wastewater Management

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Exercise

- Find your group (online you will be assigned a breakout room).
- Identify a notetaker and someone who will report out.
  - Who is on your team? Note name, title, and agency
- Identify multiple types of actions to address the hazards that could impact each of the community lifelines.
  - ~5 minutes per community lifeline then we will rotate (online, please monitor your own group's time)
- Not sure how to start? *Review the question handout*

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Safety and Security

- **Safety and Security** - Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety



IEM

Food, Hydration, Shelter

- **Food, Hydration, Shelter** - Food, Hydration, Shelter, Agriculture





IEM

Health and Medical

- **Health and Medical** - Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management



IEM

Energy (Power and Fuel)

- **Energy** - Power Grid, Fuel



IEM

Communications

- **Communications** - Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911 and Dispatch





IEM

Transportation

- **Transportation** - Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation







IEM

Hazardous Materials

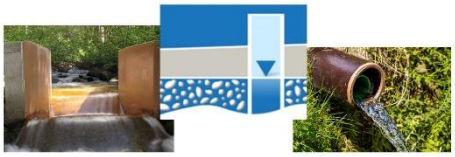
- **Hazardous Materials** - Facilities, HAZMAT, Pollutants, Contaminants



IEM

Water Systems

- **Water Systems** - Potable Water Infrastructure, Wastewater Management



IEM

Public Outreach Input

- Further community participation in firewise education and preparation, particularly in twin lakes, the town proper, evens tract, and up highway 182
- Establish a CERT team
- Fuel reduction projects and related programs, such as the biomass project in the Mammoth area
- Generators – can we incentivize them?
- Can a FEMA floodplain be established for Dream Mountain?
- Alternate route to bypass the avalanche area – road along front of USFS Visitor Center to the marina

IEM

Public Survey

- Can you share this public survey? It will be open till **January 31st**



§English: https://forms.office.com/r/wnr9HmvAyW
§Spanish: https://forms.office.com/r/kk1HJe258A

IEM

Stakeholder Survey

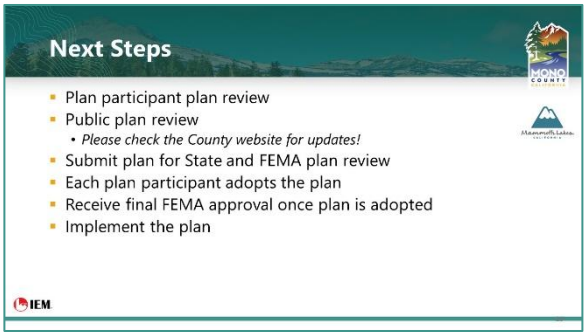
What else should we be aware of?

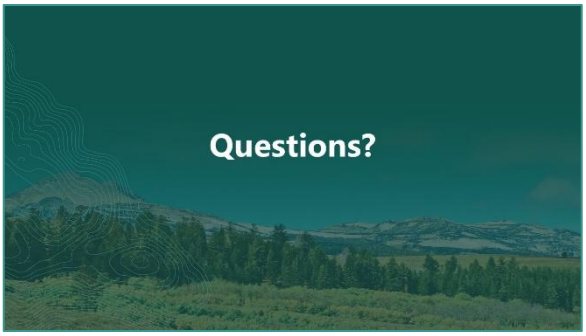
Complete the stakeholder survey:

https://forms.office.com/r/niSmKND3Gr



IEM







Minutes prepared by Sabrina Lunsford, IEM Mitigation Planner

Bridgeport Mitigation Strategy Meeting, 12/06/2024

PARTICIPANTS

Name	Title	Agency/Jurisdiction
Rich Nalder	Fire Chief	Antelope Valley Fire Protection District (AVFPD)
Nick Way	Fire Chief	Bridgeport Fire Protection District (BPFD)
Jody Newton	Hazard Mitigation Planner	Cal OES Local Mitigation Planning Unit
Lauren Breitenbach	Climate Adaptation and Resilience Specialist	Caltrans
Rick Franz	Associate Transportation Planner	Caltrans
Myrna Chase	Planner	IEM
Casey Garnett	Lead Planner	IEM
Kate Smith	Planner/GIS	IEM
Chad Marquette	USMCMWTC	MCMWTC
Kalen Dodd	Engineer	Mono County
Tyrone Grandstrand	Housing Opportunities Manager	Mono County
Mike Martinez	IT Director	Mono County
Egorov Olya	Planning Analyst	Mono County
John Peters	Supervisor District 4	Mono County
Milan Salva	Business Operations Manager – IT Department	Mono County
Karen Spears	Assistant Director of Public Works	Mono County
Brianna Brown	Board Member	Public Utility District (PUD)
Stuart Wilkinson	Technician	US Geological
Jessica Ball	Hazards and Communication Specialist	USGS California Volcano Observatory
Jennifer Lewicki	Acting Scientist in Charge	USGS California Volcano Observatory
Bert Bryan	General Manager	Walker River Irrigation District (WRID)
Jessica Halterman	Executive Administrator	Walker River Irrigation District
Charles Tucker	Chair	Wheeler Crest Community Services District - Water Supply

Name	Title	Agency/Jurisdiction
Janet Hatfield	Resilience Program Director	Whitebark Institute

WELCOME AND INTRODUCTIONS

Casey Garnett, IEM Lead Planner, began the discussion.

DISCUSSION

- Agenda
  - Hazard Mitigation
  - The Hazard Mitigation Plan
  - The Mitigation Strategy
  - Hazards
  - Community Lifelines
  - Exercise
  - Brainstorming session
  - Mitigation Goals/Objectives
  - Surveys
  - Next Steps
- What is Hazard Mitigation
- Mitigation Strategy
  - Goals, objectives, and actions
  - Comprehensive range of actions
    - Local plans and regulations
    - Structure and infrastructure projects
    - Natural systems protection
    - Education and awareness programs
  - Make sure to add an action for the geothermal plant
- Must have at least one action for each jurisdiction for each hazard
- Hazards:
  - Avalanche
  - Dam Failure

  - Disease/Pest Management
  - Drought
  - Earthquake and Seismic Hazards
  - Energy Shortages and Energy Resiliency
  - Epidemic/Pandemic
  - Extreme Heat
  - Flood
  - Landslides
  - Hazardous Materials
  - Severe Wind
  - Severe Winter Weather and Snow
  - Volcano
  - Wildfire
  - Wildlife Collisions
- Discussions of wildfires being the number one hazard in Mono County.
- Flooding is second. Flood risk maps around Bridgeport may not fully capture the flood risk.
- Definitions
  - Goals: Broad policy-type statements reflecting the long-term outcomes you want.
  - Objectives: Define the steps necessary to achieve the goals.
  - Actions: A measure, project, plan, or activity proposed to reduce current and future vulnerabilities described in the risk assessment.
  - Mitigation Action Plan: A matrix describing each action, including the timeline, funding, and priority.
- California State HMP goals:
  - Significantly reduce the risk to life, community lifelines, the environment, property, and infrastructure by planning and implementing the whole-community risk reduction and resilience strategies.
  - Build capacity and capabilities to increase disaster resilience among historically underserved populations, individuals with access and functional needs, and communities disproportionately impacted by disasters and climate change.
  - Incorporate equity metrics, tools, and strategies into all mitigation planning, policy, funding, outreach, and implementation efforts.

  - Apply the best available science and authoritative data to design, implement, and prioritize projects that enhance resilience to natural hazards and climate change impacts.
  - Integrate mitigation principles into laws, regulations, policies, and guidance to support equitable outcomes for the whole community.
  - Significantly reduce barriers to timely, efficient, and effective hazard mitigation planning and action.
- Goals
  - GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from earthquakes and other geologic hazards.
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  - GOAL 6. Avoid exposure of people and improvements to unreasonable risks of damage or injury from disease and pest hazards.
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  - GOAL 13. Prepare for changing climate conditions in Mono County.
  - GOAL 14. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play.
  - GOAL 15. Maintain adequate emergency response capabilities.

- Community Lifelines and group exercise
  - The most fundamental services in the community that, when stabilized, enable all other aspects of society to function.
    - Safety and Security: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
    - Food, Hydration, and Shelter: Food, Hydration, Shelter, Agriculture
    - Health and Medical: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
    - Energy: Power Grid, Fuel
    - Communications: Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911, and Dispatch
    - Transportation: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation
    - Hazardous Materials: Facilities, HAZMAT, Pollutants, Contaminants
    - Water Systems: Potable Water Infrastructure, Wastewater Management
- Mitigation actions discussed.
  - Plowing more to keep roads open to access lifelines.
  - More education and outreach for residents. Monthly meetings on winter preparedness and extreme temperatures.
  - How to inform people of incidents, particularly the aged population who don't use the internet and cell phones.
  - Awareness Programs
  - What mitigation actions they can use for evacuations.
  - Mitigate for shelter-in-place and mass care.
  - Possibility of community brigades.
  - More detailed maps on identifying risk areas.
  - Making sure emergency responders have access lights at the airport.
  - Appropriate fuel reserves at the airport.
  - Concerns about network and cable outages.
  - Exercises on preparedness/ disaster drills.
  - Setting up an access and functional needs list.
  - Building shelters.
  - Review MOUs that are in place with neighboring communities.

  - Programs for generators for those who can't afford them.
  - Work with NDOT to keep routes open year-round.
  - Stockpile of food and water.
- Public Outreach Input
  - Further community participation in Firewise education and preparation, particularly in Twin Lakes, the Town proper, the Evans tract, and up SR 182
  - Establish a CERT team
  - Fuel reduction projects and related programs, such as the biomass project in the Mammoth area
  - Generators – can we incentivize them?
  - Can a FEMA floodplain be established for Dream Mountain?
  - Alternate route to bypass the avalanche area – the road along the front of the USFS Visitor Center to the marina
- Sharing of public outreach QR code survey
  - Have started getting responses
  - Survey closing on January 31, 2024
- Sharing of Stakeholder QR Code

NEXT STEPS

- Plan participant plan review
- Public plan review
- Please check the County website for updates!
- Submit plan for State and FEMA plan review
- Each plan participant adopts the plan
- Receive final FEMA approval once the plan is adopted
- Implement the plan

QUESTIONS AND COMMENTS

- TEMA Questions for IEM
  - None

NEXT MEETINGS AND UPCOMING DEADLINES

- Public Survey closes January 31, 2024

Minutes prepared by Sabrina Lunsford, IEM Mitigation Planner

Community Lifelines and Mitigation Action Handout

COMMUNITY LIFELINES

Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Community lifelines are essential for the well-being of any community. They provide support and assistance to individuals who require help, especially during times of crisis. FEMA Community Lifelines are a critical component of emergency management in the United States. These lifelines are designed to address the essential needs of a community during and after a disaster. There are eight lifelines, each with its own focus and purpose.

1. **Safety and Security**- Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
2. **Food, Hydration, Shelter**- Food, Hydration, Shelter, Agriculture
3. **Health and Medical**- Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
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7. **Hazardous Materials**- Facilities, HAZMAT, Pollutants, Contaminants
8. **Water Systems**- Potable Water Infrastructure, Wastewater Management

FOUR TYPES OF MITIGATION ACTIONS

There are four types of mitigation actions:

1. **Local Plans and Regulations**
   - These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
   - *Examples: comprehensive plans, land use ordinances, subdivision regulations, building codes and enforcement, stormwater management plans, community wildfire protection plans, etc.*
2. **Structure and Infrastructure Projects**
   - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.

- *Examples: acquisitions and elevations of structures in flood-prone areas, utility undergrounding, structural retrofits, floodwalls, detention and retention structures, culverts, safe rooms, etc.*

3. **Natural Systems Protection**
   - This type of action can include green infrastructure and low impact development, nature-based solutions, engineering with nature, and bioengineering to incorporate natural features or processes into the built environment. Additional funding opportunities are available for projects that incorporate this kind of action.
   - *Examples: forest management, land conservation, wetland restoration and preservation, sediment and erosion control, stream corridor restoration, rain gardens, greenways, land conservation, living shorelines, etc.*
4. **Education and Awareness Programs**
   - These types of actions keep residents informed about potential natural disasters. Many of these types of actions are eligible for funding through the FEMA Hazard Mitigation Assistance (HMA) program.
   - *Examples: social media outreach, websites with maps and information, presentations to school groups or neighborhood organizations, radio or television spots, mailings to residents in hazard-prone areas, targeted outreach to underserved communities and socially vulnerable populations, outreach materials in languages other than English, etc.*

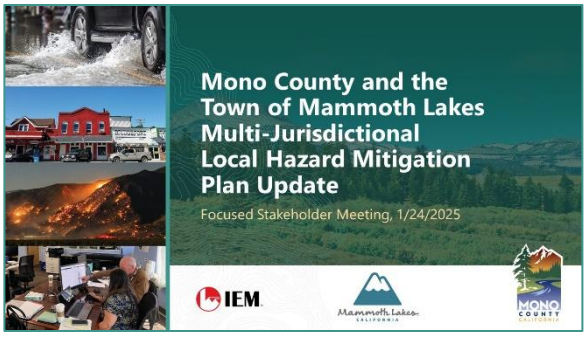
HAZARDS OF CONCERN

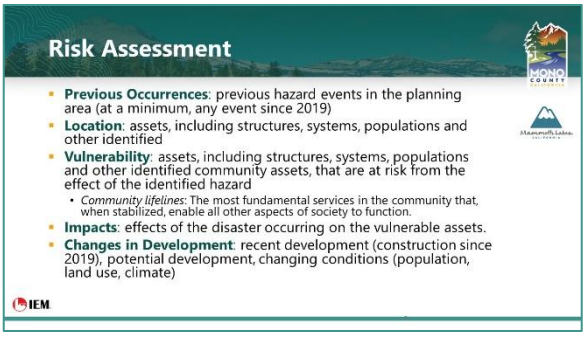
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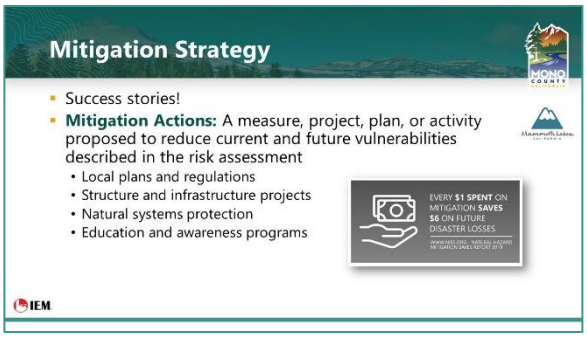
- Wildfire
- Wildlife Collisions

Focused Stakeholder Meeting, 1/24/2025

PRESENTATION SLIDES



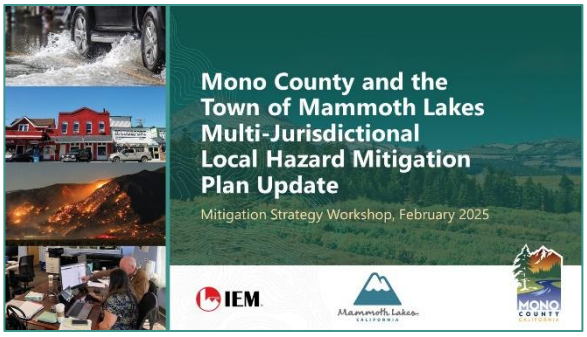


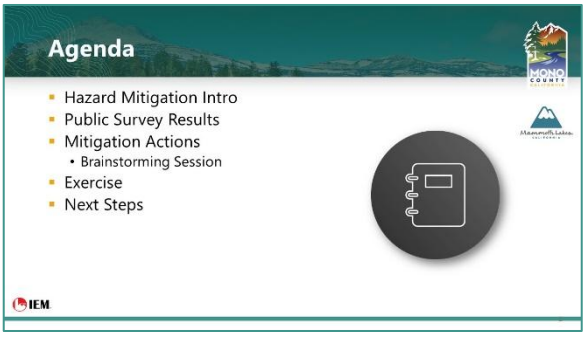




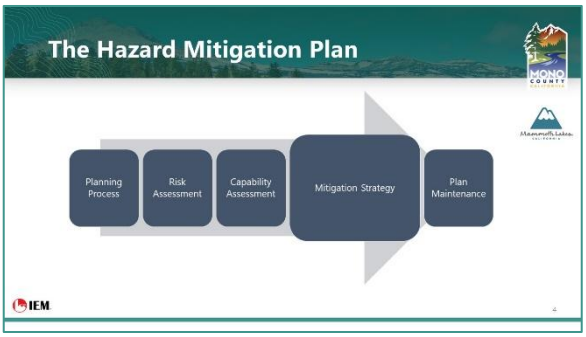
Mitigation Strategy Workshop, February 2025

PRESENTATION SLIDES



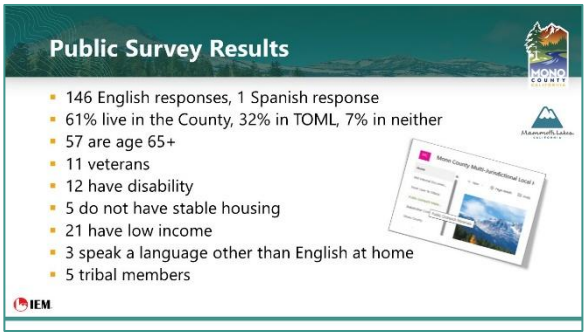


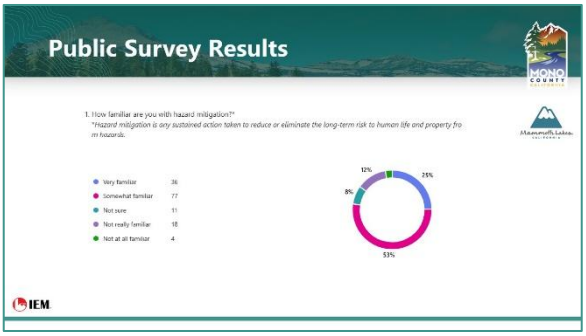










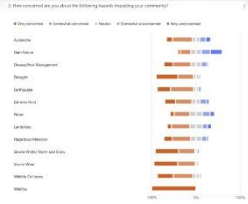


Public Survey Results



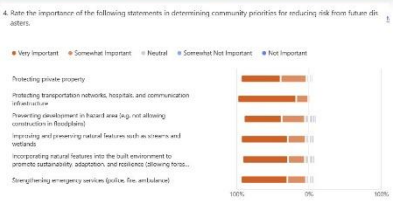
IEM

Public Survey Results



IEM

Public Survey Results



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Public Survey Results



IEM

Definitions

Goals	Broad policy-type statements that reflect the long-term outcomes you want to achieve
Objectives	Define the steps necessary to achieve the goals
Actions	A measure, project, plan, or activity proposed to reduce current and future vulnerabilities described in the risk assessment
Mitigation Action Plan	A matrix describing each action including the timeline, funding, and priority

IEM

Example

Goals	Protect people, property, and cultural and historic resources from losses due to a natural hazard-like flooding
Objectives	• Reduce the number of high-risk structures in the floodplain • Enhance stormwater management capacity
Actions	• Support acquisitions, demolitions, mitigation reconstruction, or other flood protection measures for SRL/RL properties • Prepare and adopt a community Stormwater Management Plan • Install detention basin between River St and Main St

IEM

Actions...

- MUST emphasize reducing risk to existing buildings, structures and infrastructure
- MUST include limiting risk to new development and redevelopment
- MUST be clearly linked to vulnerabilities and capabilities
- SHOULD consider underserved communities and socially vulnerable populations

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Where to Start?

- Look at what is already written!
  - *Great opportunity for plan integration.*
- Collect ideas from subject matter experts, stakeholders, and the public.
- Use existing guides and resources like Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards.
- Consider projects eligible for hazard mitigation grants.
  - *Note: climate adaptation, resiliency, conservation, and other sustainable development grants may include hazard mitigation.*

IEM

Community Lifelines

- The most fundamental services in the community that, when stabilized, enable all other aspects of society to function.



IEM

Types of Actions

- Local plans and regulations
- Structure and infrastructure projects
- Natural systems protection
- Education and awareness programs

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Local Plans and Regulations

- Include government authorities, policies, or codes that influence the way land and buildings are developed and built.
  - Examples: general plans, land use and zoning ordinances, stormwater management plans, transportation plans, community wildfire protection plans, etc.

IEM

Stakeholder/Public Input

- Long range plan to convert the Walker River flood plain into conservation land eliminating flood risk to private residences.
- Implement zoning laws that discourage development in high-risk wind areas.
- Proactive regional, interagency collaborative planning and action toward disaster mitigation and response.
- Address flooding around Dream Mountain – can it be mapped in a FEMA flood zone?
- Incentivize installing water tanks
- Provide grants to propane customers for costs of trenching, permitting and construction who want to upgrade their current meter protection, or add a curb side shut off valve to their home or business.
- Develop June Lake Risk Management Plan

IEM

Brainstorming Session

What local plans and regulations could help reduce risk?

IEM

Structure and Infrastructure Projects

- Involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure.
  - Examples: acquisitions and elevations of structures in flood-prone areas, utility undergrounding, structural retrofits, floodwalls, detention and retention structures, culverts, safe rooms, etc.

IEM

Stakeholder/Public Input

- Improve culvert and drainage system using modernized data
- Fireproof Mono City Fire Station
- Support maintaining private drainage and private road systems during snow/flood events
- Obtain battery/generator for TOML
- HVAC in community centers county wide (June and Crowley have no AC)
- Making sure places like gyms, schools, and hospitals have the highest ability to provide clean air during times of poor air quality.

IEM

Brainstorming Session

What structure and infrastructure projects could help reduce risk?

IEM

Natural Systems Protection

- Includes green infrastructure and low impact development, nature-based solutions, engineering with nature, and bioengineering to incorporate natural features or processes into the built environment.
  - Examples: forest management, land conservation, wetland restoration and preservation, sediment and erosion control, stream corridor restoration, rain gardens, greenways, land conservation, living shorelines, etc.

IEM

Stakeholder/Public Input

- Forest management!
- Fuel reduction programs, including around June Mountain Ski Area and biomass project
- Defensible space program including in Antelope Valley
- Channel modifications of Aurora creek could be done to reduce flood risk in the neighborhood
- Mitigation efforts should look beyond the immediate built community approach to restore ecological health to landscapes, reduce excessive fuel loads in forests and riparian corridors, and support projects that help natural, low- to moderate- severity fire cycles return to the appropriate natural areas throughout the county.

IEM

Brainstorming Session

What natural systems protection projects could help reduce risk?

IEM

Education and Awareness Programs

- Actions that inform the public about mitigation for potential natural disasters. Many of these types of actions are eligible for funding through the FEMA Hazard Mitigation Assistance (HMA) program.
  - Examples: social media outreach, websites with maps and information, presentations to school groups of neighborhood organizations, radio or television spots, mailings to residents in hazard-prone areas, targeted outreach to underserved communities and socially vulnerable populations, outreach materials in languages other than English, etc.

IEM

Stakeholder/Public Input

- Firewise education and preparation, particularly in Twin Lakes and TOML
- Establish Fire Safe Council / Firewise community system in Antelope Valley
- Training on codes/regulations
- Hold community events
- Outreach to visitors for efficient and informed evacuations and long-term disaster planning .

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Brainstorming Session

What education and awareness projects could help reduce risk?

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Potential Funding Sources

- Local budgets
- Public/nonprofit/private partnerships
- State grant programs
- U.S. Army Corps of Engineers
- Environmental Protection Agency
- Community Development Block Grant/Housing and Urban Development
- FEMA Mitigation Grant Programs

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Mitigation Funding Opportunities

- Pre-Disaster
  - Building Resilient Infrastructure & Communities (BRIC)
  - Flood Mitigation Assistance (FMA)
  - FMA Swift Current
  - Pre-Disaster Mitigation (PDM)
- Post-Disaster
  - Hazard Mitigation Grant Program (HMGP/404)
  - HMGP Post Fire
  - PA Mitigation (406)
  - Community Development Block Grant Disaster Recovery (CDBG-DR)
  - Community Development Block Grant Mitigation (CDBG-MIT)

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BRIC

- FEMA's **Building Resilient Infrastructure and Communities (BRIC)** program provides funding for hazard mitigation plans and projects that reduce future disaster losses from natural disasters.
- BRIC's guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency.
- Grant funding is available annually.

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Eligible Activities

- Three types of assistance can be funded under BRIC:
  - Capability- and Capacity-Building
    - Building Codes
    - Partnerships
    - Project Scoping
    - Hazard Mitigation Planning and Planning-Related Activities
  - Mitigation projects (construction)
  - Management costs

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Commonly Funded Projects - California

- Structural Retrofitting/Rehabilitating Public Structures - Seismic
- Vegetation Management – Wildfire
- Generators
- Infrastructure Protective Measures (Roads and Bridges)
- Retrofitting Private/Public Structures - Wildfire
- Non-Structural Retrofitting/Rehabilitating Public Structures – Seismic
- Utility Protective Measures
- Elevation of Private Structures – Riverine
- Public Awareness and Education (Brochures, Workshops, Videos, etc.)
- Developing, Implementing and Enforcing Codes, Standards, Ordinances and Regulations
- Floodplain and Stream Restoration
- Landslide Stabilization
- Community Flood Mitigation Project

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State Mitigation Funding Sources

- California Department of Forestry and Fire Protection (CAL FIRE) Grants
- California Department of Transportation (Caltrans) Sustainable Transportation Planning Grants
- CA Governor's Office of Land Use and Climate Innovation (LCI) Integrated Climate Adaptation and Resiliency Program (ICARP)

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Exercise #1

- Review the Mitigation Actions Ideas Checklist.
- Select actions that should be considered further.
- Select actions that should for sure be included in the plan.
- Remember! *You must have at least one action per hazard.*
  - If you are not sure of one, let's identify this hazard for further discussion.

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Exercise Brief Out

- What actions did you select?
  1. Avalanche
  2. Dam Failure
  3. Disease/Pest Management
  4. Drought
  5. Earthquake and Seismic Hazards
  6. Energy Shortages and Energy Resiliency
  7. Epidemic/Pandemic
  8. Extreme Heat
  9. Flood
  9. Landslides
  10. Hazardous Materials
  11. Severe Wind
  12. Severe Winter Weather and Snow
  13. Volcano
  14. Wildfire
  15. Wildlife Collisions

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Tips for Action Development

- Avoid terms like maintenance and ongoing.
  - *Preparedness/response/prevention/recovery = not mitigation to your plan reviewer.*
- Clarify action intent –
  - *"Seismic retrofitting" vs. "Support seismic retrofitting of high-risk critical infrastructure"*
- Use strong verbs –
  - *"Consider" vs "engage", "implement", "conduct"*
- Be specific – but not too specific –
  - *No personally identifiable information (PII)*
  - *"Seismically retrofit XYZ school" vs. "Seismically retrofit critical infrastructure like XYZ school."*

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Key Recommendations

- Remember different words - similar concepts
  - Green infrastructure/nature-based solutions
  - Open space preservation/conservation
- Consider additional benefits
  - Example: water quality / water quantity
- Embrace partnerships

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Common Grant Requirements

- Applicant information including POC
- Scope of Work
- Detailed budget
- Proof of cost-effectiveness
- Proof of technical feasibility (i.e. benefits)
- Documentation of environmental and historic preservation compliance
- Reference to grant priorities (underserved communities, etc)

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Mitigation Action Plan

- #
- Project Title
- Hazard Addressed
- Description
- Responsible Agency
- Potential Partners
- Potential Funding
- Cost Estimate
- Timeframe
- Community Lifelines
- Priority

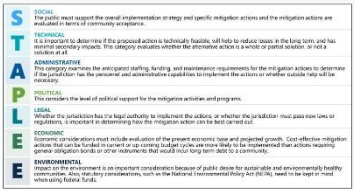
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Action Prioritization

- The plan must describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized in relation to the associated costs of the action.
  - Low
  - Medium
  - High

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Exercise #2

- Review the actions you identified in Exercise #1. Fill out as much as possible of your Mitigation Action Plan.
- *What actions do you need to discuss further?*
- *What information is missing?*
- *What partnerships are needed to complete this action?*
  - Consider whether this action should apply to someone else in the room as well.

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Exercise Brief Out

- What types of actions did you discuss?
- What actions should the group be aware of?
- Do you have any questions?

ALL plan participant forms are due in SharePoint by ***February 28th****!*

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Mitigation Goals

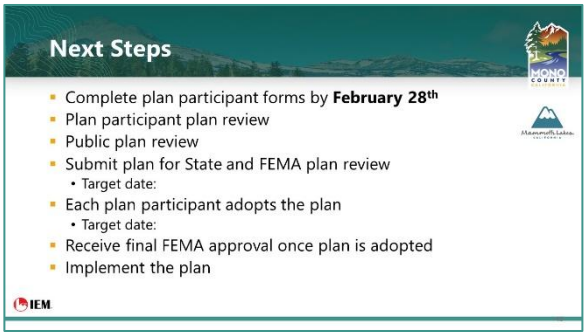
- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- GOAL 2. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multiagency approach to emergency response.
- GOAL 3. Prepare for changing climate conditions in Mono County.
- GOAL 4. Maintain adequate emergency response capabilities.

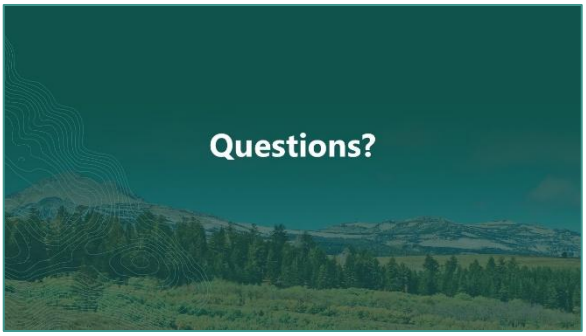
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Mitigation Goals

- GOAL 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole community approach to response, recovery, and mitigation.
- GOAL 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- GOAL 7. Study and implement mitigation actions to address potential impacts of compounding hazards such as flood following wildfire.
- GOAL 8. Utilize the mitigation planning process as a call to action demonstrating plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

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Next Steps
Complete plan participant forms by February 28th
Plan participant plan review
Public plan review
Submit plan for State and FEMA plan review
Target date:
Each plan participant adopts the plan
Target date:
Receive final FEMA approval once plan is adopted
Implement the plan
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Questions?


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Appendix B: Sample Mitigation Action Ideas

Appendix B: Sample Mitigation Action Ideas

Mitigation actions are proactive measures to reduce or eliminate long-term risks from climate change and natural disasters. These include regulations, technological advancements, and community initiatives that minimize harm and enhance resilience. They are cost-effective, prevent future damage, raise awareness, and promote community preparedness. Ultimately, they align with sustainable development goals for a safer, healthier future.

Avalanche

Action #	Action Title	Action Description
1	**Snowpack Monitoring**	Assess the snowpack regularly to identify unstable layers and conditions that may lead to avalanches. This includes temperature checks, slope angles, and snow density measurements. By understanding the snowpack's stability, timely warnings can be issued.
2	**Controlled Explosions**	In high-risk areas, controlled explosives (such as artillery or drones) may be used to trigger small avalanches intentionally. This helps relieve pressure in the snowpack before it becomes unstable, leading to more extensive, uncontrolled avalanches.
3	**Snow Fencing**	Installing snow fences on slopes can help reduce wind-blown snow accumulation, which decreases the potential for stable layers to form that could lead to avalanches. The fences also help to control the distribution of the snowpack.
4	**Avalanche Barriers**	Physical barriers of rocks, wood, or other materials can be built in avalanche-prone areas. These barriers are designed to catch and deflect avalanche debris, protecting infrastructure, roads, and communities.
5	**Education and Awareness Programs**	Educating backcountry users, skiers, and snowboarders about avalanche safety, recognition of avalanche terrain, and rescue techniques can significantly reduce avalanche-related injuries and fatalities.
6	**Trail and Route Planning**	Designing hiking and skiing routes that avoid known avalanche paths and steep terrain can help reduce risk. It involves careful consideration of topography when creating trails to help guide users away from dangerous areas.
7	**Use of Technology**	Implementing terrain and snow-cover mapping technologies, as well as avalanche beacons, helps in both prevention and rescue efforts. These technologies can provide real-time updates about potential avalanche risks.

Dam Failure

Action #	Action Title	Action Description
1	**Monitoring Systems**	Implement advanced monitoring technologies, such as sensors and early warning systems, to track dam performance in real time. These systems can provide data on water levels, structural integrity, and potential failure indicators.
2	**Public Awareness and Education**	Conduct community outreach programs to educate the public about dam safety, the potential risks they may face, and the importance of adhering to emergency protocols. This can help ensure that residents are better prepared for failure.
3	**Risk Assessment and Management**	Perform thorough risk assessments to evaluate the potential impacts of dam failure on surrounding communities and environments. Use this information to implement risk management strategies that reduce exposure and vulnerability.
4	**Upgrading Dam Structures**	Strengthen existing dams through structural upgrades, such as reinforcing walls, improving spillways, or enhancing drainage systems. This can help make older dams more resilient to extreme weather events and other stressors.
5	**Controlled Release Procedures**	Establish controlled release mechanisms to manage water levels within the dam safely. This helps prevent overtopping during heavy rain or snowmelt, reducing the risk of failure.
6	**Floodplain Management**	Implement land-use planning and floodplain management strategies to minimize the impact of potential dam failure on downstream communities. This includes zoning regulations and the establishment of flood control measures.
7	**Community Engagement and Collaboration**	Encourage collaboration between dam operators, local governments, and emergency services to create a cohesive approach to dam safety. Engaging stakeholders fosters shared responsibility and enhances preparedness efforts.
8	**Update FEMA Flood Maps**	Conduct a comprehensive re-evaluation and update of flood risk mapping. Collaborate with US Army Corps of Engineers.
9	**High-Capacity Drainage System**	Development and integration of a comprehensive dam safety and risk assessment program that includes regular inspections and maintenance, enhanced modeling and simulation, emergency response planning, incorporation of overflow mechanisms, and using green infrastructure such as bioswales and rain gardens to help absorb excess stormwater and reduce the load on systems.
10	**Rock Creek Dam Public Awareness and Education Program**	Several hundred campsites and approximately 80 homes are in danger if Rock Creek Dam should fail. These campsites and homes line Rock Creek Canyon, Tom's Place, and Sunny Slopes. No agency monitors or inspect this dam regularly. There is no communication or warning systems should a problem develop.

Action #	Action Title	Action Description
		This is partly due to the lake being in Inyo County and the threats being in Mono County. The responsible agency is the Inyo Nation Forest. This dam was constructed around 1929, when construction standards were far less than today's standards. Earthquakes, heavy winter snow melt, or heavy rain events could mean disaster. A multi-agency task force needs to address this monitoring and warning issue.

Disease Pest Management

Action #	Action Title	Action Description
1	**Crop Rotation**	Altering the species of crops grown in a particular area each season helps break the life cycles of pests and diseases, reducing their incidence and buildup.
2	**Beneficial Insects**	Introducing natural predators or parasitoids, such as ladybugs or parasitic wasps, can help control pest populations without resorting to chemicals.
3	**Microbial Agents**	Utilizing beneficial microbes, such as certain bacteria or fungi, can help suppress pathogens and pests by outcompeting them or producing harmful toxins.
4	**Pesticides and Herbicides**	Targeted applications of these chemicals can effectively manage pest populations.
5	**Fungicides**	Applied to prevent or control fungal infections, these products help protect crops from diseases.
7	**Monitoring and Thresholds**	Regularly inspect crops for signs of pests and diseases. Establish thresholds to determine when action is needed to avoid economic losses.
8	**Combining Methods**	Implement multiple control strategies (cultural, biological, and chemical) in a coordinated way to manage pests and diseases ecologically and sustainably.
9	**Resistant Varieties**	Planting crop varieties genetically resistant to specific pests and diseases can significantly reduce the likelihood of outbreaks and damage.
10	**Diversity**	Incorporating a variety of species or cultivars within the cropping system can reduce the risk of widespread pest or disease incidents.
11	**Row Covers and Netting**	Using physical barriers can protect plants from insects and prevent pathogen spread, particularly during vulnerable stages of growth.
12	**Trap Crops**	Planting certain crops that attract pests away from the main crops can help minimize damage.

Action #	Action Title	Action Description
13	**Well-Drained Soil**	Ensuring proper drainage through raised beds and French drains can minimize the risk of waterlogged conditions that are conducive to many root diseases.
14	**Training and Workshops**	Educating farmers and gardeners about pest identification, management strategies, and the importance of biodiversity can improve disease and pest management practices.
15	**Community Cooperation**	Encouraging local collaboration can help spread awareness about emerging pest and disease threats and foster a unified response.

Drought

Action #	Action Title	Action Description
1	**Assess Vulnerability to Drought Risk**	Understand local climate and drought conditions by analyzing water and climate data, assessing factors influencing drought severity, identifying available water supplies, and examining the historical impacts of droughts on the community and its water sources.
2	**Monitor Drought Conditions**	Identify local indicators such as precipitation, temperature, surface water levels, and soil moisture and establish a regular monthly schedule for assessing and reporting these conditions.
3	**Monitor Water Supply**	Regularly check for leaks to help reduce water supply losses and improve water supply monitoring.
4	**Require Water Conservation During Drought Conditions**	Develop an ordinance restricting public water resources for non-essential purposes, including landscaping, washing cars, and filling swimming pools. Adopt ordinances to prioritize and control water use, especially during emergencies like firefighting.
5	**Prevent Overgrazing**	Prevent overgrazing by establishing a grazing policy or permitting program. Reduce the number of animals and enhance range management practices to improve land health and sustainability.
6	**Retrofit Water Supply Systems**	Create water distribution systems that address drought conditions and enhance or replace current water delivery systems to prevent breaks and leaks.
7	**Enhance Landscaping and Design Measures**	Integrate drought-resistant and xeriscape methods into landscape regulations to minimize irrigation reliance while offering incentives for adopting xeriscaping. Implement permeable driveways and surfaces to decrease runoff and enhance groundwater recharge.
8	**Educate Residents on Water Saving Techniques**	Educate residents on installing low-flow showerheads and toilets, turning off the water while brushing teeth or during other cleaning tasks, adjusting sprinklers to ensure they water the lawn rather than the sidewalk or street, running the dishwasher and washing machine only

Action #	Action Title	Action Description
		when they are full, checking for leaks in plumbing and dripping faucets, installing rainwater collection systems for irrigation, promoting the adoption of graywater systems in homes to facilitate water reuse.
9	**Educate Farmers on Soil and Water Conservation Practices**	Educate farmers on crop rotation, contour farming, terracing, cover crops, zero and reduced tillage methods, windbreaks, and using natural runoff for irrigation to help reduce erosion, evaporation, surface runoff, and soil health.
10	**Purchase Crop Insurance**	Preserve economic stability during a drought by encouraging agricultural interests to obtain crop insurance to cover potential losses due to drought.
11	**Dust Off Remediation Project**	Remediate dust off of exposed lake beds due to water diversions.

Earthquake/Seismic Hazards

Action #	Action Title	Action Description
1	**Adopt and Enforce Building Codes**	• Adopt and enforce updated building code provisions to reduce earthquake damage risk. • Adopt the International Building Code (IBC) and International Residential Code (IRC).
2	**Incorporate Earthquake Mitigation into Local Planning**	Establish a seismic safety committee to provide policy recommendations, evaluate safety standards, and conduct annual assessments of improvements. Create guidelines to keep lifelines and critical facilities out of high seismic hazard areas. Incorporate seismic strengthening measures into capital improvement plans to ensure operational continuity. Offer financial incentives like low-interest loans or tax breaks to encourage seismic retrofitting of structures.
3	**Map and Assess Community Vulnerability to Seismic Hazards**	Inventory public and commercial buildings, especially those built before the 1940s and with cripple wall foundations. Collect geologic data on seismic sources and soil conditions to understand specific risks. Create earthquake scenarios to estimate potential loss of life and damage, guiding mitigation priorities. Use Hazus to address quantitative loss estimates while maintaining a database that tracks community vulnerabilities. Use GIS mapping to visually represent hazard areas and at-risk structures to identify high-risk zones for targeted intervention.
4	**Conduct Inspections of Building Safety**	Conduct a school survey to identify structural and non-structural hazards in school buildings. This emphasizes the use of rapid visual screening to assess buildings for disaster damage and potential seismic weaknesses, prioritize retrofit efforts, inventory high-risk structures, and evaluate post-disaster safety for re-occupation. Consult established industry

Action #	Action Title	Action Description
		standards, such as ASCE 31, ASCE 41, and ATC 20, for guidance on seismic evaluation and rehabilitation of existing buildings.
5	**Protect Critical Facilities and Infrastructure**	Conduct seismic retrofitting to protect facilities at risk, bracing essential equipment like hospital generators and elevators and hardening vital lifeline systems such as utilities and roads to comply with seismic design standards and prevent collapse. Utilize flexible piping for water, sewer, and natural gas services and install shutoff valves and emergency connector hoses where water mains intersect fault lines.
6	**Implement Structural Mitigation Techniques**	Enhance the safety of buildings vulnerable to earthquakes by retrofitting non-reinforced masonry and non-ductile concrete structures, reinforcing building veneers, creating safe rooms, installing window film to reduce injury from shattered glass, anchoring rooftop equipment, and constructing masonry chimneys over 6 feet tall with reinforced steel bracing.
7	**Increase Earthquake Risk Awareness**	Collaborate with insurance representatives, develop an outreach program on earthquake risk and safety, educate homeowners on safety techniques during and after an earthquake, and provide online GIS hazard mapping for residents and design professionals.
8	**Conduct Outreach to Builders, Architects, Engineers, and Inspectors**	Conduct information sessions to improve understanding and implementation of seismic code among local building professionals and training building department staff on Form ATC-20 for evaluating post-earthquake building safety, utilizing guidelines from the Applied Technology Council to assess earthquake-damaged structures.
9	**Provide Information on Structural and Non-Structural Retrofitting**	Educate homeowners on structural and non-structural retrofitting, create a technical assistance program that teaches seismic strengthening techniques, promote outreach to secure furniture and utilities to prevent injuries and damage, and establish a library of mitigation resources and model ordinances from other jurisdictions.

Energy Shortages and Energy Resiliency

Action #	Action Title	Action Description
1	**Diversification of Energy Sources**	Implement a mix of energy sources such as solar, wind, hydro, geothermal, and fossil fuels. By diversifying the energy portfolio, regions can reduce dependency on one source, thus enhancing stability and supply security.
2	**Investment in Renewable Energy**	Increasing investments in renewable energy projects can significantly boost energy generation capacity. This includes funding for solar farms, wind turbines, and hydropower installations, which can help stabilize the energy grid and meet growing demands sustainably.

Action #	Action Title	Action Description
3	**Energy Efficiency Programs**	Promote energy efficiency in residential, commercial, and industrial sectors through programs encouraging smart appliances, better insulation, and energy-saving technologies. These initiatives can lower overall energy consumption and mitigate the risk of shortages.
4	**Smart Grids and Energy Storage Solutions**	Developing smart grid technologies that enhance demand-response capabilities and integrating energy storage systems (like batteries) can help balance supply and demand more effectively. This technology allows energy to be stored when surplus production is released during peak demand.
5	**Demand-Side Management**	Encourage consumers to adjust their energy use during peak times via incentives. This can include time-of-use pricing that encourages off-peak consumption, lowering the strain on energy systems during high-demand periods.
6	**Expansion of Transmission Infrastructure**	Upgrading and expanding electricity transmission networks can facilitate the movement of electricity from areas with surplus energy to those facing shortages. This enhances grid reliability and enables greater integration of renewable energy sources.
7	**Community-Based Energy Solutions**	Supporting local energy initiatives, such as community solar programs or microgrids, can enhance energy resilience and ensure local communities have a reliable energy supply, reducing dependence on centralized grids.
8	**Regulatory and Policy Support**	Governments can enact policies that promote the use of clean energy and provide incentives for consumers and businesses to adopt renewable energy solutions. Regulatory frameworks that support innovation and investment in energy technologies are essential.
9	**Research and Development (R&D)**	Investing in R&D for new energy technologies can lead to more efficient and sustainable energy production and consumption methods. This includes improving renewable technologies and exploring new avenues like nuclear fusion or advanced biofuels.
10	**Public Awareness Campaigns**	Educating the public about energy conservation practices, the benefits of renewable energy, and how individual actions can reduce energy demand can foster a culture of sustainability and encourage collective action towards energy independence.
11	**Increase Backup Power Generation System Capacity**	Bridgeport backup generator system in Town provides only 3 hours of power. Add generation capabilities to sustain Town power usage during outages. Identification of critical facilities that require contingency/backup generation for PSPS and electrical service disruption (e.g., Civic Center, Town Hall, Community Centers, EOC, Warming/Cooling Centers, Emergency Shelters).
12	**Alternative Energy Resources Project**	South County civic center has no solar, minimal EV charging, internal combustion power backup instead of battery backup power. Offer free

Action #	Action Title	Action Description
		charging for staff commuting in an EV as an environmental benefit and staff benefit.
13	**County Backup Power, Generators for Public Facilities**	Provide backup power for Public Safety Power Shutoff (PSPS) events to support faster electricity utility recovery after PSPS wind events.
14	**Undergrounding**	Emphasis on Old Mammoth Rd. – Critical Infrastructure (CI) & Critical Facilities (CF); would result in a reduction in wildfire risk—potential reduction in PSPS pending design with SCE substation(s).
15	**Microgrid**	Like backup generation, microgrids provide islanding capability behind the customer meter; they also provide blue-sky benefits in terms of renewable energy/storage. Multi-building micro-grids need to be undergrounded in order to provide any benefits during PSPS.
16	**Self-Generation Incentive Program**	Identify facilities that would require/benefit from backup storage solutions.
17	**Streetlights and Traffic Control Devices**	Develop plans for sustained outages affecting traffic control devices/addressing secondary public safety issues related to electrical service disruption.
18	**Vehicle-to-Grid Charging (V2G)**	As local governments consider fleet electrification, develop V2G capabilities that can temporarily power facilities during major events
19	**Local Generation Assets**	Support local generation assets including hydroelectric projects, geothermal, etc. (supports islanding capability for major system disruptions to transmission/sub-transmission).

Epidemic/Pandemic

Action #	Action Title	Action Description
1	**Vaccination Campaigns**	Implement widespread vaccination programs to build herd immunity and reduce the spread of infectious diseases. This includes encouraging vaccines for vulnerable populations and ensuring accessibility in underserved areas.
2	**Public Health Communication**	Develop clear and consistent communication strategies to educate the public about the nature of the epidemic/pandemic, preventive measures, and the importance of vaccination. Utilize multiple platforms (social media, community meetings, flyers) to reach diverse audiences.
3	**Surveillance and Monitoring**	Establish effective surveillance systems to monitor the spread of the disease, identify outbreaks early, and track infection rates. Data collection can help inform public health responses and resource allocation.

Action #	Action Title	Action Description
4	**Quarantine and Isolation Protocols**	Enforce quarantine and isolation measures for individuals who are infected or have been exposed. This helps to contain the spread of the virus and protect vulnerable populations.
5	**Social Distancing Measures**	Implement social distancing guidelines to limit close contact among individuals. This may include reducing the capacity of public spaces, encouraging remote work, and promoting virtual gatherings.
6	**Personal Protective Equipment (PPE)**	Ensure the availability and proper use of PPE (masks, gloves, face shields) for healthcare workers and the public. Training on correct usage can enhance effectiveness.
7	**Hygiene Promotion**	Promote hand hygiene and respiratory etiquette, such as regular handwashing, hand sanitizer, and covering coughs and sneezes. Public health campaigns can encourage these practices.
8	**Testing and Contact Tracing**	Implement widespread testing to identify and isolate cases quickly. Contact tracing can help notify individuals who may have been exposed, enabling rapid containment measures.
9	**Travel Restrictions and Guidelines**	Enforce travel restrictions in and out of affected areas to limit the spread of the disease. Provide guidelines for safe travel, including testing requirements and health checks at points of entry.
10	**Mental Health Support**	Provide mental health resources and support services for individuals affected by the stresses of an epidemic or pandemic. This may include counseling services, hotlines, and community support programs.
11	**Healthcare System Preparedness**	Strengthen healthcare infrastructure to handle surges in patient numbers, including increasing hospital capacity, stockpiling essential supplies, and training healthcare personnel.
12	**Research and Development**	Invest in research for better diagnostics, treatments, and vaccines. Collaboration between governments, organizations, and the private sector can accelerate innovation and response efforts.
13	**Develop a Comprehensive Surge Capacity and Crisis Management Training Program**	Create a comprehensive training module on surge capacity management, resource allocation, communication strategies, and team coordination. Facilitate interdisciplinary collaboration among healthcare professionals, emergency responders, public health officials, and community leaders. Incorporate regular simulations of pandemic scenarios, potentially using virtual reality, to enhance decision making under pressure. Training in resource management will equip participants to optimize personnel and supplies effectively. Prioritize crisis communication strategies to ensure effective information sharing. Collect feedback after each session to promote continuous improvement.

Extreme Heat

Action #	Action Title	Action Description
1	**Reduce Urban Heat Island Effect**	Promote tree plantings for shade, encourage green roofs to cool buildings, and utilize cool roofing materials to reflect heat.
2	**Increase Awareness of Extreme Temperature Risk and Safety**	Educate citizens regarding the dangers of extreme heat and the steps they can take to protect themselves when extreme temperatures occur.
3	**Assist Vulnerable Populations**	Establish accessible cooling centers, enforce minimum temperature standards in housing codes, advocate for utility companies to provide flexible payment options for energy bills, and create a database to monitor individuals at high risk of heat-related health issues, such as the elderly and homeless.
4	**Cool Roof Technologies**	Installing reflective or light-colored roofing materials can help keep buildings cooler by reflecting more sunlight and absorbing less heat. This can reduce the need for air conditioning and lower energy bills, contributing to overall energy conservation.
5	**Water Conservation and Management**	Water bodies can help moderate temperatures during extreme heat. Creating and maintaining ponds, lakes, and other water features can provide cooling effects while promoting responsible water usage ensures that these resources remain available.
6	**Heat Alert Systems**	Implementing early warning systems to alert residents about forecasted extreme heat can help communities prepare. These systems can include notifications via text, social media, or local news broadcasts advising people on safety tips and available cooling centers.
7	**Improved Building Codes**	Encouraging or enforcing building codes that require better insulation, energy-efficient windows, and proper ventilation can help buildings remain cooler. This ensures that homes and workplaces are more resilient to heat waves.
8	**Promoting Active Transportation**	Encouraging walking, biking, and public transportation can reduce reliance on cars, which contribute to heat emissions. Creating shaded paths and making active transportation safer can also encourage people to choose these options.
9	**County Community Centers HVAC Installation Project**	Promote neighborhood fire safe projects. Install HVAC in community centers Countywide (June and Crowley have no AC).
10	**Chalfant Community**	The Chalfant community center needs upgrades to be more energy efficient. It needs new windows and doors, and the HVAC unit needs an upgrade.

Action #	Action Title	Action Description
	Center Upgrades	

Flood

Action #	Action Title	Action Description
1	**Incorporate Flood Mitigation into Local Planning**	Enforce land use regulations, develop and update floodplain management plans, integrate hazard mitigation in infrastructure planning, regulate repair activities post-disaster, control dumping in waterways, establish a green infrastructure program, and secure easements for water retention on private land.
2	**Form Partnerships to Support Floodplain Management**	Develop a stormwater committee for regular discussions and project recommendations, form a regional watershed council to coordinate resources and planning, establish watershed-based planning initiatives for collaboration with neighboring jurisdictions, create a citizen steering committee to oversee local mitigation efforts involving community representatives.
3	**Limit or Restrict Development in Floodplain Areas**	Limit development density, maintain open space, restrict impervious surfaces, establish stream buffer regulations, and prohibit filling in of floodplain areas.
4	**Adopt and Enforce Building Codes and Development Standards**	Adopt the International Building Code (IBC) and International Residential Code (IRC), comply with ASCE 24-05 for flood-resistant design, increase freeboard requirements, prohibit enclosures below base flood elevation, consider development orientation, set flood elevations above historical high-water marks, require elevation data during subdivision design, and mandate tie-downs for propane tanks.
5	**Improve Stormwater Management Planning**	Conduct a study of known problem areas, adopt a comprehensive stormwater drainage plan and ordinance, and implement a community-wide management master plan. Regulations should be implemented for upland developments to minimize stormwater runoff and align flood hazard mitigation efforts with EPA Stormwater Phase II initiatives. Engineering guidelines should be established for new developments, requiring drainage studies while promoting the adoption of Low Impact Development techniques.
6	**Adopt Policies to Reduce Stormwater Runoff**	Enforce natural runoff or zero discharge policies, preserve and plant trees to mitigate runoff, require on-site sediment retention planning and construct retention basins for stormwater and firefighting, promote porous pavement and vegetative buffers in parking areas, adjust pavement to match land contours, advocate permeable surfaces for groundwater recharge, and adopt erosion and sedimentation controls for construction and agriculture.

Action #	Action Title	Action Description
7	**Improve Flood Risk Assessment**	Focus on integrating procedures for tracking flood events into emergency response plans. This emphasizes the need for comprehensive analyses of watershed development projects, verifying FEMA's repetitive loss inventory, and documenting flood-prone properties designated as open space. The development of thorough watershed analyses for dam projects, dam failure studies, and emergency action plans is highlighted. The use of GIS technology for mapping flood risks, acquiring depth grid data, and incorporating digital floodplain data for risk assessment is crucial. Finally, maintaining a database to monitor community exposure and updating floodplain maps are essential to effective flood management.
8	**Join or Improve Compliance with the National Flood Insurance Program (NFIP)**	Adopt ordinances that meet federal and state requirements, conduct workshops to encourage property owners to get flood insurance, designate a local floodplain manager with certified floodplain manager (CFM) certification, complete and maintain FEMA elevation certificates for relevant buildings, and ensure new and improved buildings in floodplains also have FEMA elevation certificates.
9	**Manage the Floodplain Beyond Minimum Requirements**	Adopt policies such as the Association of State Floodplain Managers (ASFPM) "No Adverse Impact," revise floodplain ordinances to include cumulative damage requirements, implement a "no-rise" clause for flood elevation, and extend freeboard requirements. Floodplain management also emphasizes the need for homeowners to sign non-conversion agreements, create accessible repositories for Flood Insurance Rate Maps, educate NFIP policyholders about compliance costs, notify owners of repetitive loss properties about funding opportunities, and offer incentives for building above minimum freeboard requirements.
10	**Participate in the CRS**	Inform the public about flood hazards, insurance, and protection measures; enforce stricter regulations beyond NFIP standards for new developments to enhance flood protection; implement damage reduction strategies for existing structures, including acquisition, relocation, and retrofitting efforts; minimize flooding impacts on individuals and properties through flood warnings, emergency responses, and evacuation planning.
11	**Establish Local Funding Mechanisms for Flood Mitigation**	Utilize taxes and impact fees for funding public projects and maintain drainage systems to address the effects of land development.
12	**Remove Existing Structures from Flood Hazard Areas**	Communities may remove structures from flood-prone areas to minimize future flood losses by acquiring and demolishing or relocating structures from voluntary property owners and preserving lands subject to repetitive flooding.

Action #	Action Title	Action Description
13	**Improve Stormwater Drainage System Capacity**	Enhance storage capacities through detention and retention basins, modify culverts, and employ flood control measures such as dike setbacks and gated pumps. Build on-site retention basins for excess stormwater and firefighting and advocate for creating grassy swales along roadsides to improve drainage.
14	**Elevate or Retrofit Structures and Utilities**	Elevate structures above flood levels, raise utilities, anchor manufactured homes, and relocate utilities like water heaters to safer elevations.
15	**Floodproof Residential and Non-Residential Structures**	Wet floodproof basements to manage structural risks during flooding, promote wet floodproofing in areas above base flood elevation, utilize water-resistant materials for easy cleanup in lower-level areas of residential buildings, and dry floodproof non-residential structures through wall reinforcement and sealing to prevent water entry.
16	**Protect Infrastructure**	Elevate roads and bridges, floodproof wastewater and water treatment facilities, implement backflow prevention in buildings, and use bioengineered techniques for bank stabilization. Raise infrastructure and improve drainage to maintain accessibility and safety during floods.
17	**Protect Critical Facilities**	Ensure critical facilities (EOCs, police, fire stations) are outside flood-prone zones and comply with Executive Order 11988, built at least 1 foot above the 500-year flood elevation. Upgrade stormwater pumping stations and elevate electrical components of sewage lift stations. Use concrete pillars for manhole openings and install watertight covers on sewer manholes. Implement flood telemetry systems and add backup generators for sanitary sewer systems. Construct earthen dikes around critical facilities at flood risk and employ bioengineered techniques for bank stabilization.
18	**Construct Flood Control Measures**	Implement small-scale structural projects like floodwalls and berms in areas unsuitable for non-structural solutions, utilize revetments to safeguard riverbanks from flooding, and apply bioengineered methods for bank stabilization.
19	**Protect and Restore Natural Flood Mitigation Features**	Enhance landforms as natural barriers, use vegetative management around water sources, preserve wetlands to mitigate flooding, establish riparian buffers, retain vegetative beds in stormwater channels, and maintain dense vegetation on public lands near rivers.
20	**Preserve Floodplains as Open Space**	Establish a land banking program that preserves flood hazard areas' natural and beneficial functions. Employ the transfer of development rights to allow developers to increase densities on safer parcels in exchange for undeveloped floodplain areas. Compensate property owners for partial rights, such as easements or development rights.
21	**Increase Awareness of**	Encourage flood insurance purchases, distribute safety pamphlets annually, educate the public on flood-related dangers, utilize outreach

Action #	Action Title	Action Description
	Flood Risk and Safety	programs to communicate risks, provide online GIS hazard mapping, and establish a Program for Public Information (PPI) with a dedicated committee.
22	**Educate Property Owners about Flood Mitigation Techniques**	Promote homeowners' installation of backflow valves. Advise residents in flood-prone areas to elevate their homes. Educate the public on securing loose items to prevent hazards during floods. Encourage community involvement in keeping storm drains clear during storms.
23	**Address Storm Drainage Issues - Virginia Lakes, Aurora Canyon**	Enhance storage capacities through detention and retention basins, modify culverts, and employ flood control measures such as dike setbacks and gated pumps. Build on-site retention basins for excess stormwater and firefighting, and advocate for creating grassy swales along roadsides to improve drainage.
24	**Bridgeport Flood mitigation Project**	Address flooding issues for Bridgeport valley, in particular the meadow between Hays Street and the Bridgeport Mobile Estates (75875 Hwy 395), Aurora Canyon and Buckeye. Enhancing storage capacities through detention and retention basins, modifying culverts, and employing flood control measures such as dike setbacks and gated pumps. Build on-site retention basins for excess stormwater and firefighting and advocate for creating grassy swales along roadsides to improve drainage.
25	**Improve Culvert and Drainage Systems**	Improve culvert and drainage system using modernized data, involving County in maintaining private drainages where possible.
26	**Bridge Infrastructure Repair Project**	Repair Crumbling Infrastructure–The bridge spanning the West Walker River that was erected in 1938 needs to be heightened, widened, and extended due to the projected flood plains; the Bridges on Cunningham and Larsen need the same treatment.
27	**Walker River Floodplain Project**	Enact long-range plan to convert the Walker River flood plain into conservation land to eliminate flood risk to private residences.
28	**June Lake-Peterson Track Culvert Upgrade Project**	June Lake Peterson Track is a single access route. The culvert at the entrance of the Peterson Track is deteriorating, and roads are in desperate need of repairs. Stream mitigation work on Rainbow Street is needed as sandbags are diverting the stream around a house. CA Fish and Wildlife is now involved in the homeowner's project to divert the stream.

Hazardous Materials

Action #	Action Title	Action Description
1	**Proper Storage**	Store hazardous materials in designated, secured areas that are well-ventilated and away from incompatible substances. Use appropriate containers labeled according to regulations to prevent leaks and spills.
2	**Regular Inspections**	Conduct routine inspections of storage areas and equipment used for handling hazardous materials. This ensures that any signs of leaks, corrosion, or deterioration are detected early, minimizing potential hazards.
3	**Training Programs**	Provide comprehensive training programs for employees on hazardous material handling, emergency response procedures, and proper use of personal protective equipment (PPE). Educating workers helps to reduce accidents and exposure.
4	**Emergency Response Plan**	Develop and regularly update an emergency response plan for incidents involving hazardous materials. This plan should outline evacuation procedures, spill containment, and first aid measures. Conduct drills to ensure readiness.
5	**Containment Systems**	Use secondary containment systems, such as drip trays, dikes, or double-walled tanks, to catch leaks or spills from hazardous material containers. This helps prevent environmental contamination.
6	**Proper Disposal**	Establish protocols for the safe disposal of hazardous waste following local, state, and federal regulations. Ensure that waste is segregated correctly and disposed of by licensed hazardous waste disposal contractors.
7	**Spill Response Kits**	Maintain spill response kits in easily accessible locations to ensure quick action during a leak or spill. These kits should include absorbent materials, PPE, and necessary tools to minimize the impact of a hazardous material release.
8	**Signage and Labeling**	Clearly label hazardous materials containers and post appropriate signage in areas where such materials are used or stored. This helps communicate potential hazards and safe handling procedures to everyone in the vicinity.
9	**Ventilation Controls**	Implement effective ventilation systems in areas where hazardous materials are used or stored. Proper ventilation helps reduce airborne concentrations and protects worker health.
10	**Risk Assessment**	Conduct thorough risk assessments to identify potential hazards associated with each material and develop specific control measures. This proactive approach helps to minimize risks before they become issues.

Landslides

Action #	Action Title	Action Description
1	**Map and Assess Vulnerability to Landslides**	Identify areas prone to riparian landslides. Inventory vulnerable critical facilities and infrastructure. Utilize GIS for mapping landslide hazards. Maintain a database of community vulnerability to landslides. Assess and promote vegetation in wildfire-prone areas to mitigate post-fire landslides.
2	**Manage Development in Landslide Hazard Areas**	Enhance safety in high-risk areas by defining dangerous zones, increasing setback limits, relocating utilities, restricting industrial activities that can degrade slopes, and implementing economic development restrictions.
3	**Prevent Impacts to Roadways**	Monitoring mechanisms include visual and electronic inspections, soil stabilization through vegetation on steep slopes, debris flow mitigation techniques such as stabilization and energy dissipation, the establishment of large setbacks for road construction near unstable slopes, and the installation of rock catch-fall nets by roadways.
4	**Remove Existing Buildings and Infrastructure from Landslide Hazard Areas**	Acquire and demolish or relocate at-risk buildings and infrastructure and enforce permanent restrictions on development after land and structure acquisition.
5	**Slope Stabilization**	This involves reinforcing the slope to prevent failure. Techniques may include soil nailing, where steel rods are inserted into the ground, installing retaining walls, or using geo-synthetics like geogrids to reinforce the soil. These methods help enhance the slope's stability and prevent water accumulation.
6	**Drainage Control**	Design and maintain drainage systems that redirect water away from slopes using trenches, culverts, and ditches. Better drainage reduces soil saturation, a primary cause of landslides.
7	**Vegetation Management**	Planting vegetation can help stabilize slopes as roots bind the soil together and absorb excess rainfall. Native plant species are often preferred as they are better adapted to local conditions.
8	**Land Use Planning**	Implementing smart land use policies can prevent buildings and infrastructure from being constructed in high-risk areas.
9	**Early Warning Systems**	Establishing systems to monitor soil conditions and detect signs of potential landslides can allow for timely evacuation and preparation. These systems can utilize sensors and remote sensing technologies to monitor environmental factors like rainfall and ground movement.
10	**Training and Education**	Communities should be educated about landslide risks and preparedness. Training programs can empower residents to recognize signs of potential landslides and implement safety measures, such as emergency kits and response plans.

Action #	Action Title	Action Description
11	**Rockfall Protection Systems**	In areas prone to rockfalls, physical barriers such as rock nets, mesh fencing, or soil barriers can be employed to intercept falling rocks before they reach roadways or populated areas.

Severe Wind

Action #	Action Title	Action Description
1	**Adopt and Enforce Building Codes**	Adopt the International Building Code (IBC) and International Residential Code (IRC), implement standards for construction in high-wind areas, and review building codes to protect older structures. Additional measures require wind engineering techniques, such as structural reinforcements and resilient materials, as well as specific guidelines for manufactured homes and chimney reinforcements.
2	**Promote or Require Site and Building Design Standards to Minimize Wind Damage**	Use natural environmental features such as wind buffers in site design and incorporate passive ventilation in the building and site design. Encourage architectural designs that limit the potential for wind-borne debris. Improve architectural design standards for optimal wind conveyance and encouraging wind-resistant roof shapes (e.g., hip over gable).
3	**Assess Vulnerability to Severe Wind**	Develop a database to track vulnerabilities, use GIS for risk mapping, create scenarios to estimate potential losses and damages, and utilize Hazus for quantitative loss estimation from hurricane winds.
4	**Protect Power Lines and Infrastructure**	Set standards for tree pruning around utility lines. • Include hazardous tree inspections in drainage maintenance. • Test power line holes for rot. • Inspect utility poles for compliance and wind resistance. • Bury power lines for reliability after severe winds, considering maintenance. • Upgrade overhead utility lines' poles and spans. • Avoid aerial extensions for utility lines. • Design power lines to fail in smaller sections for quicker recovery. • Implement redundancies and loop feeds in system design.
5	**Retrofit Residential Buildings**	Install hurricane shutters, retrofit gable end walls, replace non-ductile infrastructure, add load-path connectors, install safe rooms, reinforce garage doors, and upgrade roofs for wind resistance.
6	**Retrofit Public Buildings and Critical Facilities**	Improve roof coverings, secure HVAC units, retrofit structures for strength, adhere to FEMA standards for emergency centers, avoid the placement of tall structures near buildings, upgrade lightning protection systems, require enhancements for reused buildings housing critical facilities, and protect traffic controls from high winds.

Action #	Action Title	Action Description
7	**Increase Severe Wind Risk Awareness**	• Inform residents about shelter locations and evacuation routes. • Educate homeowners on wind retrofits (shutters, hurricane clips). • Ensure school officials know the best refuge areas in school buildings. • Instruct property owners on installing temporary window coverings before storms. • Train design professionals to incorporate wind mitigation in building design.
8	**Structural Reinforcement**	Reinforcing roofs, walls, and foundations enhances the structural integrity of buildings and structures. This can include adding hurricane straps, increasing the number of fasteners, and utilizing wind-resistant materials to help buildings withstand high winds.
9	**Tree Maintenance and Management**	Regularly prune trees and remove dead or weakened branches to reduce the risk of falling debris during severe wind events. Consider replacing high-risk trees with more wind-resistant species, and ensure trees are planted at appropriate distances from structures.
10	**Installation of Wind Barriers**	Construct natural or artificial windbreaks, such as trees, shrubs, fences, or walls, to deflect wind away from vulnerable structures. These barriers can help reduce wind speed and minimize damage to properties.
11	**Community Planning and Zoning**	Implement zoning laws that discourage development in high-risk wind areas. This can involve creating buffer zones around vulnerable structures and ensuring that new buildings are designed to meet strict wind-resistance standards.
12	**Monitoring and Early Warning Systems**	Implement advanced weather monitoring systems that provide real-time updates and warnings about severe wind events. Early warning systems can help communities proactively ensure safety and minimize damage.
13	**Development of Green Infrastructure**	Invest in green infrastructure solutions, such as urban forests and green roofs, to help absorb wind energy and reduce wind speed around structures. This not only aids in mitigation but also enhances community aesthetics and ecological health.
14	**Insurance and Risk Assessment**	Encourage property owners to assess their risk and invest in adequate insurance coverage against wind damage. Providing resources to understand and choose appropriate policies can help lessen the financial impact on affected households and businesses.

Severe Winter Weather and Snow

Action #	Action Title	Action Description
1	**Adopt and Enforce Building Codes**	• Implement IBC and IRC standards. • Develop codes for roof snow loads. • Avoid flat roofs in heavy snow areas.

Action #	Action Title	Action Description
2	**Protect Buildings and Infrastructure**	Install insulation in walls and attics, utilize new technology for structural stability during renovations, and retrofit public buildings to support snow loads and prevent roof failures.
3	**Protect Power Lines**	1. Set pruning standards for utilities around power lines. 2. Bury overhead power lines. 3. Implement a designed-failure mode in power line design for quicker restorations. 4. Install redundancies and loop feeds.
4	**Reduce Impacts to Roadways**	Use effective road and debris clearing, employ snow fences or living snow fences to reduce snow drift, and install roadway heating systems to prevent ice and snow accumulation.
5	**Conduct Winter Weather Risk Awareness Activities**	Inform the public about its impacts, distribute emergency preparedness information, incorporate safety strategies into driver education, encourage the installation of carbon monoxide monitors, and educate on proper ventilation for fuel-burning equipment.
6	**Assist Vulnerable Populations**	Identify at-risk populations and organize outreach, including accessible heating centers during long-term power outages and extreme cold.
7	**Emergency Vehicle Access Planning**	Establishing designated routes and strategies for emergency vehicles during winter storms can ensure that first responders can reach those in need, even in severe weather conditions.
8	**Community Snow Volunteer Programs**	Encouraging community members to form volunteer groups to assist with snow shoveling can foster community spirit and help those struggling with snow removal at home.
9	**Use of Weather Forecasting Technology**	Incorporating advanced weather forecasting technology and tools can help agencies monitor approaching winter storms and prepare preemptively. This can include deploying snow removal equipment and coordinating staff schedules before severe weather hits.
10	**Enhanced Road Signage**	Installing variable message signs to indicate current road conditions, advising of snow alerts, or adjusting speed limits during severe winter weather can significantly improve driver awareness and safety.
11	**Snow and Ice Removal Assistance Programs**	Offer assistance programs for vulnerable populations, such as the elderly or disabled, and ensure they receive help with snow and ice removal. This will promote safety and mobility for all community members.
12	**Upgrade Vaporizer Design**	Invest in modern vaporizers specifically designed to operate at lower temperatures. Opt for dual-stage or multi-stage vaporization systems that provide better thermal efficiency.
13	**Insulate Vaporizers**	Properly insulate all vaporizer components, including pipes and fittings, to minimize heat loss. Use high-quality thermal insulation materials that can withstand extreme conditions.

Action #	Action Title	Action Description
14	**Install Heating Elements**	Install built-in electrical or steam heating elements in the vaporizer unit. These elements can maintain optimal temperatures during cold weather, ensuring consistent propane vaporization.
15	**Temperature Monitoring**	Implement a real-time temperature monitoring system to track the temperature of the propane and the vaporizer environment. Set up alarms for critical low-temperature alerts to address potential freezing issues proactively.
16	**Increase Vaporizer Capacity**	Consider upgrading to a higher-capacity vaporizer to handle larger propane volumes, thereby reducing the likelihood of temperature drops during peak usage.
17	**Research Snow Removal Program Grant Funding**	Pursue grant funding for snow removal on private road systems in addition to County roads.
18	**Fire Hydrant Mapping Project**	Fire hydrants need to be better mapped and upkeep needs to be performed. The 2022 winter crushed the sagebrush around a hydrant on 395 by 66 Aspen Lane. The sagebrush had grown up so much around it that it was no longer visible from the highway.
19	**June Lake-Petersen and Clark Tracts Road Repair Projects**	Improve ingress and egress in Petersen Tract, USFS lessee, and Clark Tract. Better snow removal is needed in all our communities, as are road improvements throughout June Lake. Petersen and Clark Tracts roads are substandard at best.

Volcano

Action #	Action Title	Action Description
1	**Volcano Monitoring and Early Warning Systems**	Implement and maintain monitoring systems that detect volcanic activity, including seismic activity, gas emissions, and ground deformation. Establish early warning systems to alert communities of potential eruptions.
2	**Land Use Planning**	Develop zoning regulations and land use plans to limit construction and habitation in high-risk areas near active volcanoes. Encourage relocation of vulnerable populations when necessary.
3	**Volcanic Hazard Maps**	Create and distribute detailed hazard maps that outline areas at risk from various volcanic hazards, such as lava flows, ash fall, and pyroclastic flows. Use these maps to inform planning and evacuation protocols.
4	**Public Awareness Campaigns**	Launch campaigns to educate the public about the risks of volcanic activity, signs of impending eruptions, and how to respond safely. Provide information on emergency supplies and preparedness.

Action #	Action Title	Action Description
6	**Infrastructure Resilience**	Invest in engineering solutions to protect critical infrastructure, such as transportation networks and utilities, from volcanic hazards. This may include building barriers or constructing adaptable structures.
7	**Research and Development**	Support research on volcanic behavior and effective mitigation strategies. Invest in developing technologies for better monitoring, modeling, and prediction of volcanic eruptions.
8	**Air Quality Monitoring**	Establish air quality monitoring systems to detect harmful ash and gases during volcanic eruptions. Provide timely health advisories to affected populations.

Wildfire

Action #	Action Title	Action Description
1	**Map and Assess Vulnerability to Wildfire**	Use GIS mapping to analyze wildfire hazards in relation to community planning, maintain a database to assess community vulnerability to wildfires, and create wildfire scenarios to evaluate potential impacts and prioritize mitigation efforts.
2	**Incorporate Wildfire Mitigation in the Comprehensive Plan**	Assess wildfire risks, recommend policies to mitigate those risks, and incorporate wildfire hazard considerations into land use and public safety planning.
3	**Reduce Risk through Land Use Planning**	1. Designate high-risk areas for development using zoning and special wildfire overlay districts, outlining specific usage conditions. 2. Consider density, emergency access, landscaping, and water supply in development plans. 3. Encourage the conservation of open space or buffer zones to separate developed regions from high-hazard areas. 4. Establish guidelines for annexation and service expansions in high-risk locations.
4	**Develop a Wildland- Urban Interface Code**	• Develop design guidelines and review procedures for new and existing constructions. • Implement fire mitigation strategies related to access, signage, water resources, and building standards. • Collaborate with fire protection agencies to establish and review guidelines. • Set planning requirements for large-scale developments regarding wildfire mitigation.
5	**Require or Encourage Fire-Resistant**	• Promote non-combustible materials like stone, brick, and stucco for new buildings in wildfire zones. • Utilize fire-resistant roofing in renovations and new constructions.

Action #	Action Title	Action Description
	Construction Techniques	• Enclose foundations of buildings to prevent exposure to embers. • Ban wooden shingles/wood shake roofs in wildfire-prone areas. • Encourage the installation of functional window shutters.
6	**Retrofit At-Risk Structures with Ignition-Resistant Materials**	1. Install roofs, walls, and gutters that meet ignition-resistant standards. 2. Protect external fuel sources like propane tanks. 3. Install structure-specific water hydration systems, dedicated power sources, and cisterns when no water source is available
7	**Create Defensible Space Around Structures and Infrastructure**	1. Remove or reduce flammable vegetation near structures. 2. Replace flammable plants with less flammable species. 3. Establish defensible zones around critical infrastructure like power lines and gas lines.
8	**Conduct Maintenance to Reduce Risk**	• Conduct cleanup in areas with abandoned structures and flammable material histories. • Maintain power lines to prevent wildfires and respond efficiently to fallen lines. • Regularly inspect fire hydrants for functionality. • Ensure safe access to fire response equipment in wildland-urban areas.
9	**Implement a Fuels Management Program**	Clear vegetation and conduct selective logging, use prescribed burns to manage fuel, identify and remove downed trees, create firebreaks, organize local cleanup events, connect wildfire safety to environmental protection, and develop a vegetation management plan.
10	**Participate in Firewise Program**	• Participate in the Firewise Communities/USA program by the National Wildlife Coordinating Group. • Host Firewise workshops for local stakeholders. • Implement Firewise guidelines and promote best practices in the community.
11	**Increase Wildfire Risk Awareness**	Provide GIS hazard mapping, organize fire department tours for officials, collaborate with insurance companies for safety information distribution, engage with neighborhood groups for outreach, educate schools, inform citizens about evacuation procedures, and establish a steering committee for monitoring local mitigation efforts.
12	**Educate Property Owners about Wildfire Mitigation Techniques**	• Install fire mitigation systems (e.g., sprinklers). • Dispose of waste safely instead of burning it. • Clear dead vegetation and combustibles from the property. • Create a defensible space around homes. • Install and maintain smoke detectors and fire extinguishers. • Store flammable materials safely, using approved containers; stack firewood away from homes.

Action #	Action Title	Action Description
		• Keep flammable items secured away from windows or use fire-resistant drapes.
13	**Expand Firewise program**	Further community participation in Firewise education and preparation, particularly in Twin Lakes and the Town proper, as well as the Evans tract and up SR 182.
14	**Reduce vulnerabilities to wildfire in isolated communities**	Educate property owners about wildfire mitigation techniques in the more isolated areas surrounding Bridgeport Valley–Twin Lakes (priority due to access and residential), Aurora Canyon, Greek Creek, Virginia Lakes, Masonic Rd, Evans Tract, and the residential areas off Hwy. 182 northeast of Town.
15	**Wildfire Fuels Reduction Projects**	The Clark Tract and Peterson Tracts in June Lake desperately need help with this wildfire fuels reduction.
16	**Wildfire Protection Projects**	Walker community needs fire breaks and support to create safer properties.
17	**Twin Lakes Wildfire Evacuation Plan and Ordinances**	Twin Lakes area has only 1 two-lane road going in and out and has more than 10 large campgrounds with thousands of campers in the summer, and hundreds of residents, plus people "free camping" where it is prohibited. Fire hazard mitigation could also include regular patrolling of Twin Lakes area to stop the free camping that creates a huge fire risk.
18	**Wildfire Fuels Management-Vacant Lot Ordinance**	Mandatory vacant lot maintenance to reduce wildfire risk in developed areas.
19	**Wildfire Fuels Management Project-Northern Mono County**	Too much fire brush is left unchecked on lands and parcels owned by absent owners up here In Northern Mono County-Coleville & Walker.
20	**Air Filtration Systems for Publicly Owned Buildings and Critical Facilities**	Air quality issue is mainly from wildfires. Making sure places like gyms, schools, and hospitals have the highest ability to provide clean air during times of poor air quality.
21	**Natural Systems Protection Wildfire Project**	Wildfire impacts and mitigation measures involve more that defensible space around homes, businesses, and community infrastructure. Mitigation efforts should look beyond the immediate built community approach to restore ecological health to landscapes, reduce excessive fuel loads in forests and riparian corridors, and support projects that help natural, low- to moderate- severity fire cycles return to the appropriate natural areas throughout the County.

Action #	Action Title	Action Description
22	**Wildfire Ordinance Enforcement**	The Knolls community has potential wildfire hazards, especially due to human error from dispersed camping along the Scenic Loop.
23	**Ingress/Egress**	Identify primary ingress/egress routes suitable for undergrounding and wildfire mitigation to avoid egress issues related to downed wires, vegetation, and other hazards.
24	**Widen Public Easement**	Support efforts to widen public easement clearance distances for vegetation (e.g., policy initiatives such as Fix Our Forests).
25	**Fuel Reduction and Forest Health**	Continue supporting fuel reduction and forest health wildfire resiliency initiatives—return forests to healthy fuel levels (ESCCRP, etc.); emphasis on WUI and ingress/egress.

Wildlife Collisions

Action #	Action Title	Action Description
1	**Wildlife Crossings (Overpass/ Underpasses)**	Construct elevated or subterranean passages that allow wildlife to crossroads safely. These structures are designed to accommodate specific species, incorporating natural vegetation and features that attract animals and encourage use.
2	**Wildlife Fencing**	Install fences along roadsides to guide animals towards designated crossing points and prevent them from accessing the roadway. This can be particularly effective in high-risk areas, reducing the likelihood of collisions.
3	**Signage and Warning Systems**	Erect warning signs in areas with known wildlife crossings, alerting drivers to remain vigilant. Advanced systems can include digital signs that activate when animals are detected nearby and warn drivers in real time.
4	**Reduced Speed Limits**	Implement temporary or permanent speed reductions in high-collision areas, especially during peak wildlife movement periods. Lower speeds increase reaction times and reduce the severity of potential collisions.
5	**Community Awareness Programs**	Launch educational campaigns to inform residents and drivers about wildlife migration patterns and safe driving practices. Increasing awareness can lead to more cautious driving behaviors in wildlife-rich areas.
6	**Habitat Restoration and Management**	Work on restoring and managing habitats adjacent to roadways to support wildlife populations. Healthy ecosystems can reduce the need for wildlife to crossroads for food or shelter.
7	**Lighting Solutions**	Implement specialized road lighting, such as infrared or low-intensity lights, to enhance visibility without disturbing wildlife. This can help reduce night-time collisions by providing better sight lines for drivers.

Action #	Action Title	Action Description
8	**Monitoring and Research**	Conduct regular wildlife monitoring and roadkill assessments to identify high-risk areas. This information can guide future mitigation measures and help evaluate the effectiveness of current strategies.
9	**Reflective Markings**	Use reflective road markings and paint that can catch the light from vehicle headlights, increasing visibility in areas prone to wildlife crossings.
10	**Relaxed Road Design**	Design roads to incorporate gentle curves and undulating topography that slow down traffic and increase driver awareness of their surroundings.
11	**Wildlife Collision Reduction Ordinance**	Reduce speed limit thru Lee Vining, Bridgeport, and area above Double Eagle Resort to reduce wildlife collisions.
12	**Wildlife Collision Mitigation Project**	Construct the deer crossing mitigation project at Lower Rock Creek Rd, Doe Ridge, June Lake highway loop, Lake Mary Road, and Paradise

Multiple Hazards

Action #	Action Title	Action Description
1	**Assess Community Risk**	• Gather local data for risk analysis, such as tax parcels, building footprints, and critical facility locations. • Create and update a database to monitor community vulnerability in hazard-prone areas. • Coordinate with state and federal agencies to ensure current hazard data, maps, and assessments. • Update aerial photography in fast-growing regions. • Identify and assess at-risk critical facilities for potential mitigation
2	**Map Community Risk**	Establish a GIS Department to: 1. Identify current and potential GIS users and applications. 2. Implement a management plan for tracking permits and land use. 3. Acquire hazard data and use GIS for risk mapping.
3	**Prevent Development in Hazard Areas**	Encourage clustering residential lots away from hazardous zones, limit public spending on improvements in such areas, and facilitate managed retreats from high-risk locations. Acquire rights for hazardous parcels and local government land to enforce permanent development restrictions. Advocate for conservation easements to protect sensitive ecological zones and recommend acquiring hazardous areas for conservation, restoring them as public parks, and establishing safe locations for public facilities. Finally, new facilities for individuals with mobility concerns and animal shelters should be prohibited in hazard zones.

Action #	Action Title	Action Description
4	**Adopt Development Regulations in Hazard Areas**	Require setbacks from hazard zones like shorelines, wetlands, and steep slopes. Conditional or special use permits should be required for development in these areas. Offer expanded rights to developers engaging in mitigation retrofits. Using restrictive covenants on properties in high-risk zones may help mitigate hazards. Designating these areas as special assessment districts could fund crucial hazard mitigation.
5	**Limit Density in Hazard Areas**	Increase minimum lot sizes in hazard areas and establish "agricultural use districts" within zoning ordinances. The ordinance should promote higher densities only outside hazard zones and require clustering in planned unit developments (PUDs) to further lower densities in hazardous areas. Implementing a local transfer of development rights (TDR), program can address risks while using floating zones helps decrease densities in affected areas after disasters.
6	**Integrate Mitigation into Local Planning**	Integrate hazard mitigation into local land use plans and align with growth initiatives like Smart Growth. Implement hazard risk assessments in local development reviews. Existing programs, such as adequate public facilities tests, should include hazard mitigation. Natural hazards must be considered in land suitability analyses, and acceptable land uses should minimize risks in vulnerable areas. Post-disaster reconstruction planning is vital for decision making after hazard events, and engaging citizens in these planning activities is essential for collective action.
7	**Strengthen Land Use Regulations**	Use bonus or incentive zoning and conditional use permits to mandate mitigation measures, establish a process for creating overlay zones in high-hazard areas, and adopt post-disaster recovery ordinances tailored to specific property locations. Emphasize the need for environmental review standards and integrate proper species selection, planting, and maintenance practices within landscape ordinances.
8	**Adopt and Enforce Building Codes**	Enhancing BCEGS classifications involves enforcing stricter standards, integrating advanced hazard protocols, and improving training for building inspectors. New developments will focus on orientation, require propane tank tie-downs, and manufactured housing standards. Moratorium procedures will regulate post-disaster reconstruction permits, and fire codes will limit hotel room occupancy to ensure safe evacuation in multi-floor facilities. Incentives will encourage construction practices that exceed current code standards.
9	**Create Local Funding Mechanisms for Hazard Mitigation**	Local governments can establish a reserve fund specifically for public hazard mitigation measures. They can utilize impact fees from land developments to finance related projects, such as managing increased runoff. Implementing a development impact tax on new constructions can help address the adverse effects of development. Collaboration with local financial institutions for "good neighbor" lending can

Action #	Action Title	Action Description
		promote private mitigation efforts, and offering a local match to federal funds will support private mitigation initiatives.
10	**Incentivize Hazard Mitigation**	Implement special tax assessments to deter construction in risky locations, offer insurance incentives for best practices, provide tax breaks for low-risk developments, waive permitting fees for mitigation-related projects, and use tax abatements and public subsidies to foster private mitigation efforts. Reduce the tax burden on undeveloped hazard areas under development pressure and encourage infill development through various incentives and streamlined processes.
11	**Monitor Mitigation Plan Implementation**	Create a steering committee comprising representatives from neighborhoods, businesses, and local government to oversee the implementation of local mitigation actions. Create a monitoring schedule to define roles for various local departments and agencies with an annual progress report that will be submitted to the local elected body.
12	**Protect Structures**	Relocate vulnerable structures to safer locations, retrofit public buildings and housing units in high-hazard zones, strengthen fire and police stations against hazards, and identify facilities to serve as public shelters.
13	**Protect Infrastructure and Critical Facilities**	Integrate hazard mitigation into all publicly funded constructions, including retrofitting public facilities in annual capital improvement plans and engineering roads and bridges for durability. Relocate electrical infrastructure underground, design water tanks for emergencies, and install quick-connect emergency generator hook-ups for critical facilities.
14	**Increase Hazard Education and Risk Awareness**	Provide comprehensive information on preparedness and mitigation, launch a seasonal hazard awareness week in collaboration with media, and create an interactive website for education. Organize annual workshops and establish hazard information centers and a speakers bureau addressing disaster-related topics. Improve awareness among the private sector and involve annual briefings for local governing bodies on the latest mitigation strategies.
16	**Promote Private Mitigation Efforts**	Advise homeowners on risks, provide technical assistance and funding for mitigation measures, maintain a publicly accessible library on hazard techniques, recruit community groups for projects, facilitate networking for businesses, offer hazard susceptibility audits for small businesses, create a demonstration model of mitigation techniques, and educate the public about the tradeoffs of multi-hazard design.
17	**East Slope Road Repair Project**	The East Slope above Alpine Drive in Aspendell is hazardous under certain conditions.

Action #	Action Title	Action Description
18	**Increase CERT Participation**	Increase support for volunteer fire departments the Community Emergency Response Team (CERT).
19	**Bridge Reinforcement, Ordinance Enforcement**	Reinforce West Walker River Bridge on Cunningham Lane. Enforce tonnage bearing restrictions/guidelines.
20	**Critical Facilities Annual Risk Inspections**	Perform annual inspections on public structures to identify risk.
21	**Develop June Lake Risk Management Plan**	June Lake has no known specific (current) risk management plan or strategy. Communication/coordination among public agencies and with the public is minimal. The Citizen Advisory Committee exists, but without any real mandate. As a significant population center and revenue generator in the County, determining how to institutionally strengthen the Town has merit.
22	**Public Outreach through Tourism Community**	Perform outreach to visitors for efficient and informed evacuations and long term disaster planning.
23	**Mono County Roads and Infrastructure Projects**	Improve transportation infrastructure within the Lakes Basin, areas along the Scenic Loop and below the Knolls, North Mono Basin.
24	**Mono County Evacuation Routes Awareness and Education Program**	For homes along Hwy 395 along the border of Antelope Valley and Walker River, there is a lack of escape route if the highway closes. Other evacuation routes should be planned and residents educated on the dangers of being isolated.

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Appendix C: Sample Adoption Resolution Letters

Appendix C: Sample Adoption Resolution Letters

The following sample adoption resolution letters can be utilized by the jurisdictions and special districts respectively. The jurisdictional adoption resolution letter includes information regarding Assembly Bill No. 2140 (AB 2140). Adopting the multi-jurisdictional hazard mitigation plan into the jurisdictions' Safety Elements of their General Plans enables them to be eligible for additional state cost-share on eligible Public Assistance projects.

RESOLUTION NO. _____

A RESOLUTION OF [MONO COUNTY / TOWN OF MAMMOTH LAKES] ADOPTING THE 2026 MONO COUNTY AND TOWN OF MAMMOTH LAKES MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

WHEREAS the [Mono County Board of Supervisors / Town Council] recognizes the threat that natural, technological, and man-made hazards pose to people and property within [Mono County / Town of Mammoth Lakes]; and

WHEREAS [Mono County / Town of Mammoth Lakes] has collaborated with other incorporated communities and participating special districts to prepare a multi-hazard mitigation plan, hereby known as the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in [Mono County / Town of Mammoth Lakes] from the impacts of future hazards and disasters; and

WHEREAS adoption by [Mono County / Town of Mammoth Lakes] demonstrates its commitment to hazard mitigation and achieving the goals outlined in the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOVED that the [Mono County Board of Supervisors / Town Council] adopts the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan. While content related to [Mono County / Town of Mammoth Lakes] may require revisions or amendments to meet the plan approval requirements or reflect the best available data over the 5-year lifecycle of the plan, changes occurring after adoption will not require [Mono County / Town of Mammoth Lakes] to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

BE IT RESOLVED, that [Mono County / Town of Mammoth Lakes] adopts the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan by reference into the Safety Element of their General Plan in accordance with the requirements of AB2140;

BE IT FURTHER RESOLVED, [Mono County / Town of Mammoth Lakes] will submit this adoption resolution to the California Office of Emergency Services and FEMA officials to enable the plan's final approval in accordance with the requirements of the Disaster Mitigation Act of 2000 and to establish conformance with the requirements of AB 2140.

ADOPTED by a vote of __ in favor and __ against, and ___ abstaining, this day of

_____, _____.

By: _____ (print name)

ATTEST: By: _____ (print name)

APPROVED AS TO FORM: By: _____ (print name)

RESOLUTION NO. _____

A RESOLUTION OF [SPECIAL DISTRICT NAME] ADOPTING THE 2026 MONO COUNTY AND TOWN OF MAMMOTH LAKES MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

WHEREAS the [Special District Board of Directors] recognizes the threat that natural, technological, and man-made hazards pose to people and property within the [Special District Name]'s service area; and

WHEREAS [Special District Name] has collaborated with Mono County, the Town of Mammoth Lakes, and other participating special districts to prepare a multi-hazard mitigation plan, hereby known as the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the [Special District Name]'s service area from the impacts of future hazards and disasters; and

WHEREAS adoption by [Special District Name] demonstrates its commitment to hazard mitigation and achieving the goals outlined in the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOVED that the [Special District Board of Directors] adopts the 2026 Mono County and Town of Mammoth Lakes Multi-Jurisdictional Local Hazard Mitigation Plan. While content related to [Special District Name] may require revisions or amendments to meet the plan approval requirements or reflect the best available data over the 5-year lifecycle of the plan, changes occurring after adoption will not require [Special District Name] to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

BE IT FURTHER RESOLVED, [Special District Name] will submit this adoption resolution to the California Office of Emergency Services and FEMA officials to enable the plan's final approval in accordance with the requirements of the Disaster Mitigation Act of 2000.

ADOPTED by a vote of __ in favor and __ against, and ___ abstaining, this day of

_____, _____.

By: _____ (print name)

ATTEST: By: _____ (print name)

APPROVED AS TO FORM: By: _____ (print name)

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Appendix D: Plan Maintenance Form

Appendix D: Plan Maintenance Form

Jurisdiction/District Name:

Action Number:

Description:

Responsible Agency:

Question	Yes	No	Answer/Comments
Has this action been completed (Y/N)?			
If the first answer is no, the action has not been completed:			
If no, is this action still relevant (Y/N)? If no, explain why not.			
For actions that remain incomplete, what barriers (e.g., funding, staffing, coordination) have impeded progress?			
What additional resources or assistance would help in implementing this action?			
Should this action be modified, or should a new action be added to address this risk?			
If the first answer is yes, the action has been completed:			
What was accomplished and how was it achieved (i.e., grant funding and schedule)?			
Has the completed mitigation action achieved its intended outcomes (e.g., risk reduction, cost savings, resilience improvement)?			
Has this action led to any observed losses avoided (Y/N)? If so, describe.			
How was the HMP used in the implementation of this action?			
Identify any lessons learned from implementing this action.			
Consider next steps – should the plan be amended to include any new action(s) to address this risk?			

Question	Yes	No	Answer/Comments
Considering the effectiveness of this plan and action:			
Does the action continue to align with jurisdiction/district priorities (Y/N)? If not, describe what new priorities exist.			
Is there any new public or stakeholder feedback which should be incorporated (Y/N)? How should this be incorporated into the mitigation strategy?			
Are there any local champions, departments, or community groups who have demonstrated leadership in implementing mitigation strategies (Y/N)? If so, list their names or role in mitigation.			
Have there been any recent hazard events (Y/N)? If so, what did they reveal about the hazard(s) of concern?			
Does this action address the root cause of the issue (Y/N)? If not, what issue(s) remain?			
Are additional maps/data or new hazards studies available (Y/N)? If so, what have they revealed and how should that be incorporated into the plan?			
Are there different or additional resources (financial, technical, or human) that are now available for mitigation (Y/N)? How can they be incorporated?			
Should new mitigation actions be added to the Mitigation Action Plan?			

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Mono County Jurisdictional Annex

2026



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Mono County

Mono County has demonstrated its commitment to a comprehensive mitigation program by developing a separate jurisdiction-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information such as hazard descriptions, extent, and location can be found. The annex has been amended from the last plan update to reflect changes in priority including meeting the Federal Emergency Management Agency's (FEMA) new *Local Mitigation Planning Policy Guide* (published April 11, 2025) requiring public and stakeholder outreach, jurisdiction-specific vulnerabilities, community lifelines, expanded mitigation capabilities, and NFIP assessments. The following is intended to clarify what, if any, unique considerations and differences there are between the plan participants hazards and mitigation capabilities. Further, this annex documents the selected mitigation actions for Mono County.

Mono County Participation

This plan was developed through a collaborative planning process including Mono County, the Town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update is documenting the planning process itself, including who represented which plan participant. Mono County was represented during the plan update process by the individuals listed in Table 107.

Table 107: Mono County Representatives in the Planning Process

Name	Title	Department
Kelly Karl	Planning Analyst	Community Development
Chris Mokracek	Emergency Manager	Office of Emergency Management
Wendy Sugimura	Community Development Director	Community Development
Sandra Moberly	County Administrative Office	Administration
Brianne Chappell-McGovern	Public Health Emergency Preparedness	Public Health
Paul Roten	Public Works Director	Public Works
Karyn Spears	Assistant Public Works Director	Public Works
Eric Bucklin	IT Systems Administrator	Information Technology
Rob Makoske	Department of Public Works Project Manager	Public Works

Name	Title	Department
Dylan Whitmore	Probation Department Manager	Probation
Paul McFarland	District 3 Supervisor	County Supervisor
Ingrid Braun	Sheriff-Coroner	Sherriff's Office
Clint Dohem	Undersheriff	Sherriff's Office
Anna Sahl	Environmental Health Specialist	Public Health
Bri Chappell-McGovern	Public Health Emergency Preparedness and Response Manager	Public Health
Tom Boo	Public Health Officer	Public Health
Eric Miller	GIS Specialist	Geographic Information Systems
Kalen Dodd	Engineer	Public Works
Lisa Bernard	Account Manager Genasys Learning Software	Mono County
Liz Grans	Economic Development Director	Economic Development
Milan Slava	Business Operations Manager	Information Technology
Sarah Moore	GIS Specialist	Geographic Information Systems
Brent Calloway	Community Development Analyst	Community Development
John Peters	District 4 Supervisor	County Supervisor
Amanda Carlson	Economic Development Coordinator	Economic Development
Jami Jerrett	IT Specialist	Information Technology
Krista Cooper	Adult Services Manager	Social Services
Marcella Rose	Outdoor Recreation Manager	Public Works
Penny Galvin	EMS Billing Fiscal Administrator	Emergency Medical Services
Lynda Salcido	District 5 Supervisor	County Supervisor
Tyrone Grandstrand	Housing Opportunities Manager	Administration
Olya Egorov	Planning Analyst	Planning

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 108 lists at least one stakeholder per required stakeholder type that work in or have knowledge of Mono County. Stakeholders were invited to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 108: Local Stakeholders

Name	Description	Stakeholder Type
Whitebark Institute	Non-Profit Organization dedicated to reducing wildfire risk and enhancing sustainability in Eastern Sierra Forests	Representatives of nonprofit organizations, including community-based organizations
US Forest Service	United States Department of Agriculture Forest Service Division	Agencies that have the authority to regulate development.
Mammoth Mountain Ski Area, Resorts	Mammoth Lakes Hospitality Industry Representatives	Representatives of businesses, academia, and other private organizations
Amerigas	Local propane gas supplier	Representatives of businesses, academia, and other private organizations
Southern California Edison	Utility Company	Dam Owners
Eastern Sierra Avalanche Center (ESAC)	Provides information and education on avalanche conditions for Eastern Sierra Region	Representatives of nonprofit organizations, including community-based organizations
Mammoth Geothermal Complex (Ormat)	Geothermal Power Station	Representatives of businesses, academia, and other private organizations
Mammoth Yosemite Airport	Aviation/Airport Management	Representatives of businesses, academia, and other private organizations
Inyo County	County south of Mono County which includes relevant community assets, such as a local airport and national forest.	Neighboring Community

Name	Description	Stakeholder Type
Mammoth Geothermal Complex (Ormat)	Geothermal Power Station	Representatives of businesses, academia, and other private organizations.
US Geological Services	Provide science about natural hazards	Local and regional agencies involved in hazard mitigation activities.
Mono County Sheriff's Office	Law Enforcement	Local and regional agencies involved in hazard mitigation activities.
USGS California Volcano Observatory	Volcano monitoring	Local and regional agencies involved in hazard mitigation activities.

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. To engage the public in the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update, Mono County conducted a public outreach campaign to a variety of socially vulnerable populations. Outreach included digital, in-person, and mail-based strategies to include the elderly, low-income households, non-English speakers, youth, and persons with access and functional needs throughout the County.

On December 9, 2024, more than 70 local contacts were sent digital survey information through flyers from Mono County Public Health. On January 30, 2025, the County provided a public presentation at the Mono County Collaborative Planning Team meeting to discuss the MJHMP update and to seek feedback from the public. Between November 6, 2024, and January 16, 2025, additional presentations were made to County Regional Planning Advisory Committees (RPACs) in the June Lake, Antelope Valley, Mono Basin, Bridgeport Valley, and Long Valley areas.

The District 2 Supervisor distributed the public survey via her constituent email list to residents of Swall Meadows, Paradise, and Tri-Valley. Mono County began a broad, every-door direct mailer campaign on March 3, 2025, with public survey flyers delivered to all mailing routes in the county and the Town of Mammoth Lakes. The public survey was also emailed to the RPAC listserv. Finally, physical flyers were placed in high traffic community locations on November 20, 2024, and December 5, 2024, in Mammoth Lakes and Bridgeport. These locations included post offices, libraries, and County and Town of Mammoth Lakes offices.

Public feedback was incorporated into the risk assessment and mitigation strategy sections.



Figure 110: Community Cafe Flyer

Jurisdiction-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

Jurisdictional Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compare to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities utilizing the following Calculated Priority Risk Index (see Table 109).

Table 109: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time ***(Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration ***(The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards identified as having a risk factor value greater than or equal to 2.5 are considered high risk. Risk factors ranging from 2.0 to 2.4 are considered moderate risk hazards. Hazards with a risk factor value of less than 2.0 are considered low risk. The highest possible risk factor value is 4. The calculated priority risk index for Mono County is presented in Table 110.

Table 110: Calculated Priority Risk Index for Mono County

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	2	1	3	4	3	2.4
Dam Failure	1	1	3	1	3	1.8
Disease and Pest Management	1	1	1	1	1	1
Drought	3	4	1	1	1	2.2
Earthquake and Seismic Hazards	2	3	1	1	2	1.8
Energy Shortages and Energy Resiliency	3	3	1	1	1	2
Epidemic/Pandemic	2	4	2	1	4	2.5
Extreme Heat	3	2	1	1	2	1.9
Flood	2	1	1	1	2	1.4
Landslide	1	1	2	1	2	1.4
Hazardous Materials	2	1	1	4	2	1.7
Severe Wind	3	3	1	1	1	2
Severe Winter Weather and Snow	4	3	1	1	2	2.4
Volcanoes	1	3	3	1	4	2.3
Wildfire	2	2	2	1	4	2.1
Wildlife Collisions	4	1	1	1	1	1.9

Past Hazard Events

The plan must present the history of hazards events. While the past cannot predict the future, especially as climate change causes more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides a general description of previous FEMA hazard occurrences. The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 111 lists these hazard events of local significance.

Table 111: Previous Disaster Impacts for Mono County

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	DR-4699	2023 winter storms; 2017 and 2023	See winter storm entry below; road closure	Continuous winter storms covered much of California with substantial rain and low-elevation snow for an extended period of time, causing avalanche risks throughout the county. SR 158 was closed in 2017 due to extreme avalanche concerns. February and March 2023: Record snowfall in late February and early March 2023 triggered multiple massive avalanches that swept down slopes and buried a half-mile stretch of US 395, north of Lee Vining toward Mono City. They carried snow debris, trees, power lines, rock-fall fence, and guardrails across the highway. Some debris piles were estimated at 30–40 feet high, spreading for nearly three miles in sections. The avalanches knocked out power infrastructure, cutting electricity to Mono City and Bridgeport.
Dam Failure	None	N/A	N/A	N/A
Disease and Pest Management	None	2025	Three deaths	Hantavirus has spread through the deer mice population to humans in the Town of Mammoth Lakes. Mono County Public Health has been the primary response agency

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
				for the outbreak. The illness led to three fatalities.
Drought	N/A	July 8, 2021	N/A	Governor Newsom Extends Regional Drought State of Emergency to Include Mono County. https://www.monocounty.ca.gov/sites/default/files/fileattachments/county_administration/page/31650/pr_droughtdeclaration_07.08.21_final.pdf
Earthquake and Seismic Hazards	None	May 25, 1980	Broken windows, water mains, damage to residential structures and public structures	A 6.0 earthquake occurred near Mammoth Lakes.
Energy Shortages and Energy Resiliency	None	N/A	N/A	N/A
Epidemic/ Pandemic	DR-4482	2020–2023	Infections	A local emergency related to the COVID-19 pandemic was declared by the county health officer on March 15, 2020.
Extreme Heat	None	N/A	N/A	N/A
Flood		2023 Winter Storms	See winter storm entry below.	Continuous winter storms covered much of California with substantial rain and low-elevation snow for an extended period of time causing localized flooding throughout the county.
Landslide	None	January 2023 and July 2025	N/A	A landslide on January 17, 2023, blocked access to Swall Meadows Road from the north. California Highway Patrol confirmed multiple slides across the roadway. Additionally, a

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
				landslide occurred on July 30, 2025, on US 395 north of Red Rock Road, closing the road in both directions.
Hazardous Materials	None	N/A	N/A	N/A
Severe Wind	None	N/A	N/A	N/A
Severe Winter Weather and Snow	DR-4699	2023 Winter Storms	Beginning in January 2023, Mono County experienced significant on and off again storms. On the week of February 23rd, continuous winter storms covered much of California with substantial rain and low-elevation snow for an extended period of time. Inyo county experienced severe flooding and debris flows with large infrastructure impacts to the surrounding areas and main arterial roadways. Mono County experienced historical snow accumulations of well over 600 inches at the 6000-foot elevations. This contributed to numerous residential and commercial structure collapses, complete blockage of surface streets, trapped residents,	Beginning in January 2023, Mono County experienced significant on and off again storms. On the week of February 23rd, continuous winter storms covered much of California with substantial rain and low-elevation snow for an extended period of time. Inyo county experienced severe flooding and debris flows with large infrastructure impacts to the surrounding areas and main arterial roadways. Mono County experienced historical snow accumulations of well over 600 inches at the 6000-foot elevations. This contributed to numerous residential and commercial structure collapses, complete blockage of surface streets, trapped residents, and significant propane issues in the Town of Mammoth Lakes. Mono County also experienced a historic number of avalanches that damaged and destroyed numerous residential and commercial structures. Several communities were

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			and significant propane issues in the Town of Mammoth Lakes. Mono County also experienced a historic number of avalanches that damaged and destroyed numerous residential and commercial structures. Several communities were completely isolated with no ingress or egress. US 395, a main transportation corridor from Southern to Northern California, was completely shut down.	completely isolated with no ingress or egress. US 395, a main transportation corridor from Southern to Northern California, was completely shut down in both directions due to multiple avalanches.
Volcanoes	None	N/A	N/A	N/A
Wildfire		1. Feb. 16, 2015 2. Nov. 17, 2020 3.Sept. 4, 2020	1. The Round Fire destroyed or damaged 53 structures, and 7,000 acres burned. 2. The Mountain View Fire destroyed 80 structures and claimed one life. 3. The Creek Fire was a large wildfire that started on September 4, 2020, near Shaver Lake, California. The fire burned 379,895	1. On Friday, February 6, 2015, at approximately 2:38 p.m., a wildland fire started west of US 395 at Sherwin Grade, approximately 9 miles west of Bishop in Inyo County, California. The Round Fire burned approximately 7,000 acres in Inyo and Mono Counties. A total of 53 structures were destroyed or damaged by the fire. Investigators determined an electrical arc from a downed power line caused the fire. Strong winds caused the tree to fall,

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			acres (153,738 ha). In Mono County, this fire caused hazardous air quality in part of the County and prompted a Proclamation of Local Emergency on September 18, 2020. 4. The Pack Fire destroyed 30 residential and commercial structures and damaged six others. Additionally, 1,800 residents were under evacuation orders or warnings.	which brought down the power lines. 2. The Mountain View Fire was a wildfire that erupted near Walker, California, on November 17, 2020. The fire burned 20,879 acres (8,449 ha) and was declared 100% contained on December 11, 2020. The fire destroyed 80 structures and claimed one life. 3. The Creek Fire was a large wildfire which started on September 4, 2020, near Shaver Lake, California. The fire burned 379,895 acres (153,738 ha) and was declared 100% contained on December 24, 2020. The Creek Fire was the fourth-largest wildfire in modern California history, and the largest single fire not part of a greater complex. A Proclamation of Local Emergency was ordered on September 18, 2020, due to extreme fire danger and the rapid growth of the fire toward Mono County and Town of Mammoth Lakes. This fire caused hazardous air quality in the County. 4. On November 13, 2025, the Pack Fire broke out near Lake Crowley, destroying 30 residential and commercial structures

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
				and damaging six others. The fire spread quickly, prompting mandatory evacuation orders for the Long Valley and McGee Creek communities. Additionally, 1,800 residents were under evacuation orders or warnings.
Wildlife Collisions	None	N/A	Unknown	While the exact number of wildlife–vehicle collisions (WVCs) cannot be determined, it is estimated that there are around 57 WVCs each year between US 395 and SR 203, south of Mammoth Lakes in Mono County. Of these collisions, approximately 96% involve deer, 3% involve bears, and 0.5% involve coyotes. All other native species account for the remaining 0.5%.[235]

Jurisdiction-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each of the hazards affecting the overall planning area. Assets were determined by the community. Asset types may differ between plan participants, including the following:

- People (residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, lower-income individuals, etc.)
- Structures (residential, commercial, industrial, government-owned, planned capital improvement, etc.)
- Economic assets (major employers, primary economic sectors, key infrastructure like telecommunications networks, etc.)

[235] Caltrans, "Mammoth Lakes Wildlife Crossing Project." https://dot.ca.gov/caltrans-near-me/district-9/district-9-projects-list/mammoth-lakes-wildlife-crossing-project

- Natural, historic, and cultural resources (areas of conservation, parks, critical habitats, community centers, historic places, etc.)
- Critical facilities and infrastructure (hospitals, law enforcement, water, power, transportation systems, etc.)
- Community activities (major local events, such as festivals, or economic events, like farming or fishing)

The following problem statements describe the unique jurisdiction-specific vulnerabilities of Mono County. Where no unique considerations are noted, it can be assumed the information included in the base plan also applies to Mono County.

Avalanche

- **Location:** Eastern Sierra communities near steep mountain slopes, particularly in the June Lake and Mammoth Lakes areas, and locations with backcountry access. Particularly high-risk Community Planning Areas where people and critical facilities such as transportation routes are vulnerable include Bridgeport Valley (Twin Lakes Area), June Lake (SR-158), Lee Vining (Poole Power Plan Road), Long Valley, Mammoth Vicinity, Mono Basin, Wheeler Crest (Swall Meadows), McGee Creek, as well as development outside of community planning areas (Virginia Lakes and Lundy Canyon).
- **Extent:** Destruction Force 2 (approx. 100 yards in length and 2 meters deep) avalanche sizes as a worst-case scenario.
- **Impacts**: Avalanches can block or damage critical access routes, isolate communities, and pose direct threats to recreationists and seasonal workers living or traveling in high-risk zones. Infrastructure and critical facilities located within avalanche prone areas could be impacted along with isolating communities with limited transportation networks.
- **Jurisdiction-Specific Vulnerabilities**:
  - Visiting populations may not be aware of avalanche risks and may access hazardous areas without adequate protection.
  - People living in vehicles on federal land may unknowingly park in avalanche-prone terrain.
  - Critical facilities including transportation routes including highways such as US 395 and SR 158.
  - Isolated communities across the unincorporated County with limited transportation networks may be cut off due to an avalanche event.
  - Health and medical services may be affected by the inability to transport people along closed transportation routes.
  - Transportation dependency among vulnerable populations can result in delayed evacuation or isolation during prolonged road closures due to avalanche activity.
  - Private homes and businesses located in avalanche prone areas are vulnerable to avalanche events.

Dam Failure

- **Location:** Areas downstream of water storage and dam infrastructure throughout Mono County particularly agricultural areas, rural communities, and the transportation corridor along US 395. Northern Mono County communities such as Walker, Coleville, and Topaz may be at risk from upstream dam releases or failures.
- **Extent:** Several high hazard potential dams are located within or near Mono County that may impact the county.
- **Impacts**: Dam failure can cause catastrophic flooding, isolating communities and disrupting essential services. Damage to US 395 or other major roadways could severely hinder emergency response and evacuation. Structures could suffer significant damage or collapse. The economic impacts would be widespread affecting agriculture, tourism, and local government services. Vital facilities such as the hospital could be rendered inoperable due to access, power, and supply disruptions.
- **Jurisdiction-Specific Vulnerabilities**:
  - Northern communities such as Walker, Coleville, and Topaz have the highest concentration of seniors, many of whom live in structures built before 1990 that may not withstand flood impacts.
  - Communities and neighborhoods have limited or no secondary access routes, increasing risk during evacuations or recovery operations.
  - Some seasonal workers live in vehicles on public land or in temporary housing without reliable access to alerts or transportation, complicating emergency communication and evacuation.
  - Localized flooding, such as around Rock Creek, could result in mandatory evacuations.
  - Residents dependent on transportation or caregivers are at high risk during dam-related flooding, especially if roads are impassable or caregivers cannot reach them.
  - Agricultural operations could face extensive crop and infrastructure losses.
  - Flooding could damage roads, cut off recreation areas, and restrict tourism.

Disease and Pest Management

- **Location:**. All of Mono County is at risk.
- **Extent:** The Disease Severity Scale for Mono County indicates a moderately susceptible/disease score of five as the worst-case scenario.
- **Impacts**: Disease outbreaks can disrupt local economies reliant on tourism and agriculture due to illness and fatalities. Pest infestations can damage crops and natural resources, affect livestock health, and result in economic losses for the agricultural sector.
- **Jurisdiction-Specific Vulnerabilities**:
  - Natural resources may be affected.

- As worries about pest-related illnesses grow, engagement in community events may decline potentially discouraging outdoor recreational activities.
- Public health may be affected particularly if water systems are infected. The discovery of avian influenza in wastewater underscores the crucial role of monitoring disease outbreaks.
- Hantavirus is an ongoing vulnerability for the County. Deer mice infected with the virus can get into homes and workplaces, spreading the virus to humans through their feces. There have been 27 recorded cases since 1993 and three deaths in 2025.

Drought

- **Location:** All of Mono County is susceptible to the impacts of drought.
- **Extent:** Exceptional Drought is the worst-case scenario for Mono County.
- **Impacts**: Drought can impact multiple sectors in Mono County including agricultural operations, tourism, and private water supplies for homes. Drought can also increase wildfire risk and reduce the effectiveness of fire suppression. Water systems and wastewater treatment facilities run by local community services districts (CSD), water districts (WD), and public utilities districts (PUD) can be impacted by drought due to low water pressure and bacteria growth.
- **Jurisdiction-Specific Vulnerabilities**:
  - Farmers and ranchers face uncertainty in annual water availability.
  - Older residents may lack efficient cooling systems and face health risks from elevated temperatures and lack of water.
  - Key economic activity is vulnerable as drought limit ski season length and quality.
  - The CSDs, WDs, and PUDs with vulnerable critical infrastructure are: Birchim CSD, Hilton Creek CSD, Wheeler Crest CSD, Antelope Valley WD, Bridgeport PUD, June Lake PUD, and Lee Vining PUD.

Earthquake and Seismic Hazards

- **Location:** All of Mono County is susceptible to the impacts of earthquakes.
- **Extent:** Severe intensity shaking level is the worst-case scenario for Mono County.
- **Impacts**: Major earthquakes could damage buildings, disrupt essential utilities, and isolate communities by damaging key roadways such as US 395.
- **Jurisdiction-Specific Vulnerabilities**:
  - Many homes in Mono County were built prior to 1990 and have not undergone seismic retrofitting.
  - Key government buildings such as the historic courthouse in Bridgeport are constructed of unreinforced masonry and may be inoperable post-event.

- Vulnerable populations, including people who speak English as a second language, may have difficulty accessing emergency notifications and evacuating.
- People living in vehicles or temporary housing on federal lands may lack structurally sound shelter and communications access.
- The Mono County populace may be unable to evacuate communities due to limited road access throughout the community.
- The local economy is vulnerable as damaged tourism infrastructure could result in loss of revenue and employment.

Energy Shortages and Energy Resiliency

- **Location:** All of Mono County is susceptible to emergency shortages and energy resiliency
- **Extent:** The System Average Interruption Duration Index measures the amount of time on average a customer is without power in a year due to sustained interruptions (measured in minutes per customer). The planning area can expect to experience regular intervals of power outages in any given year.
- **Impacts**: Energy outages disrupt critical infrastructure, including hospitals, telecommunications, and energy systems. Homes and businesses can have their daily lives impacted due to loss of power in the county. Those dependent on medical devices that use electricity may face a deterioration in their health or loss of life during prolonged periods without power. Water, sewer, and septic systems may not be operable unless the water/sewer provider has a backup power supply. Many communities within Mono County are on well and septic systems. Personal wells would not be operable without a backup power supply.
- **Jurisdiction-Specific Vulnerabilities**:
  - Heating and cooling systems would not be operable. Loss of power during winter is a significant health and safety concern due to freezing temperatures, unless structures are equipped with a woodstove or backup generator.
  - Residents who rely on powered medical devices are at risk during prolonged outages.
  - Limited local services and extended response times can increase vulnerability.
  - Energy shortages can displace visitors and reduce revenue for businesses dependent on consistent energy.

Epidemic/Pandemic

- **Location:** All of Mono County is susceptible to epidemic/pandemic events.
- **Extent:** The worst-case scenario for Mono County is a global pandemic.
- **Impacts**: Pandemics and epidemics can overwhelm Mono County's healthcare capacity, disrupt public services, and cause significant economic loss.

- **Jurisdiction-Specific Vulnerabilities**:
  - Northern Mono County communities have a high concentration of older adults who are more susceptible to severe outcomes and may have difficulty accessing vaccinations, testing, or treatment during a pandemic.
  - Many seasonal workers lack the ability to isolate or quarantine based on their living conditions.
  - Residents with disabilities or without personal vehicles may be unable to travel to testing, treatment, or testing sites.
  - Lack of access to healthcare due to limited availability of beds and lack of transportation networks could severely impact the population in Mono County.
  - Visitors may introduce novel pathogens or amplify diseases spread throughout the community.
  - Health and medical systems could quickly become overwhelmed during an epidemic/pandemic event due to limited capacity and increased tourist presence during peak tourism season.
  - Mono County's elevation makes recovery more challenging for some kinds of respiratory illnesses. Depending on the type of illness, health and medical systems may be less effective.

Extreme Heat

- **Location:** Extreme heat can impact areas at an altitude below 5,000 feet such as the Tri-Valley area which includes the communities of Benton, Hammil Valley, and Chalfant.
- **Extent:** The heat index, also known as the apparent temperature, is what the temperature feels like to the human body when relative humidity is combined with the air temperature (see Extreme Heat profile in base plan). The worst-case scenario for extreme heat is the category of danger with temperatures ranging up to 97°F.
- **Impacts**: Prolonged exposure to extreme heat can result in heat exhaustion, heat stroke, or even death. Extreme heat can degrade road infrastructure, reduce water availability, stress local power grids, and increase wildfire risk.
- **Jurisdiction-Specific Vulnerabilities**:
  - Heat-related stress on the power grid may trigger power supply events, disrupting power systems, compounding the vulnerability to the hazard of extreme heat.
  - Older adults in Mono County are at higher risk of heat-related illness due to age, limited mobility, and preexisting health conditions.
  - Individuals living in vehicles or temporary housing often lack access to air conditioning and heat-related safety information.
  - Critical facilities in Mono County can withstand heat but more services may be required in the event of a power outage.

Flood

- **Location:** The entire County is vulnerable to flooding. Notable flood prone areas such as Bridgeport, Antelope Valley, and low-lying zones near rivers and creeks. Walker, Coleville, and the Tri-Valley area which are situated along waterways and drainages, may be of particular risk.
- **Extent:** Flooding issues in Mono County have been the result of shallow, overbank flooding, within the 100-year flood zone. In the Tri-Valley specifically, flooding occurs when a storm cell does not leave the valley or returns multiple times, and the water running down the White Mountain escarpment collects in the valley.
- **Impacts**: Flooding can isolate entire communities by cutting off primary access roads, delaying emergency response, damaging public infrastructure and private property, and displacing residents.
- **Jurisdiction-Specific Vulnerabilities**:
  - Communities such as the Petersen Tract, White Mountain Estates in Chalfant, and Swall Meadows have limited road access, and floodwaters may isolate them.
  - Flooding from Meadowcliff in Antelope Valley impacts communities lower down in the watershed.
  - Flooding along Cunningham Lane from the Walker River washes out the road which impedes the Antelope Valley Fire Protection District's ability to respond to the area.
  - Visitors unfamiliar with flooding in the region may be caught off guard by fast-developing events.
  - Individuals living in vehicles, camping at established campgrounds, or temporary housing may lack adequate warning systems or shelter options.
  - Individuals camping at dispersed campsites are cut off from warning systems or outside support during a flood.
  - Antelope Valley along the West Walker River, Pickel Meadow, Bridgeport Valley along the East Walker River, the June Lake Loop, and the Tri-Valley area are at higher risk of flooding.
  - The Chalfant Valley Fire Station is in the 1% annual-chance flood zone and at risk of flooding. Flooding would cause at least moderate loss of use of the facility.

Landslide

- **Location:** Mono County is susceptible to the hazard of landslides in steep slope areas and burn scars on slopes.
- **Extent:** All landslide susceptibility classes are found in various locations throughout Mono County. All mass wasting movement types can be found in the County.
- **Impacts**: Landslides block critical roadways, disrupt emergency access, damage utilities and structures, including homes, and trigger cascading hazards. People can be injured or killed including along roadways.

- **Jurisdiction-Specific Vulnerabilities**:
  - Lee Vining is particularly susceptible to landslides with steep slopes north of the community leading to potential landslides along US 395, a critical thoroughfare. CA 120 from Lee Vining to Tioga Pass is also vulnerable to landslides and can further isolate the community.
  - US 395 is considered a lifeline through the county. Landslides on or near the roadway could impede traffic and disrupt travel throughout Mono County.
  - People traveling along US 395 and in communities with steep terrain are vulnerable.

Hazardous Materials

- **Location:** Along major transportation routes such as US 395 and in proximity to facilities storing or transporting hazardous materials. Hazmat transport through narrow, mountainous terrain presents elevated risk especially in areas such as the Walker River canyon and Mammoth Lakes.
- **Extent:** The Hazmat Warning System is used to communicate the severity of Hazmat incident levels. The Hazmat Warning System ranges from level 1 (Minor) to 5 (Catastrophic). The worst-case scenario for Mono County is a Hazmat incident level 5.
- **Impacts**: Hazmat events can post immediate health threats to the public, including toxic exposure and respiratory issues. They may also contaminate water sources, disrupt tourism, and burden the county's resources.
- **Jurisdiction-Specific Vulnerabilities**:
  - Limited access roads and a lack of alternative routes may trap residents in affected areas.
  - Mono County's senior population and those with disabilities may lack sufficient warning systems or transportation to evacuate safely in the event of a hazmat release.
  - Individuals living in vehicles or remote forested areas without formal infrastructure are less likely to receive timely alerts and may be located near transit routes used to transport hazardous materials.
  - Critical infrastructure along US 395 that could be impacted by a hazardous material spill includes the Mammoth Yosemite Airport, the Mono County Emergency Medical Center in Bridgeport, the East Walker River which leads into the Bridgeport Reservoir, the Antelope Valley Fire District Station #2, Topaz Center Fire District, Topaz Lake, and Mono Lake.

Severe Wind

- **Location:** All of Mono County is susceptible to the hazard of severe wind.
- **Extent:** The extent of severe wind can be classified using the Beaufort Wind Scale, which runs from force 1 (1–3 mph) to 12 (74+ mph). Mono County can expect to experience force 11 winds (54–73 mph) as a worst-case scenario.

- **Impacts**: Widespread power outages can occur along with structural damage, fallen trees, and flying debris due to severe wind. People may be injured or killed.
- **Jurisdiction-Specific Vulnerabilities**:
  - Lack of cell phone coverage in Mono County limits the ability to distribute emergency information quickly and effectively.
  - High profile vehicles like recreational vehicles are at risk of being blown over by high winds when traveling on exposed highways. In some circumstances, restrictions on high-profile vehicles and highway closures may occur due to severe winds.
  - Downed powerlines from high winds can spark severe fires, potentially damaging or destroying critical facilities and other structures.
  - Homes and businesses may experience power outages due to severe winds.

Severe Winter Weather and Snow

- **Location:** All of Mono County is susceptible to the hazard of severe winter weather and snow.
- **Extent:** The National Weather Service Winter Storm Severity Index (WSSI) and the Wind Chill Temperature Index are both used to indicate severity levels for winter weather and snow. The WSSI runs from minor impacts (slight inconveniences) to extreme impacts (substantial disruptions). The worst-case scenario for Mono County is an extreme WSSI storm.
- **Impacts**: Winter storms can isolate communities, cause structural damage, prevent mobility to basic services and emergency access, increase number of vehicle accidents, and disrupt utility services. These events stress emergency services and vulnerable populations.
- **Jurisdiction-Specific Vulnerabilities**:
  - Road closures prevent access to critical services, medications, and equipment repairs.
  - All communities in Mono County can be cut off from medical, food, or fuel supplies due to winter storms.
  - Electrical services can go out due to severe weather winter, which can down power lines.
  - Seniors are particularly vulnerable to cold exposure and service disruptions.
  - Highway closures hinder the ability of government staff to report to duty and emergency assistance to be provided.
  - Propane explosions can take place as a result of damage caused by snow and ice accumulation on pipelines.
  - Snow accumulation can obstruct and stress propane lines and roof vents potentially leading to dangerous carbon monoxide buildup.
  - The weight of snow accumulation can cause older structures to collapse.

- Transportation routes may be severely hampered due to snow and ice accumulation isolating communities.
- Rural communities, such as June Lake, are particularly susceptible to transportation disruptions due to limited backup power for gas stations and electric vehicle charging stations. Limited access in and out of these communities can be dangerous during winter conditions.

Volcanoes

- **Location:** Mono-Inyo Craters volcanic chain and Long Valley Caldera region with elevated exposure in Mammoth Lakes, June Lake, and other communities near geologically active areas.
- **Extent:** The Long Valley Volcanic Center is one of 18 "very high threat" volcanoes listed in a 2005 ranking developed as part of the National Volcano Early Warning System (NVEWS). The Mono-Inyo Craters volcanic chain would experience a worst-case scenario of a Volcanic Explosivity Index of 3. The Volcanic Explosivity Index quantifies volcanic eruptions by magnitude and intensity on a scale of 0 to 8.
- **Impacts**: Volcanic eruptions may require evacuations, air quality may deteriorate due to ash fall, infrastructure and property may be damaged, tourism may be disrupted, and major transportation corridors may be closed. Toxic inhalation of sulfur fumes may cause death.
- **Jurisdiction-Specific Vulnerabilities**:
  - Residents and visitors could experience the release of toxic gas causing injury or death.
  - Senior adults may be less mobile during evacuations.
  - All residents and visitors will face heightened health risks from ash and smoke inhalation.
  - Tourists and recreationists in affected areas may be unfamiliar with evacuation procedures.
  - Older buildings and critical infrastructure lacking air filtration systems may be at risk.
  - Local economies dependent on outdoor tourism[236] could experience prolonged closures.
  - Mono County could be called upon to support the Town of Mammoth Lakes which could experience catastrophic damage due to volcanic release.
  - Medical systems could be quickly overwhelmed.

Wildfire

- **Location:** All of Mono County is susceptible to the hazard of wildfire.

[236] Mono County. "Profile of Mono Visitors & Economic Impacts of Tourism," 2019. https://monocounty.ca.gov/sites/default/files/fileattachments/economic_development/page/31221/mono_co_2018_visitor_econ_imp_study_report.pdf.

- **Extent:** About a third (34%) of Mono County is located in the High (14%) and Very High (20%) wildfire severity zones.
- **Impacts**: Wildfires can result in widespread evacuations, structure losses, health impacts due to smoke and ash, utility outages, road closures, and economic disruptions.
- **Jurisdiction-Specific Vulnerabilities**:
  - County government buildings in Bridgeport are not fire-hardened and house critical services.
  - Fires can impact historical landmarks and recreational land across the County.
  - Prolonged smoke events impact the County's tourism, recreation, and agricultural sectors.
  - Vulnerable populations, including people who speak English as a second language, may have difficulty accessing emergency notifications and evacuating.
  - Individuals camping and living in remote forest land may lack consistent access to fire alerts and emergency services. Depending on their living situation they may also experience poor air quality in their living structure from smoke and ash.
  - Transportation routes in the County run through fire-prone areas and can easily get burned over. This includes US 395, SR 158, US 6, Sweetwater Road, and SR 89, among others. This can damage the road and disrupt transportation throughout the County.

Wildlife Collisions

- **Location:** Transportation corridors such as US 395 and SR 203 between Crowley Lake and the Town of Mammoth Lakes.
- **Extent:** Due to its remote location, Mono County is highly susceptible to the potential for wildlife collisions. While there is no universal scale for wildlife collisions, a hot spot analysis of vehicle collisions with mule deer ranked very high along the southern portions of US 395 just south of Mammoth Lakes and in the northern part of the County just west of Bridgeport.
- **Impacts**: Impacts include injury or loss of human life, damage to vehicles and infrastructure, disruption of traffic flow on key routes, and harm to local wildlife populations.
- **Jurisdiction-Specific Vulnerabilities**:
  - Tourists unfamiliar with areas of wildlife crossing, driving in remote areas, or Mono County's topography are at elevated risk.
  - Anyone traveling in Mono County in a vehicle is vulnerable to damage from wildlife collisions.
  - Mono County's diverse wildlife such as deer, bears, and other animals are at an increased risk of being struck by a vehicle along roadways such as US 395.
  - Collisions can temporarily close roadways.

Jurisdiction-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each jurisdiction since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the jurisdiction), conditions that may affect the risks and vulnerabilities of the jurisdictions (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 112 lists the changes in development for Mono County.

Table 112: Mono County Changes in Development

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
Avalanche	State Law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mono County's avalanche conditional development areas.	Potentially increases population in these areas	Climate change is exacerbating this hazard.	Increased
Dam Failure	None	None	Climate change	Stayed the same
Disease and Pest Management	None	None	Climate change	Increased
Drought	None	None	Climate change	Increased
Earthquake and Seismic Hazards	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mono County.	None	None	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
Energy Shortages and Energy Resiliency	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the structures using electricity in the County.	None	Climate change	Increased
Epidemic/Pandemic	During the pandemic, second homeowners chose to stay in the Eastern Sierra, which increased the regional population and strained local resources. The pandemic fundamentally changed the housing market during the work from home "Zoom Cabin" trend which increased the pace of local development and decreased the housing options available locally.	Increased population	Climate change	Increased
Extreme Heat	None	None	Climate change	Increased
Flood	Agricultural Land Use Districts have been amended to allow for emergency shelters pursuant to state law. Some agricultural parcels, especially in Tri-Valley, may have flooding issues. However, any new structures built would	None	Climate change	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
	need to comply with flood design.			
Landslide	None	None	None	Stayed the same
Hazardous Materials	None	None	None	Stayed the same
Severe Wind	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mono County.	None	Climate change	Increased
Severe Winter Weather and Snow	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mono County.	None	Climate change	Increased
Volcanoes	None	None	None	Stayed the same
Wildfire	Changes to that State Minimum Fire Safe Regulations (setbacks, emergency water, and road/access standards) and the conflict of those regulations with State ADU streamlining law. Changes to ADU state law that increases habitable structures in fire hazard areas and provides for a reduction in setbacks to 4' (as opposed to	None	Climate change	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
	the BOF standard of 30')			
Wildlife Collisions	Wildlife crossings are in the planning phase for hot spot areas	Increased traffic from tourism/ recreation	Climate change	Decreased, two under crossings installed near Sonora Junction.

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help to carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision-makers determine feasible mitigation actions. Mono County assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 113: Mono County Plans

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	Yes	The Mono County Safety Element outlines goals, policies and implementation measures designed to reduce the risk from locally significant natural hazards to an acceptable level. The Mono County Housing Element outlines the housing needs and policies for providing safe housing opportunities.	2021 – The next update of the Safety Element is tied to the adoption of the 2026 MJHMP. 2019 – The Housing Element is now on an eight-year cycle that corresponds with the Regional

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
			Transportation Plan updates, meaning this document applies until 2027.
Capital Improvement Plan	Yes	The plan is dynamic in nature and changes year to year as priorities, needs and funding change. The CIP is a guide for the consideration, selection and development of; roads, sewers, water systems, bike lanes, sidewalks, MUP's, parking, parks, airports, offices and other types of facilities necessary to provide communities with services. The projects include significant maintenance and replacement of existing infrastructure and facilities and construction of new facilities and infrastructure.[237]	An updated 5-year CIP was developed in 2025. The plan is reviewed and revised annually.
Climate Change Adaptation Plan	Yes	The purpose of the "Mono County Resource Efficiency Plan" (REP) is to identify sources of GHG emissions occurring in the unincorporated county and to establish policies and programs that reduce emissions within the County's jurisdictional or operational control. These sources include energy use, water consumption, transportation, waste disposal, and agricultural practices.	2022 – Next update in 2027. https://monocounty.ca.gov/sites/default/files/fileattachments/planning_division/page/5732/mono-county-may-2022-rep.pdf
Community Wildfire Protection Plan	Yes	Risk Assessment – The CWPP evaluates wildfire risks by mapping hazardous areas, fuel loads, weather patterns, and past fire incidents. Prioritizing Areas for Treatment – It identifies high-risk zones and prioritizes where mitigation efforts—such as fuel reduction or	2019 – Next update in 2026.

[237] Mono County. "Mono County Capital Improvement Plan 2025," 2025. https://monocounty.ca.gov/sites/default/files/fileattachments/county_administration/page/34200/cip_mono.pdf.

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		defensible space creation—should be focused. Guiding Fuel Reduction Projects – The plan outlines vegetation management strategies, such as prescribed burns, thinning, and clearing brush near homes and infrastructure. Strengthening Building and Land Use Policies – It may recommend building codes, defensible space regulations, and zoning changes to reduce wildfire vulnerability. Enhancing Emergency Response Planning – CWPPs improve evacuation planning, emergency responder coordination, and firebreak construction. Community Education and Outreach – They support public awareness programs that teach residents how to protect their properties and prepare for wildfires. Securing Funding and Resources – Many grants and funding opportunities require a CWPP. Having one in place helps communities apply for federal and state wildfire mitigation funds. Collaboration with Stakeholders – The plan brings together local governments, fire departments, landowners, and agencies like the US Forest Service to ensure coordinated efforts.	
Economic Development Plan	Yes	Climate Change and Hazard Mitigation are analyzed and discussed in the Comprehensive Economic Development Strategy	2024 – Next update in 2029.

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		(CEDS) 2024-2029 Sierra Region Eastern.[238]	
Land Use Plan	Yes	Mono County Land Use Element discusses and analyzes natural hazards and outlines policies for development. Natural hazards in the county include fault zones, flood zones, volcanic hazard areas, steep slopes, fire hazard areas, debris-reflow areas, and avalanche-prone areas. Information on the county's environmental resources and natural hazards is contained in the MEA, along with maps showing the location of those resources and hazards.	2023. Update: Annually as needed.
Local Emergency Operations Plan	Yes	**1. Risk Identification and Planning** The LEOP includes a hazard analysis to identify vulnerabilities in the community. It helps prioritize mitigation projects such as flood control, wildfire prevention, or infrastructure strengthening. **2. Emergency Response Coordination** The plan establishes roles and responsibilities for emergency responders, local agencies, and community leaders. Ensuring efficient communication systems and response strategies can minimize future risks. **3. Infrastructure and Land Use Planning**	2012 – Next update in 2025/2026

[238] Eastern Sierra Council of Governments. "Comprehensive Economic Development Strategy (CEDS) 2024–2029 Sierra Region Eastern." Eastern Sierra Council of Governments, 2024. https://monocounty.ca.gov/sites/default/files/fileattachments/economic_development/page/767/eastern_sierra_region_ceds_final.pdf.

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		The LEOP can guide long-term planning decisions to reduce hazard exposure (e.g., restricting development in floodplains or fire-prone areas). It can support building codes and retrofitting projects to make structures more disaster-resistant. **4. Public Awareness and Education** The plan includes strategies for educating residents on preparedness, evacuation routes, and hazard mitigation. Community drills and outreach programs help ensure people take proactive steps to protect themselves. **5. Funding and Resource Allocation** Many federal and state mitigation grants require a formal emergency plan. Having an LEOP in place makes it easier to secure funding for projects like flood barriers, firebreaks, or early warning systems.	
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	Yes	Mono County Regional Transportation Plan (RTP) is a policy planning document that outlines the current status and recommended upgrades to the transportation system in Mono County.	2024 - The RTP is updated on a 4-year cycle.
Substantial Damage Plan	No	N/A	N/A
Other? (Describe.)	No	N/A	N/A

Table 114: Mono County Regulations and Ordinances

Plans	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – 2022 California Building Standards Code with local modifications.	Yes	2022 – Every 4 years as required by the State.
Flood Insurance Rate Maps	Yes	Yes	December 2012
Floodplain Ordinance	Yes	Yes	The Floodplain ordinance is contained in the Mono County General Plan, Land Use Element. The Land Use Element is updated annually as needed.
Subdivision Ordinance	Yes	Yes	1995 – Updated as needed.
Zoning Ordinance	Yes	Yes	Integrated into the Land Use Element in 2023 – updated as needed.
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	The Mono County General Plan, Land Use Element contains Chapters on Floodplain Management (Chapter 21) as well as Fire Safe Regulations (Chapter 22). The Safety Element contains regulations and policies regarding natural hazards. The Safety Element is updated in connection with MJHMP update and the Land Use Element is updated annually as necessary.
Acquisition of Land for Open Space and Public Recreation Use	The acquisition of land for open space and public recreation use is contained in several	Yes	Mono County Conservation/Open Space Element was updated in 2020.

Plans	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
	plans including Mono County Conservation/ Open Space Element, Mono County General Plan Land Use Element, Mono County Regional Transportation Plan,[239] and June Lake Loop Active Transportation Plan.[240]		The Land Use Element was updated in 2023. These two elements are updated as needed. The Regional Transportation Plan was updated in 2024 and will be updated again in 2028. The June Lake Loop Active Transportation Plan was completed in 2023. It will be updated as needed.
Prohibition of Building in At-Risk Areas	There is currently no ordinance addressing building in at-risk areas but it is addressed within the Mono County Safety Element.	Yes	Mono County Safety element was updated in 2021. It is updated as needed.
Other? (Describe.)	No	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They also include tools that can help you carry out mitigation actions.

[239] Mono County Local Transportation Commission "2024 Regional Transportation Plan," 2024. https://www.monocounty.ca.gov/sites/default/files/fileattachments/local_transportation_commission_ltc/page/4857/2024_rtp_w-appndx_v12-09-24_adopted.pdf.

[240] Mono County Community Development. "June Lake Loop Active Transportation Plan," February 2023. https://monocounty.ca.gov/sites/default/files/fileattachments/planning_division/page/32106/june_lake_loop_atp_final_2023.02.23.pdf.

Table 115: Mono County Administrative Capabilities

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	Yes	Yes	Yes	Yes
Civil Engineer	Yes	No – open, unfilled positions remain.	Yes	Yes
Community Planner	Yes	Yes	Yes	Yes
Emergency Manager	Yes	Yes	Yes	Yes – but it can always be improved.
Floodplain Administrator	Yes	Yes	Yes	Yes
Geographic Information System (GIS) Coordinator	Yes	Yes	Yes	Yes
Planning Commission	Yes	Yes	Yes	Yes
Fire Safe Council	Yes – Community specific	Yes	Yes	Yes
CERT (Community Emergency Response Team)	Yes – Antelope Valley only	Yes	Yes	Yes
Active VOADs (Voluntary Organizations Active in Disasters)	Yes	Yes	Yes	Yes
Other? (Please describe.)	No	N/A	N/A	N/A

Table 116: Mono County Technical Capabilities

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Yes, Community Development staff applied	Include relevant information in the MJHMP and include

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
		for funding to update our MJHMP.	projects/policies that may be funded by a future mitigation grant.
Hazard Data and Information	Yes	Mono County GIS has assembled layers in an Open Data portal for public access. In addition, they create datasets/maps at request for County departments related to specific types of hazards (avalanche, wildfire, PSPS, etc.).	Data and maps could be developed to inform the public as well as relevant County departments on policy or how to best provide public services (snowplow operation/priority, etc.).
GIS	Yes	Mono County GIS has assembled layers in an Open Data portal for public access. In addition, they create datasets/maps for local disaster events to assist with mitigation and public outreach.	Many of the dataset/layers and maps are being used as part of the 2026 MJHMP update.
Mutual Aid Agreements	Yes	Mono County participates in California's Master Mutual Aid system as part of the state's "Operational Area" emergency management structure All local fire agencies in the county – including 11 fire protection districts and the Mammoth Lakes Fire Department – operate under a countywide mutual aid agreement. In 2019, this agreement was expanded to include the MWTC Fire Department as a full partner, reflecting the Marines' commitment to assist the region. Under these agreements, any significant incident can trigger a coordinated multi-agency response, with	**1. Expand Joint Risk Assessments** <u>Wildfire Modeling and Mapping:</u> Mono County could deepen collaboration with MWTC and local fire districts to create shared, high-resolution wildfire risk maps using modern modeling software (e.g., FlamMap, WUI risk modeling). MWTC has geographic data, backcountry access, and training area maps that can enrich these models. Joint teams could update community wildfire protection plans based on fuel loads around base housing, training lands, and

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
		neighboring fire districts, county resources, state/federal agencies, and MWTC assets all available to help. The MWTC's on-base Fire Department, established in 1953, regularly provides fire suppression, rescue, and emergency services "to surrounding jurisdictions through mutual and automatic aid agreements." This formal framework sets the stage for seamless cooperation when emergencies strike, and it also facilitates joint planning and training.	neighboring towns like Coleville and Walker. All-Hazards Vulnerability Studies: Conduct joint hazard analyses for earthquakes, flooding (post-fire debris flows especially), avalanches, and mass casualty incidents. Example: MWTC could help survey vulnerabilities in its areas (e.g., single-access roads, critical facilities) that also affect nearby civilian communities. **2. Enhance Pre-Incident Planning** Unified Evacuation Plans: Create detailed, practiced evacuation plans for each Mono County town that integrate MWTC housing and facilities into local sheltering and evacuation strategies. Marines could assist civilian agencies with emergency traffic control or shuttling residents during an evacuation (they already train for mobility operations). Mutual Aid Strike Team Pre-Designation: Form standing wildfire strike teams composed of Mono County engines and MWTC Fire crews, pre-assigned during red flag days. Having these teams ready improves speed if a fast-spreading fire starts.

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
			3. Increase Joint Training and Exercises Large-Scale Interagency Drills: Expand annual wildfire training to include multi-scenario drills including wildfire combined with mass evacuation, communications loss, or simultaneous medical emergencies. MWTC can offer its rugged training areas for realistic drills. Example: Simulating a large earthquake causing wildfires and damaging US 395 infrastructure, forcing complex interagency coordination. Specialty Rescue Training: MWTC's expertise in high-angle and cold weather search-and-rescue could be tapped to jointly train Mono County SAR teams and fire departments, strengthening response to mountain emergencies. **4. Expand Technology and Equipment Sharing** Shared Use of MWTC Equipment: MWTC has specialized assets (snowcats, satellite communications, bulk water tanks, firefighting apparatus) that could be pre-positioned for countywide use during expected severe events (e.g., big winter storms, red flag wildfire days).

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
			Drone and Air Recon Partnerships: MWTC's drone pilots and aircraft assets could assist Mono County fire agencies in early detection, fire mapping, or SAR operations using UAVs and manned aircraft. **5. Formalize Emergency Support Roles for MWTC** MOUs for Support Functions: Create specific agreements for MWTC to assist Mono County not only with firefighting, but also communications relay during outages (using military radios/satellites), heavy equipment operations (e.g., debris removal after landslides), shelter management support (using MWTC's logistics capacity). **6. Build Community Resilience Together** Community Wildfire Prevention Campaigns: MWTC personnel could partner with Mono County Fire Safe Councils for fuel reduction projects, public education (e.g., door-to-door outreach on defensible space), and seasonal readiness fairs. Local CERT and Volunteer Programs: Off-duty MWTC Marines could be recruited into Community Emergency Response Teams (CERTs) during their time stationed

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
			there, dramatically boosting local volunteer emergency response capacity.
Other? (Please describe.)	No	N/A	N/A

Financial

Financial capabilities are the resources to fund mitigation actions.

Table 117: Mono County Financial Capabilities

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Unknown	Yes	Yes
General Funds	Yes	Unknown	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Yes, to fund the updates to the MJHMP in 2019 and 2026.	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	No	No	No	No
Flood Mitigation Assistance (FMA)	Yes	Yes, to provide sandbags for flood diversion.	Yes	No
Public Assistance Mitigation (PA Mitigation/406)	No	No	Yes	No
Community Development Block Grant (CDBG)	Yes	Y, for the Mono County Special District Needs Assessment.	Yes	No

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Natural Resources Conservation Services (NRCS) Programs	No	No	Yes	No
US Army Corps (USACE) Programs	No	No	Yes	No
Property, Sales, Income, or Special Purpose Taxes	Yes	This is the primary source of funding for County governmental activities	Yes	Yes
Stormwater Utility Fee	No	No	No	No
Fees for Water, Sewer, Gas, or Electric Services	No	No	No	Mono County does not provide water, sewer, gas or electrical service. If a future partnership is created with special districts or utility companies, this would be a potential source of local match.
Impact Fees from New Development and Redevelopment	Yes	Mono County currently has a Housing Mitigation Ordinance in place (circa 2019). Fees are gathered and placed in an affordable housing fund.	Unknown. The language below governs the use of the funds: "All HMO fees collected are deposited into the Mono County Affordable	Unknown

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
			Housing Fund, which is administered by the Mono County Board of Supervisors to implement housing programs with a focus on those identified as priorities, as well as other programs that meet housing needs through acquisition, rehabilitation, preservation, or subsidy."	
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federally Funded Programs (Please describe)	Yes – Homeland Security Grant Program (HSGP) and Emergency Management Performance Grant (EMPG)	Office of Emergency Management Staffing, Homeland Security Mitigation	Yes - HSGP	Yes - EMPG
State-Funded Programs (Please describe)	Yes – Wildfire Mitigation Coordinator	Firewise, home hardening, public education	Yes	Yes
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A
Other?	No	N/A	N/A	N/A

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction.

Table 118: Mono County Education and Outreach Capabilities

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	Yes	Yes, when relevant projects are in process.	These newsletters are disseminated by the Mono County Regional Planning Advisory Committees and Local Transportation Commission.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	Firewise is the primary hazard awareness campaign in the County.
Public Meetings/Events (Please describe.)	Yes	No	
Emergency Management Listserv	Yes	Yes	Information goes out through the Ready Mono emergency system.
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	Yes	Yes	Yes, hard copies of notices are posted in local libraries and Community Development uses every door direct mailers for certain projects (ex: MJHMP update, a General Plan Update or specific development project).
Insurance Disclosures/Outreach	Yes	Yes	The Ready Mono website hosts disclosures on fire insurance.
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	Yes	No	Inyo Mono Advocates for Community Action, Inc. (IMACA) "IMACA's mission is to ease the impact of poverty by supporting and empowering vulnerable people through respectful action. Our vision is to support, empower, and advocate for vulnerable populations in the Eastern Sierra.

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
			Mono County Access and Functional Needs (AFN) Registry - This registry website allows residents with access and functional needs an opportunity to provide information to emergency response agencies so those agencies can better serve them in a disaster or other emergencies. Child Abuse Prevention Council (CAPC) - The Mono County CAPC was established in November, 2001. The rural and isolated characteristics of Mono County significantly influence the availability of child abuse prevention services and resources. As such, the Mono County CAPC identified four areas of need to allocate child abuse prevention grant funds. CodeRed Emergency Alert System - This system is a database of resident and citizen information for use only in critical and emergency situations. The CodeRed System is used to send critical communications from evacuation notices to hazardous weather alerts to missing children alerts. Wild Iris – Local non-profit dedicated to promoting a safer community by empowering and restoring the independence of those affected by domestic violence, sexual assault and child abuse. Our vision is for non-violent relationships based on dignity, respect, compassion and equality. Our service area is all of Inyo and Mono Counties, including Death Valley and Tecopa

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
			regions and Coleville/ Walker, north to the Nevada state line.
Social Media (Please describe.)	Yes	Yes	Facebook, Instagram, and X
Other? (Please describe.)			

Ability to Expand and Improve Existing Capabilities

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The County Planning and Regulations would like to develop a new Community Wildfire Protection Plan (CWPP) as the prior plan is outdated.
Administrative and Technical	Mono County will continue to work to advance administrative and technical knowledge. This includes expanding the functions of a dedicated Office of Emergency Management at Mono County.[241]
Financial	The community has never utilized the Pre-Disaster Mitigation or Flood Mitigation Assistance grant programs. New grant writing staff could support the Emergency Manager in applying for this program.
Education and Outreach	Mono County will continue to work to advance education and outreach. One method to improve hazard mitigation education is through the new StoryMap site for this hazard mitigation plan update. Posting action updates and relevant hazard information will help the public stay up-to-date on their risks and what they can do to address them.

National Flood Insurance Program Capability Assessment

The National Flood Insurance Program (NFIP) is a FEMA program that provides flood insurance to millions of policyholders across the country. The plan must describe participation in the NFIP for each participant, as applicable, in accordance with NFIP regulatory requirements. Mono County participates in the NFIP.

[241] Mono County. "Mono County Strategic Plan Update 2022-2024," 2022. https://monocounty.ca.gov/sites/default/files/fileattachments/county_administration/page/32582/mono_county_strategic_plan_2022-09-01.pdf.

Table 119: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Mono County General Plan, Land Use Element, Section 21.140 Designation of floodplain administrator: The Public Works director is hereby appointed as Floodplain Administrator and authorized to administer and implement this chapter by granting or denying development permit applications in accordance with its provisions.
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Generally, yes. Training on how to acquire new flood studies and initiate map revision could be useful
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Mono County, General Plan, Land Use Element, Chapter 21, Section 21.090 Compliance: No structure or land shall hereafter be constructed, located, subdivided, extended, converted or altered without full compliance with the terms of this chapter and other applicable regulations. Violations of the provisions of the chapter by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Nothing herein contained shall prevent the Board of Supervisors from taking such lawful action as is necessary to prevent or remedy any violation.
Have there been any changes in your community floodplain management program since the last version of the plan in 2020?	No
When was the community's most recent Community Assistance Visit (CAV)?	June 26, 2020
Were any violations noted on the community's most recent CAV?	No
When was the most recent floodplain management ordinance adopted?	October 1, 2024. The County's floodplain rules are contained in its General Plan, and not in a stand-alone ordinance.
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No, the County does not participate in the CRS program.
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No

Question	Response
Who is responsible for permitting?	Floodplain Administrator
How does the community issue development permits in the special flood hazard area?	Mono County General Plan, Land Use Element, Section 21.130 Establishment of development permit: A development permit shall be obtained before construction or development begins within any area of special flood hazards established in Section 21.080. Application for a Development Permit are made on forms furnished by the Floodplain Administrator. The Floodplain Administrator is responsible for issuing permits.
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes, but there are no discernable trends.
How many repetitive loss (RL) structures does the community have? (List number and type of structure.)	1 – Commercial
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure.)	0
Have any RL/SRL properties been mitigated since the last plan update?	Flood damage was sustained by the facility in 1991 but was rebuilt and continued operating. They also sustained damage in 2017 and 2019 however the facility is located on US Forest Service land so Mono County does not have land use authority.
Who is responsible for making substantial damage/substantial improvement determinations?	The Floodplain Administrator and Building Official determines substantial improvement and substantial damage assessments.
How does the substantial damage/substantial improvement process work in your community?	For structures in the Special Flood Hazard Area, when the owner applies for a permit they must provide the market price of the house and the cost of the damage or improvement to the Building Official or the Floodplain Administrator. One of those officials makes the determination of substantial improvement or damage. The owner can bring the determination and apply to the Mono County Planning Commission for a variance.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial	All floodplain related requirements are conveyed to individual building permit applicants by the floodplain administrator.

Question	Response
improvement requirements messaged to the public before and after an event?	
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	Yes
How will the community remain in compliance with the NFIP moving forward? (Simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements.)	All development proposals, building permits and remodel permits for locations related to flood and have added and will continue to work with new flood permit processes that forces conformance with FEMA Guidelines, requirements and insurance policies.

Table 120: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	Some individual homebuilders have successfully completed Letter of Map Revision-Based on Fill, working with FEMA. We could use training on how to properly request or initiate new flood insurance studies, or map revisions.
When did the latest Flood Insurance Rate Map (FIRM) become effective?	December 2012
When was the latest FIRM adopted?	June 2012
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Public Works sends FIS, FIRMs and create floodplain determinations upon request.
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Public Works has collected data during recent flood events, and would share it if requested.
Other comments?	None

Table 121: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	The floodplain administrator discusses floodplain-related requirements with building permit applicants. When new flood maps went into effect in 2011-2012, there was a mass-mailing outreach effort to inform property owners of the changes, and the availability of flood insurance. The County is not currently involved in advising about the procurement of insurance.
How does the community engage with insurance agents on flood insurance?	We provide any FEMA elevation certificates that have already been submitted by the owner.
Does the community (or state) have flood hazard disclosure laws?	New subdivisions within Special Flood Hazard Areas (SFHA) must have the SFHA extents shown on the map
How familiar is the public with their flood insurance options?	This information is available online. During some FIRM map updates flyers and pamphlets have been sent out by Mono County. Mono County provides information as requested to guide owners through the process.
How many properties have flood insurance in the community?	This information is not provided to Mono County Public Works
Are there any areas where flood insurance is lacking?	This information is not provided to Mono County Public Works
Other comments?	None

Mono County 2026–2031 Mitigation Strategy

The mitigation strategy is often known as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities reflects an ongoing process to identify, analyze, and address hazards of concern. The strategy is comprised of goals (included in the base plan), actions, and the mitigation action plan. The goals for this plan are as follows:

- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- GOAL 2. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- GOAL 3. Prepare for changing climate conditions in Mono County.
- GOAL 4. Maintain adequate emergency response capabilities.

- GOAL 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole community approach to response, recovery, and mitigation.
- GOAL 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- GOAL 7. Study and implement mitigation actions to address potential impacts of compounding hazards such as flood following wildfire.
- GOAL 8. Utilize the mitigation planning process as a call to action demonstrating plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

Documenting the status of the actions identified in the plan helps show progress in implementing mitigation measures. At the same time, it provides the opportunity to reevaluate priorities and resources, as well as lessons learned which can be captured and utilized during future mitigation action development and implementation. For this plan updated, the plan participants reviewed all of the actions identified in the previous plan and indicated whether the action has been completed or not. The numbers match the numbers in the prior plan, as written. There are 33 actions that are retained in the plan, 17 completed or no longer relevant, and 16 not retained due to feasibility, jurisdiction, or duplication.

Table 122: Mono County Mitigation Actions

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
Multiple Hazards					
1.1	Local Power Grid Vulnerabilities and Malfunctions Coordination	When known, notify SCE of vulnerabilities and malfunctions in the local power grid and support efforts to make the power grid more resilient to hazard events and reduce fire risk. Such efforts could include undergrounding line segments prioritized by feasibility, community vulnerability to power loss, and locational risk of fire.	SCE	Ongoing, SCE has completed work, and has more planned, to harden their power grid, improve resiliency, reduce fire risk (vegetation thinning), and improve hazard notifications. Undergrounding is not an attractive option due to costs and sometimes environmental constraints.	N
1.2	California Radio Interoperability System (CRIS)	Study available alternative emergency communications technologies that may provide more reliable service than	Radio Governance Committee; Mono County Information Technology	Joined the California trunked system to improve radio communication	Y

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		existing radio communications technology in use.			
1.3	Emergency Evacuation Routes for home or Accommodation Rentals.	Require individuals and companies that provide home or accommodation rentals to clearly post available emergency evacuation routes for guests.	Community Development	Completed. Requirement for this is incorporated into Mono County General Plan, Land Use Element, Chapters 25 and 26 as well as Mono County Code Chapter 5.65. Emergency evacuation routes for short-term rentals are required to be posted and submitted during the initial approval and annual short-term rental renewal process.242	No, this requirement is included in Mono County's short-term rental code and is part of the approval and renewal process.
1.4	Increase Accuracy of "Estimate Losses" Data	Collect parcel-specific information necessary to complete a more accurate "estimate losses" for inclusion in the next LHMP update. The County and Town should inventory existing	Community Development, Information Technology, Assessor's Office	Ongoing. Mono County collects all of this data except replacement values for new construction. CDD is not involved in real estate transactions or assessments and	Yes, but with the removal of inventory of existing structures

[242] Mono County Short-Term Rental Study. "Mono County Short-Term Rental Housing Study," 2024. https://monocounty.ca.gov/sites/default/files/fileattachments/planning_division/page/5732/mono_county_short_term_rental_study_final2.pdf.

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		developments to obtain the following data: types of structures, construction types, building sizes, building footprints, structure values, and replacement values. Incorporate data into a geographic information system (GIS) and related databases.		therefore has no information about replacement values. Inventorying existing structures is resource prohibitive. Our "structure values" are based on building permit valuations, which do not necessarily reflect market rate value.	
1.5	Expanding Cell and Radio Coverage and Interoperability	Continue to work with state and federal agencies and wireless providers to expand and improve coverage and interoperability of cell and radio service throughout the County.	Sheriff's Office, Police, Fire, and EMS, private wireless companies IT	Combined with measure 1.2	No
1.6	Emergency Access Route Prioritization	For communities with only one access route, evaluate options to provide an emergency access route, prioritized based on multi-hazard risk to existing access. Design and create the alternative access route(s) if an option is chosen and if funding and resources are available.	Public Works, OEM	Ongoing, progress has been made on the Swall Meadows access route. Petersen tract in June Lake is the next priority.	Yes
1.7	GENASYS emergency alerting software	Provide information to community members during	Sheriff's Office, Police, Fire, and OEM, PIO	Completed and currently operational.	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		emergencies through the following media: 1) coordinated through Public Information Officer (PIO); 2) local radio in English and Spanish; 3) reverse 911; 4) Internet; and 5) local phone trees.			
1.8	Emergency Supplies	Each department should have emergency supplies, including, at minimum, drinking water and MREs (meals ready to eat) to support its personnel for 24-48 hours.	Sheriff's Office, Administration OEM	Deleted, no longer necessary.	No, supplies are cached throughout the county and private household emergency supplies are encouraged through the Ready Mono program.
1.9	Hazard Assessment Studies for Major Development Projects	Require applicants for major development projects to conduct hazard assessment studies and to design new or significantly retrofitted structures to be resilient to identified priority hazards in this plan.	Community Development	Completed, this is required of development applicants.	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
1.10	Procedures for Access to Hazard Areas	Develop procedures that allow public infrastructure and service personnel with appropriate identification to access areas affected by a hazard event that has been deemed safe to assist in response and early recovery activities. Incorporate procedures in the Emergency Operations Plan upon its next update.	Sheriff's Office, Police, Fire, and OEM, Public Works	Complete	No
1.11	Community Evacuation Options Analysis	In communities with limited evacuation options, review residents' ability to obtain shelter within their community. For areas that do not have a suitable shelter location, evaluate locations for creating one and work with local resident groups and emergency response providers to do so.	Sheriff's Office, OEM	Deferred due to lack of staff available for implementation.	Yes
Wildfire					
2.1	Defensible Space Improvement Prioritization	For communities and neighborhoods identified to be at the highest fire risk, complete a parcel-level analysis.	Information Technology, OEM	Deferred due to lack of staff available for implementation.	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		Incorporate it into a GIS system and use it to prioritize parcel-level defensible space improvements. Upon completion of the analysis, update the CWPP to incorporate information.			
2.2	Countywide Hazard Coordinator	Create a countywide hazard coordinator position to coordinate development of mitigation and response plans, coordinate community group efforts and public outreach efforts, enable communications to and between volunteer fire and first-response departments, and pursue funding opportunities.	OEM	Complete and funded through FY2026	No
2.3	Increase Visibility of "Fire Awareness" Sign	Request Caltrans to install more and higher-visibility "fire awareness" signs along major highways to inform the public of the current fire danger and promote fire prevention.	Public Works, Community Development	Deleted. Beyond the jurisdiction of Mono County.	No
2.4	Emergency Water Capacity Improvement	In communities with outdated or inadequate water storage and pressure for firefighting, work with local fire	Local Fire Departments, private property owners	Ongoing. Currently, water tanks are required in Swall Meadows and Long Valley.	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		departments to fund, site, permit, and install new tanks and related facilities.			
2.5	Support Public Outreach and Education	Support efforts by Fire Safe Councils and community groups to promote fire prevention, fuel treatments, invasive species control, and defensible space in the WUI and assist in identifying and pursuing funding opportunities to complete these activities.	OEM, Fire Wise or Fire Safe community groups	Ongoing, CDD currently provides the forum (Regional Planning Advisory Committees) for initial organization of Fire Safe Councils.	Yes
2.6	Community Level Fire Plan Development	Develop community-level fire plans for all communities with the highest fire risk, utilizing resources and assistance from the California Fire Alliance.	Fire, Police, and OEM	Ongoing	Yes
2.7	Homeowner Fire Prevention Public Outreach	Educate homeowners about forest health, fire prevention, and home defense and distribute information on fire prevention resources.	Fire, Police, and EMS, Community Development, OEM	Combined with measure 2.5	No
2.8	Building Permit WUI Disclosure	Ensure that wildland fire hazards are disclosed during the building permit process,	Community Development	Complete. WUI standards are enforced in all building permits.	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		emphasizing properties in the WUI zone.			
2.9	Encourage Participation in Fuels Reduction Programs	Encourage local landowners to participate in state and federal programs for fuel reduction on private property, such as the CAL FIRE Vegetation Management Program, CAL FIRE Hazardous Fuel Reduction Program, and BLM Wildland Urban Interface Grant Awards program.	CalFire, BLM (the responsible agencies should encourage participation. CDD can help spread the word), OEM	Ongoing	Yes
2.10	Support Federal Agencies Invasive/ Destructive Pests Control Efforts	Support efforts by the US Forest Service, the Bureau of Land Management, and other landowners to control or eradicate invasive and/or highly destructive forest pests.	Community Development	Deleted. This action is rolled into Action 58.	No
2.11	Support Local CWPP Project Priorities	Support measures and project priorities established in the Swall Meadows and Paradise CWPP with the same force and effect as other measures established in this plan (as well as all future CWPPs).	Fire Protection Districts, Community Development OEM	Complete. CDD applies adopted regulations equally throughout the county.	No
2.12	Grant Program Development for	Develop a grant program that provides residents who own older, non-compliant WUI	Community Development	Deleted. This action is cost prohibitive.	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
	Non-Compliant WUI Structures	structures the opportunity to make the exteriors code compliant.			
2.14	Increase Cheatgrass Awareness	Increase awareness, management, and control of cheatgrass (Bromus tectorum) to reduce ignition and fire spread.	Inyo-Mono Agricultural Commissioner	Deleted. Included in public outreach actions.	No
2.15	Preparations for Wildfire Smoke	Prepare for the health impacts of smoke from wildfires, including designating clean air shelters in additional communities as needed and notifying residents of their locations.	Public Works, Public Health	Ongoing	Yes
Severe Winter Weather and Snow					
3.1	Develop a Response Plan for Vulnerable Populations	Maintain a list of the residences and needs of vulnerable persons, including elderly residents, socially isolated persons, and immune-compromised individuals, that could require special emergency response resources during hazard events. Develop a response plan for vulnerable persons for use by	Public Health, Sheriff's Office, Fire, Police, and OEM	Ongoing	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		emergency operators during hazard events.			
3.2	Maintaining Roadways during Snow Events	Coordinate and work with Caltrans and local snow removal resources to maintain critical roadway operations.	Public Works	Ongoing	Yes
3.3	Community Education on Severe Winter Weather	Educate community members about severe storm preparedness, including home and vehicle supplies and public refuge locations.	Sheriff's Department Fire, Police, and OEM	Ongoing	Yes
3.4	Operate Public Refuge Locations During Severe Storms	Operate and make accessible public refuge locations within 10 miles of all urbanized communities during severe storm events. Each location should be heated and have on-site backup generators, adequate parking, and sufficient food and water to serve vulnerable nearby residents and visitors.	Sheriff's Department, Social Services, OEM	Ongoing	Yes
Seismic					
4.1	Comprehensive Survey of Structural Building Conditions	Conduct a comprehensive survey of the structural condition of all public buildings and critical facilities, including identification of	Public Works, Community Development	Ongoing. Public Works regularly surveys County structures and plans for maintenance/upgrades as required	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		unreinforced masonry and soft-story structures. Prioritize surveying buildings and facilities in earthquake fault zones. Retrofit or replace structures, as funding allows, identified as being at high risk of collapse in a seismic event.			
4.2	Require Minimum State Seismic Safety Standards	Continue to require new and retrofitted structures to meet minimum state seismic safety standards and encourage property owners to exceed these standards.	Public Works, Community Development	Complete. CDD currently requires building code standards be met.	No
4.3	Locate New Developments Outside of Fault Zones	Require property owners to locate new developments outside of known fault rupture hazard zones or design to appropriate standards.	Community Development	Ongoing. CDD conducts these requirements during planning and building permit process	No
4.4	Design Seismic Impact Resistant Buildings	Design town- and county-owned infrastructure in fault rupture zones to resist damage from fault rupture and encourage other agencies to use similar strategies. Use similar strategies outside of fault rupture zones to the extent feasible.	Public Works	Deleted. County does not build in the fault rupture zone and builds to required seismic safety standards.	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
4.5	Geotechnical Evaluation for Liquefaction	Require new development in areas susceptible to liquefaction to conduct a geotechnical evaluation and implement actions to mitigate liquefaction risk. Avoid development in areas where liquefaction risk cannot be adequately mitigated.	Public Works, Community Development	Complete. The CDD requires a geotechnical report for all new construction.	No
Volcano					
5.1	Evacuation Procedure Information	Distribute information regarding evacuation procedures in the event of potential volcanic lava, pyroclastic, debris flow, or ash distribution.	Sheriff's Department, Fire, Police, and OEM	On-Going	Yes
5.2	Volcanic Forecasting	Support efforts to improve volcanic forecasting strategies.	Information Technology	Deleted. This is outside of IT's responsibilities.	No
Drought					
6.1	Retrofits for Water Conservation	Encourage retrofits of private homes and businesses for increased water conservation. Continue to educate about and promote the Property Assessed Clean Energy (PACE) programs in funding retrofits.	Community Development	Deleted. This is outside the scope of CDD.	No
6.2	Improve Groundwater	Support the Tri-Valley Groundwater Management	Community Development	Deleted. This actions falls under the scope of the	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
	Management Through Education	District's efforts to improve groundwater management through education and program implementation.		Tri-Valley Groundwater Management District, not the County.	
6.3	Drought Education for Landowners	Provide landowners with resources about irrigation efficiency and crops with reduced water requirements. Encourage landowners to use plants that require little or no irrigation in new or retrofitted landscapes.	Community Development	Ongoing. CDD works with landowners including a "Living Light" guide with drought resistant plants for landscaping. The Agriculture Commissioner leads education for farmers.	Yes
6.4	Crop Variety Information	Provide resources to local farmers about crop varieties that require little or no irrigation.	Inyo and Mono Counties Agriculture Department	Ongoing	Yes
Extreme Heat					
7.1	Low-Cost Weatherization for Low-Income Residents	Identify ways to provide free or low-cost weatherization and energy-efficient heating and cooling appliances to lower-income residents without access to these devices.	Community Development	On-Going	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
7.2	Public Cooling Centers	Identify public buildings that can serve as cooling centers in the event of extreme heat events, particularly in the Tri-Valley area. Perform any upgrades necessary to ensure the facilities meet the standards necessary for a cooling center and inform residents about where these centers are located and any procedures for usage.	Public Works, Public Health Department OEM	Ongoing	Yes
Severe Wind					
8.1	Wind Tracking Systems	Work with Caltrans to install a real-time wind and visibility tracking system for crucial access road segments and incorporate warnings into online notifications and the emergency notification system.	Public Works	Complete. Wind measurement systems have been installed.	No
8.2	Wind Resistant Building Design	Encourage project applicants to incorporate wind-resistant design features into new or significantly renovated buildings.	Community Development	Complete. CDD requires buildings to be designed to our wind load standards	No
Flood					
9.1	Floodplain Retrofits	Develop and implement a program to provide funding	Public Works	Deleted due to cost	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		for residents with homes in the 100-year floodplain to retrofit structures and raise them out of the floodplain.			
9.2	Request to Update FIRM Maps	Request FEMA to update the FIRM maps for the Walker River watershed communities, the June Lake Loop, and the Tri-Valley area. As maps are updated, conduct public outreach to affected communities regarding NFIP outcomes.	Public Works	Ongoing	Yes
9.3	Identify Historic Flood Patterns	Document past flood events in the GIS system to identify historic flooding patterns that can be used to understand better where repetitive flooding hazards occur and enable the County and Town to minimize risks to existing development in those areas.	Public Works, Information Technology, OEM	Deleted. Flood insurance rate maps have been added to GIS, which provides similar information.	No
9.4	Flood Hazard Public Education	Through an ongoing public education program, ensure that property owners are aware of flood hazards and practices necessary to diminish the impacts of those hazards. This program should include	Community Development	Ongoing. This public education campaign will be taken over by Public Works and OEM.	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		information on participation in the NFIP.			
9.5	Comprehensive Flood Management Strategy	Develop a Comprehensive Flood Management Strategy for the County and Town.	Public Works	Complete	No
9.6	Evaluate Stormwater Infrastructure	Evaluate stormwater infrastructure in areas of recurrent flooding and identify improvements that need to be implemented as funding becomes available.	Public Works	Complete	No
Avalanche					
10.1	Parcel-Level Avalanche Mapping	Update parcel-level avalanche mapping for the County's GIS system, including the Town of Mammoth Lakes data. Upon completion of mapping, develop a zoning overlay that requires a fair warning of avalanches for all permits and an avalanche risk assessment for all new residential development that recommends required construction standards.	Community Development	Ongoing	Yes, include a mitigation measure to advocate that the state develop avalanche maps similar to fire, flood, and seismic hazards.
10.2	Post Information on Avalanche Risk	Support efforts by the US Forest Service and organizations such as the	Information Technology	Ongoing	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
		Eastern Sierra Avalanche Center to post information about avalanche risks and current conditions at trailheads throughout avalanche-prone areas, in visitor centers, and online.			
10.3	Map of Roadway Avalanche Risk	Develop a map for the County website that identifies roadway segments at avalanche risk and educates communities about the risks, forecasting methods, and roadway operations within areas at avalanche hazard areas. As part of the countywide notification system, provide real-time avalanche conditions along the identified roadway segments.	Public Works, Information Technology	Ongoing, combined into a single mapping action with measure number 10.1	Yes
10.4	Transfer Ownership of Avalanche Prone Properties to	Work with federal agencies to transfer privately owned properties in avalanche hazard zones adjacent to or on public lands into federal ownership or the ownership of land conservation organizations and restrict their use to permanent open space use.	Community Development	Ongoing	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
Dam Inundation					
11.1	Dam Awareness for High-Risk Dams	Be aware of the dams in the county, with condition assessments of fair or lower, and be prepared to respond to public health and safety needs in an emergency.	Public Works	Ongoing	Yes
11.2	Update Information on Dams	Work with the County's dam owners to update information on potential impacts and inundation areas in the event of dam failure. Based on that information, develop land use standards and emergency response standards.	Community Development, Sheriff's Office	Ongoing	Yes
Hazardous Waste					
12.1	Hazardous Waste Disposal Sites	Establish multiple sites for free or low-cost disposal of hazardous household wastes, including electronic waste.	Public Works	Deleted due to lack of funding.	No
12.2	Propane Exchange and Recycling Program	Support and publicize propane tank exchange and recycling programs.	Public Works	Complete	No
12.3	Public Information on Propane Tank Installation	Support public information and enforcement of standards for proper installation and storage of propane tanks.	Community Development	Completed. CDD provides this information via building permits	No

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
Disease and Pest Management					
13.1	Monitor Infectious Diseases in Mono County	Continue to monitor the status of infectious diseases in Mono County and issue public health alerts for diseases that are new to the area or are becoming more widespread.	Public Health	Ongoing	Yes
13.2	Monitor Agricultural Disease and Pests	Continue to monitor for agricultural diseases and pests and take appropriate steps to contain or eradicate them.	Inyo and Mono Agriculture Department	Deleted, outside of the County's purview	No
13.3	Integrated Pest Management Strategies	Practice Integrated Pest Management strategies on public landscapes, emphasizing a preventive approach and minimizing the use of chemicals.	Community Development, Public Works	Ongoing	Yes. This action should include Inyo Mono Agricultural Commission and federal land managers.
13.4	Mosquito Prevention Education	Conduct periodic educational campaigns through in-person events and various media types to encourage community members to remove standing water and practice other mosquito prevention strategies.	Public Health, Police, Fire	Ongoing	Yes

Measure Number	Measure Name	Measure Description	Lead Agency	Status Update	Retain in Plan (Y/N)
13.5	Support Federal Land Managers in Pest Eradication	Support efforts by the US Forest Service, the Bureau of Land Management, and other landowners to control or eradicate invasive and/or abnormally active forest pests.	Community Development	Deleted. Combined as part of measure number 13.2.	Yes
Wildlife Collisions					
14.1	Wildlife Crossings	Work with Caltrans to analyze frequent collision areas to determine the type and placement of appropriate wildlife crossings. Seek funding to implement proposed wildlife crossing projects.	Community Development, Public Works	Ongoing. Mono County helps convene and administer a multi-jurisdictional wildlife crossing project team to implement the Mammoth wildlife crossing project and is in the process of applying for funding.	Yes
Climate Change					
15.1	Update Hazards and Risks with Impacts from Climate Change	Based on more current information, reevaluate changes to hazards and risks caused by climate change every five years and revise the LHMP to account for new information.	Community Development, Public Health	Complete. The MJHMP is being updated as part of the five-year cycle.	No. Climate change is being incorporated into each relevant hazard for the 2026 MJHMP and will not be a standalone hazard/factor.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risk and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may also include additional response, preparedness, or prevention focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

Table 123: Considered Mitigation Actions

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Engage regional agencies and local energy providers (SCE, Liberty Utilities, LA DWP, etc.) on improving regional and local energy systems (electrical, solar, propane, etc.) safety, reliability and resilience. Consider implementing a Regional Energy Resilience Regional Partnership working group to facilitate communication and coordination between local agencies and local energy providers.	Local Plans and Regulations	No	Mono County does not provide energy and would not have a Department that would be responsible for such an effort. Another entity would be a better fit for this type of action.
Support the planning, identification, and implementation of projects to improve regional energy resiliency. Including, but not limited to installation of microgrids or back-up generators for critical infrastructure and facilities along with other measures to improve reliability (e.g., alarms, meters, remote controls, and switchgear upgrades).	Structure and Infrastructure Projects	Yes	N/A

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Encourage community-based energy solutions by facilitating and/or supporting local energy initiatives, such as community solar programs or microgrids, or other projects that can enhance energy resilience and ensure local communities have a reliable energy supply, reducing dependence on centralized grids.	Local Plans and Regulation	Yes, the County would play a supportive role in this project and grant building permits.	N/A
Increase Backup Power Generation System Capacity. The project will add generation capabilities to sustain town power usage during outages.	Structure and Infrastructure	Yes, public works are actively seeking grants for this.	N/A
Alternative Energy Resources Project. South county civic center has no solar, minimal EV charging, internal combustion power backup instead of battery backup power. Free charging for staff commuting in an EV as an environmental benefit and staff benefit.	Structure and Infrastructure Projects	No	There is no funding available for this project and the County chargers are needed for County vehicles.
Develop a Comprehensive Epidemic Surge Capacity and Crisis Management Training Program: **Create a comprehensive training module on surge capacity management, resource allocation, communication strategies, and team coordination.** **Facilitate interdisciplinary collaboration among healthcare professionals, emergency responders, public health officials, and community leaders.** **Incorporate regular simulations of pandemic scenarios, potentially using virtual reality, to enhance decision-making under pressure.** **Training in resource management will equip participants to optimize personnel and supplies effectively.**	Local Plans and Regulations	Yes	N/A

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Prioritize crisis communication strategies to ensure effective information sharing. **Collect feedback after each session to promote continuous improvement.**			
Vaccination Campaigns. Implement widespread vaccination programs to build herd immunity and reduce the spread of infectious diseases. This includes encouraging vaccines for vulnerable populations and ensuring accessibility in underserved areas.	Local Plans and Regulations	Yes	N/A
Personal Protective Equipment (PPE). Ensure the availability and proper use of PPE (masks, gloves, face shields) for healthcare workers and the public. Training on correct usage can enhance effectiveness. Conduct after action reviews to discuss lessons learned and actions needed to increase preparedness and response.	Local Plans and Regulations	Yes	N/A
Conduct after action review of the COVID-19 pandemic to discuss lessons learned and actions needed to increase preparedness and response.	Local Plans and Regulations	No	A COVID-19 after action review has already been completed.
Adopt a post-disaster recovery ordinance based on a plan to regulate repair activity, generally depending on property location.	Local Plans and Regulations	Yes, CDD will take the lead on this.	N/A
Monitor Mitigation Plan Implementation by: **Conducting annual outreach to local jurisdictions to collect data on what has been implemented; and** **Track progress in a Spreadsheet to facilitate future updates to the MJHMP**	Local Plans and Regulations	Yes, CDD will conduct this outreach/tracking.	N/A
Increase Hazard Education and Risk Awareness by implementing public education and awareness activities including: **Developing and implementing a multi-hazard public awareness program.**	Education and Awareness	Yes	N/A

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Providing information on all types of hazards, preparedness and mitigation measures, and responses during hazard events. **Establishing a "hazard awareness week" in coordination with the media to promote hazard awareness (seasonal).** **Establishing an interactive website for educating the public on hazard mitigation and preparedness measures.** **Annually hosting a public hazards workshop or exposition for all residents.** **Establishing hazard information centers.** **Creating a speakers bureau for disaster-related topics that focus on mitigation and preparedness measures.** **Scheduling an annual "what's new in mitigation" briefing for the local Board of Supervisors.**			
Update the Community Wildfire Protection Plan	Local Plans and Regulations	Yes	N/A
Improved radio communications project	Structure and Infrastructure Projects	No	The plan has an existing radio communications mitigation measure
Close roads during potential avalanche hazards and notify the public	Awareness and Education	No	No, per Mono County Public Works this program already exists. Mono County works with an avalanche expert who directs road closures during periods of high avalanche risk. The road closure information is actively updated on

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
			the Mono County website.
Continue to provide reverse 911 and other emergency notifications	Awareness and Education	No	This mitigation action is already in place.
Seek grant funds for structure retrofit programs to bring older structures up to code for seismic design, flood, and wildland urban interface (WUI) standards.	Structure and Infrastructure Projects	Yes	N/A
Establish new Firewise Councils to assist with implementation of the CWPP, fuels reduction treatments, home hardening, defensible space, and education	Structure and Infrastructure Projects, Awareness and Education, and Natural Systems Protection	Yes	N/A
Update avalanche hazard maps	Local Plans and Regulations	Yes	N/A
Increase support for volunteer fire departments, the Community Emergency Response Team (CERT)	Local Plans and Regulations; Education and Awareness Programs	Yes	N/A
Air filtration systems for publicly owned systems and critical facilities to mitigate wildfire smoke.	Structure and Infrastructure Projects	Yes	N/A
Community Resource Mapping for those with transportation needs, including: **Identify and map accessible transportation resources within the community (e.g., dial-a-ride services, non-profit shuttles) and establish protocols for their use during emergencies.** **Create a database of individuals with transportation dependencies, including their specific needs and locations.**	Local Plans and Regulations; Education and Awareness Programs	Yes	N/A
Develop communication protocols that address the needs of individuals with various disabilities (e.g., large print, Braille, audio formats, sign language interpretation). This includes sending	Local Plans and Regulations; Education and Awareness Programs	Yes	N/A

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
information through multiple communication channels and establishing community information hubs.			
Develop a County resource strategy including creating a community resource inventory, a database of volunteer skills and expertise, and MOUs with neighboring Counties, communities, and organizations.	Local Plans and Regulations	Yes	N/A

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures Mono County has identified. Actions may not be completed within five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Further, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, Mono County will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Landslides
- Hazardous Materials

- Severe Wind
- Severe Winter Weather and Snow
- Volcanoes
- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security.[243] They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA Community Lifelines are as follows:

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture

[243] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, HAZMAT, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

Priorities

Priorities are defined by the community. Each action was assigned a prioritization category of low, medium, or high to each natural hazard action item being retained or created. The criteria to calculate the following priority categories is included in Table 125:

- **Low**: the action received less than 5 points.
- **Medium**: the action received 5-7 points.
- **High**: the action received 8-10 points.

Table 124 shows the mitigation actions Mono County has selected for this planning cycle.

Table 124: Mono County 2026–2031 Mitigation Actions

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	California Radio Interoperability System (CRIS)	Avalanche; Dam Failure; Earthquake; Seismic; Energy Shortages and Energy Resilience Extreme Heat; Flood; Landslide; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire	Implement radio communications technologies that will provide more reliable service than existing radio communications technology in use. Anticipate this project beginning in the first quarter of 2026. Continue to work with state and federal agencies and wireless providers to expand and improve coverage and interoperability of cell and radio service throughout the County.	Radio Governance Committee, Mono County IT	TOML, MLPD, Fire Districts	Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Grant Program (PDM), Mono County General Fund	$4 million	Short-term	Communications; Energy; Safety and Security	High
2	Increase Accuracy of "Estimate Losses" Data	Avalanche; Dam Failure; Disease/ Pest Management; Drought; Earthquake; Seismic; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslide; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire	Collaborate with state and federal agencies to collect information necessary to complete a more accurate "estimate losses" for inclusion in the next LHMP update. This data collection will focus on new construction, not existing structures.	Mono County Community Development; Information Technology, Assessor's Office		HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Food, Hydration, Shelter; Safety and Security	Medium
3	Emergency Access Route Prioritization	Avalanche; Dam Failure; Earthquake; Seismic; Flood; Landslide; Hazardous Materials; Severe Wind; Severe	For communities with only one access route design and create alternative access route(s) as funding and resources are available.	Public Works		HMGP, PDM, Mono County General Fund	$3-5 million	Short-term	Transportation; Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Winter Weather and Snow; Volcanoes; Wildfire	These communities include the Petersen Tract in June Lake, Swall Meadows, Mono City, and White Mountain Estates. Other communities will be included in this action as needed. Some of these communities have already designed access routes and are ready for construction and others are still in the design phase.							
4	Community Shelter Options Analysis	Avalanche; Dam Failure; Disease/ Pest Management; Drought; Earthquake; Seismic; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslide; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire	In communities with limited evacuation options, review residents' ability to obtain shelter within their community. For areas that do not have a suitable shelter location, including long-term sheltering needs, evaluate locations for creating one and completing necessary retrofits (including HVAC and shower facilities). Work with local resident groups and emergency response providers to do so.	Sheriff's Office, OEM	Eastern Sierra Community Housing (ESCH)	HMGP, PDM, Mono County General Fund	<$100,000	Long-Term	Transportation; Safety and Security	High
5	Post-Disaster Recovery Ordinance	Avalanche; Dam Failure; Earthquake and Seismic; Flood; Landslide; Severe; Wind; Severe Winter; Weather and Snow; Volcanoes; Wildfire	Adopt a post-disaster recovery ordinance based on a plan to regulate repair activity, generally depending on property location.	Mono County Community Development	Public Works, Environmental Health	HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Safety and Security	High
6	MJHMP Implementation Annual Tracking	Avalanche; Dam Failure; Disease/ Pest Management; Drought;	Monitor MJHMP Implementation by:	Mono County Community	Mono County OEM	HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Safety and Security	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Earthquake; Seismic; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslides; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire; Wildlife Collisions	Conducting annual outreach to local jurisdictions to collect data on what has been implemented; and Tracking progress in a spreadsheet to facilitate future updates to the MJHMP.	Development/Mono County OEM						
7	Community Resource Mapping for AFN with transportation needs	Avalanche; Dam Failure; Disease/Pest Management; Drought; Earthquake; Seismic; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslide; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire; Wildlife Collisions	Identify and map accessible transportation resources within the community (e.g., dial-a-ride services, non-profit shuttles) and establish protocols for their use during emergencies. Create a database of individuals with transportation dependencies, including their specific needs and locations.	Public Health; Information Technology; OEM	TOML	HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Safety and Security; Food, Hydration, Shelter; Energy; Communications; Transportation	High
8	Access and Functional Needs Communication Projects	Avalanche; Dam Failure; Disease/ Pest Management; Drought; Earthquake; Seismic; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslide; Hazardous Materials; Severe Wind;	Accessible (AFN) Communication Plans: Develop communication protocols that address the needs of individuals with various disabilities (e.g., large print, Braille, audio formats, sign language interpretation). Utilize multiple communication channels to ensure information	OEM, Public Health, Emergency Preparedness	TOML	HMGP, PDM, Mono County General Fund	<$100,000	Long-term	Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Severe Winter Weather and Snow; Volcanoes; Wildfire	reaches everyone (e.g., radio, community bulletin boards, text messaging, social media, door-to-door outreach by volunteers). Volunteer Communication Teams: Train volunteers to conduct wellness checks and deliver information to individuals with access and functional needs, especially those in isolated areas. Equip volunteers with communication devices (e.g., two-way radios, cell phones) and pre-scripted messages to ensure consistent and accurate information dissemination. Community Information Hubs: Establish designated community locations (libraries, community centers) as information hubs where individuals can access updates, resources, and assistance. Ensure these hubs are physically accessible and staffed with trained volunteers who can assist individuals with communication needs.							
9	Defensible Space Improvement Prioritization	Wildfire	For communities and neighborhoods identified to be at highest fire risk, complete a parcel-level analysis. Incorporate	Information Technology, OEM	Local Fire Safe Councils, Town of Mammoth Lakes, Fire	CalFire Grants, USFS Grants, General Funds	<$100,000	Medium-term	Safety and Security; Food, Hydration, Shelter; Energy; Communications;	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			into a GIS system, and use to prioritize parcel-level defensible space improvements. Upon completion of the analysis, update the CWPP to incorporate information.		Protection Districts				Transportation; Water Systems	
10	Apply for Additional Sources of Funding for the Mono County Wildfire Mitigation Coordinator	Wildfire	Fund the Mono County Wildfire Mitigation Coordinator to facilitate the development of mitigation and response plans, coordinate community group efforts and public outreach efforts, enable communications to and between volunteer fire and first-response departments, and pursue funding opportunities.	OEM	Local Fire Safe Councils, Town of Mammoth Lakes, Fire Protection Districts	CalFire Grants, USFS Grants, General Funds	<$100,000	Long-Term	Safety and Security, Communications, Health and Medical	High
11	Emergency Water Capacity Improvement	Wildfire	In communities with outdated or inadequate water storage and pressure for firefighting, work with local fire departments to fund, site, permit, and install new tanks and related facilities.	Local Fire Departments, Water Districts, private property owners	Local Fire Safe Councils, Private Property Owners, Special Districts	CalFire Grants, USFS Grants, General Funds	$1–3 million	Long-Term	Safety and Security; Water Systems	High
12	Promote Community Fire Safety	Wildfire	Support efforts by Fire Safe Councils, community groups, and County agencies to promote fire prevention, fuel treatments, invasive species control, and defensible space in the WUI and assist in identifying and pursuing funding opportunities to complete these activities.	OEM, Police, Fire Districts, Fire Wise community groups	Local Fire Safe Councils, Private Property Owners, Special Districts	CalFire Grants, USFS Grants, General Funds	<$100,000	Short-Term	Safety and Security; Communications	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
13	Update Community Wildfire Protection Plan	Wildfire	Conduct a comprehensive update to Mono County's Community Wildfire Protection Plan (CWPP) and seek grant funding if necessary.	OEM, Fire, Police, and EMS, TOML	Local Fire Safe Councils, Private Property Owners, Special Districts	CalFire Grants, USFS Grants, General Funds	$200,000	Short-term	Safety and security;	High
14	Develop Community-Level Fire Plan Development	Wildfire	Develop community-level fire plans for all communities with the highest fire risk. Utilize resources and assistance from the California Fire Alliance and seek grant funding as necessary.	OEM, Community Development	Local Fire Safe Councils, Private Property Owners, Special Districts	CalFire Grants, USFS Grants, General Funds	<$100,000	Medium-Term	Safety and security; Communications; Transportation; water systems	High
15	Expand Firewise Communities Program	Wildfire	Increase community participation in Firewise education and preparation. Establish new Firewise Councils and communities to assist with implementation of the CWPP (including fuels reduction treatments, home hardening, defensible space, education, etc.)	OEM	Local Fire Safe Councils, Private Property Owners, Special Districts, TOML	CalFire Grant Funds, US Fire Service Grant, SCE International, White Bark Institute	<$100,000	Short-term	All	High
16	Develop Neighborhood Mitigation Classes	Disease/ Pest Management; Drought; Earthquake; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslides; Severe Wind; Severe Winter Weather and Snow; Wildfire;	Provide local trainings for neighborhoods on mitigation actions that individuals can take to reduce risks to a variety of hazards. The goal of these trainings will also be to increase support for neighbors working collaboratively on larger mitigation projects in their communities.	OEM	Local Fire Safe Councils, Private Property Owners, Special Districts, Antelope Valley CERT	CalFire Grant Funds, US Fire Service Grant, SCE International, White Bark Institute	<$100,000	Short-term	All	High
17	Prepare for Wildfire Smoke Through HVAC	Wildfire	Prepare for the health impacts of smoke from wildfires, including:	Public Works, Public Health, OEM	Local Fire Safe Councils, Private Property	HMGP, PDM, CalFire Grants,	$1–3 million	Long-Term	Safety and security; Health and Medical; Communications;	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	Filtration Systems and Generators		Designated clean air shelters in communities as needed and establish an outreach plan to notify residents and visitors of their locations. Ensure that "clean air shelters," in publicly owned buildings, and critical care facilities have access to necessary supplies and equipment, including an alternative means for air filtration at clean air shelters in lieu of full HVAC upgrades. Evaluate and seek grant funding to upgrade air filtration systems of public owned buildings and critical care facilities.		Owners, Special Districts	USFS Grants, General Funds			Transportation; water systems	
18	Eastern Sierra Climate and Wildfire Resilience Communities Projects	Wildfire	Assess forest health addressing both landscape and community resilience scales and plan projects to reduce wildfire risk including Mono Basin and Mammoth/Long Valley areas.	Mono County, USFS	INF, BLM, SCE, State Parks, LA DWP, Tribes, Whitebark; CALDEER	Prop 4 funding, USFS Funding	$350 million	Long-term	All	High
19	Encourage Participation in Fuels Reduction Programs	Wildfire	Encourage local landowners to participate in state and federal programs for fuel reduction on private property, such as the CAL FIRE Vegetation Management Program, CAL FIRE Hazardous Fuel Reduction Program, and BLM Wildland Urban Interface Grant Awards program.	Mono County Community Development	BLM, CalFire	Mono County General Funds	<$100,000	Short-term	Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
20	Create List of Vulnerable Populations and Response Plan for Hazard Events	Avalanche; Dam Failure; Disease/ Pest Management; Drought; Earthquake; Seismic; Energy Shortages and Energy Resilience; Epidemic/Pandemic; Extreme Heat; Flood; Landslides; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire; Wildlife Collisions	Maintain a list of the residences and needs of vulnerable persons, including elderly residents, socially isolated persons, and immune-compromised individuals, that could require special emergency response resources during hazard events such as battery powered assistance or generators. Develop a response plan for vulnerable persons for use by emergency operators during hazard events.	Public Health, Sheriff's Office, Fire, Police, and OEM	Southern California Edison, Liberty, TOML	HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and security; Health and Medical; Communications; Transportation	High
21	Snow Removal Coordination	Severe Winter Weather and Snow	Coordinate and work with Caltrans and local snow removal resources to maintain critical roadway operations.	Public Works	Caltrans	Public Works Road Budget	$500,000	Medium-Term	Safety and Security; Transportation; Communications	High
22	Severe Storm Preparedness Education and Outreach	Severe Winter Weather and Snow	Educate community members about severe storm preparedness, including home and vehicle supplies and public refuge locations.	OEM; Sheriff's Department	Caltrans, special districts, law enforcement, local ski areas	HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security; Food, Hydration, Shelter; Communications; Energy; Transportation	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
23	Operate Public Severe Winter Weather Refuge Locations	Severe Winter Weather and Snow	Operate and make accessible public refuge locations within 10 miles of all urbanized communities during severe storm events. Each location should be heated and have on-site backup generators, adequate parking, and sufficient food and water to serve vulnerable nearby residents and visitors. Adding shower facilities should also be considered at these locations.	Sheriff's Department, Social Services, OEM	CERT, local communities, local non-profits, Red Cross, ESCH	HMGP, PDM, Mono County General Fund	$500,000	Short-Term	Safety and Security; Food, Hydration, Shelter; Communications; Energy; Transportation	High
24	Encouraging Building Retrofits for Snow Loading	Severe Winter Weather and Snow	Provide funding support for the upgrades of older buildings to current snow loading standards.	Community Development	TOML	HMGP, PDM, Mono County General Fund	$1 million	Medium-Term	Food, Hydration, Shelter	High
25	Survey, Identify, and Retrofit Public Buildings	Seismic	Conduct a comprehensive survey of the structural condition of all public buildings and critical facilities, including identification of unreinforced masonry and soft-story structures. Prioritize surveying buildings and facilities in earthquake fault zones. Identify and install code required warning placards on County buildings that are non-compliant. Retrofit or replace structures, as funding allows, identified as being at high risk of collapse in a seismic event.	Public Works, Community Development	Other County Depts	HMGP, PDM, Mono County General Fund	$10 million	Medium-Term	Safety and Security; Food, Hydration, Shelter.	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
26	Seismic Risk Assessment of Private Residences and Buildings	Earthquake/Seismic Hazards, Severe Winter Weather and Snow	Utilize data to determine building codes that applied when certain buildings were built to assess current risk to hazards. This can be used to conduct outreach to property owners about risk and options for mitigation.	Mono County	TOML	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and security, Water and wastewater, Transportation Systems	High
27	Seismic Risk Assessment for Propane Infrastructure	Earthquake/Seismic Hazards	Assess propane systems that lack infrastructure to allow shut-off or maintenance during emergencies. This assessment will be used to prioritize the upgrades of the propane systems.	TOML, Mono County	Gas utility providers	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Energy	High
28	Automate Shutoff Valves for Water System	Earthquake/Seismic Hazards, Wildfire	Install shutoff valves for water systems in the event of major earthquakes or system failure(s). This would mitigate loss of pressure in the system in the case of line breaks.	Mono County, TOML	MCWD, other water service districts	HMGP, PDM, Mono County General Fund	$250,000-$350,000	Medium-Term	Water systems	High
29	Seek Grant Funds for Structural Retrofit and Technical Assistance Programs	Earthquake, Seismic, Flood, Wildfire, Severe Winter Weather, Severe Wind	Seek grant funds for structural retrofit and technical assistance programs (including but not limited to prescriptive retrofit plans) to bring older structures up to code for seismic design, flood, and wildland urban interface (WUI) standards.	Public Works, Community Development, OEM	Other County Depts; Special Districts	HMGP, PDM, Mono County General Fund	<$100,000	Long-Term	Safety and Security; Food, Hydration, Shelter	High
30	Develop a Partnership with State and Federal agencies to Create	Severe Winds, Wildfire	Brush and tumbleweeds blown by severe wind can cause damage to structures, block transportation, and add fuel to wildfires. In partnership with	Public Works	USFS, CalFire	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Transportation; Safety and Security	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	a Brush Reduction Plan		Federal and State agencies, the County will develop a plan to reduce the amount of brush and tumbleweed blown by severe winds.							
31	Develop Partnerships to Co-Located Underground Utility Lines	Severe Winds, Wildfire, Severe Winter Weather	Support collaboration across multiple projects that are doing trenching work to locate cables underground.	Public Works	SCE, Golden State Connect	SCE, Golden State Connect	<$100,000	Medium-Term	Communications, Energy	High
32	Distribute Volcanic Hazard Evacuation Procedures	Volcano	Distribute information regarding evacuation procedures in the event of potential volcanic lava, pyroclastic, debris flow, or ash distribution.	Sheriff's Department, OEM	Fire Protection Districts, USGS	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and Security; Communications; Transportation	Low
33	Support Improved Volcanic Forecasting	Volcano	Support efforts to improve volcanic forecasting strategies.	Information Technology	USGS	HMGP, PDM, Mono County General Fund	<$100,000	Long-Term	Safety and Security; Communications	Low
34	Education on Private Home Retrofits for Water Conservation	Drought	Encourage retrofits of private homes and businesses for increased water conservation. Continue to educate about and promote the Property Assessed Clean Energy (PACE) programs in funding retrofits.	Local water providers	California Statewide Communities Development Authority	HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security; Communications; Water systems; Energy; Food, Hydration, Shelter	Medium
35	Support Tri-Valley Groundwater Education Program Management District	Drought	Support the Tri-Valley Groundwater Management District's efforts to improve groundwater management through education and program implementation.	County Counsel	Private landowners	HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Water Systems; Food, Hydration, Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
36	Provide Drought Resources to Landowners	Drought	Provide landowners with resources and information on irrigation efficiency and crops with reduced water requirements. Encourage landowners to use plants that require little or no irrigation in new or retrofitted landscapes.	Inyo-Mono Ag Commissioner, Community Development Department	Other County Depts, Local ranchers, local agricultural businesses	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Food, Hydration, Shelter; Water systems	Low
37	Resources for Local Farmers	Drought	Provide resources to local farmers about crop varieties that require little or no irrigation.	Inyo and Mono Counties Agriculture Department		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Food, Hydration, Shelter; Water systems	Low
38	Drought Management Plan	Drought	Develop a strategic guide to preparing for, responding to, and recovering from drought condition. The guide will focus on monitoring drought conditions, assessing risk, mitigating impacts, and implementing specific strategies to protect water resources and reduce vulnerabilities.	Public Works	Local water districts	HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Water Systems	Medium
39	Support Mitigation Activities for Local Water District and Mutual Water Companies	Drought, Wildfire	There is a need for local water districts to make periodic upgrades to facilities and infrastructure, including tank upsizing, well replacement, increased pumping capacity. These upgrades provide extra water storage and conveyance capacity, mitigating the effects	Public Works	MCWD, Antelope Valley Water District, Tri-Valley Groundwater Management District, Wheeler Crest Community	HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Water Systems,	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			of drought and wildfire in Mono County. The County will support the local water districts in planning, coordination, and applying for grants to make these upgrades.		Service District, Lee Vining Public Utility District, June Lake Public Utility District, Hilton Creek Community Services District, Bridgeport Community Services District, Birchim Community Services District, Lundy Mutual Water Company, Crowley Lake Mutual Water District					
40	Low-Cost Weatherization	Extreme Heat	Identify ways to provide free or low-cost weatherization and energy-efficient heating and cooling appliances to lower-income residents without access to these devices.	Community Development	IMACA, High Sierra Energy Foundation	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Energy	Medium
41	Updating and Hardening Community Facilities	Energy Shortages and Energy Resilience; Extreme Heat; Flood; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire	Identify public buildings that can serve as places of refuge during hazard events and make upgrades to improve the resilience of structures. This could include adding generators, installing microgrids, upgrading HVAC systems, and	Public Works, Public Health Department		HMGP, PDM, Mono County General Fund	$5 million	Medium-Term	Food, Hydration, Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			hardening the exteriors of these facilities to mitigate damage. Inform residents about where these centers are located and any procedures for usage.							
42	FIRM Maps	Flood	Request FEMA to update the FIRM maps for the Walker River watershed communities, the June Lake Loop, and the Tri-Valley area. As maps are updated, conduct public outreach to affected communities regarding NFIP outcomes.	Public Works	FEMA	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and Security; Food, Hydration, Shelter; Communications	Medium
43	Historical Floods	Flood	Document past flood events in the GIS system to identify historic flooding patterns that can be used to understand better where repetitive flooding hazards occur and enable the County and Town to minimize risks to existing development in those areas.	Public Works, Information Technology, OEM		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Medium
44	Flood Education	Flood	Through an ongoing public education program, ensure that property owners are aware of flood hazards and practices necessary to diminish the impacts of those hazards. This program should include information on participation in the NFIP.	Public Works, OEM		HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security; Food, Hydration, Shelter; Communication	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
45	Flood Management Strategy	Flood	Develop a Comprehensive Flood Management Strategy for the County and Town.	Public Works	TOML	HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Medium
46	Aurora Creek Channel Enhancement	Flood	Conduct a channel enhancement project along Aurora Creek in Bridgeport to reduce flooding on Aurora Canyon Road.	Public Works		HMGP, PDM, Mono County General Fund	$1 million	Medium-Term	Transportation	Medium
47	Stormwater Infrastructure	Flood	Evaluate stormwater infrastructure in areas of recurrent flooding and identify improvements that need to be implemented as funding becomes available.	Public Works		HMGP, PDM, Mono County General Fund	$500,000	Medium-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Medium
48	Local Avalanche Mapping	Avalanche	Seek grant funds to update avalanche mapping for the County's GIS system, including the Town of Mammoth Lakes data. Upon completion of mapping, develop a zoning overlay that requires a fair warning of avalanches for all permits and an avalanche risk assessment for all new residential development that recommends required construction standards. This mapping data will be used to develop a map for the County website that identifies roadway segments at avalanche risk and educates communities about the risks, forecasting methods,	Community Development, Public Works, OEM	TOML	HMGP, PDM, Mono County General Fund	$200,000	Short-Term	Safety and Security; Food, Hydration, Shelter; Transportation	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			and roadway operations within areas at avalanche hazard areas.							
49	Advocating for Avalanche Mapping Support	Avalanche	Advocate for state-wide avalanche mapping that bridges gaps in local data (similar to existing State fire, flood and seismic maps).	Community Development		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Low
50	Landslide Mapping	Avalanche and Landslides	Request the California Department of Conservation to update mapping through its landslide hazard mapping program.	Community Development		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term		Low
51	Notification for Avalanches	Avalanche	Support efforts by the US Forest Service and organizations such as the Eastern Sierra Avalanche Center to post information about avalanche risks and current conditions at trailheads throughout avalanche-prone areas, in visitor centers, and online.	Information Technology	USFS, Eastern Sierra Avalanche Center	HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Medium
52	Transfer Federally Owned Properties	Avalanche	Work with federal agencies to transfer privately owned properties in avalanche hazard zones adjacent to or on public lands into federal ownership or the ownership of land conservation organizations and restrict their use to permanent open space use.	Community Development	USFS, BLM	HMGP, PDM, Mono County General Fund	$200,000	Long-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Low
53	Snow Monitoring Devices	Avalanche	Install devices which collect data on snowfall and avalanche risk for each storm.	Public Works	TOML	HMGP, PDM, Mono County General Fund	$500,000	Short-Term	Safety and Security; Transportation	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
54	Monitor Avalanche and Landslide Changes from Wildfire	Avalanche, Landslide	Track wildfires and monitor their potential impact on landslides and avalanches in Mono County. This data will be used to anticipate potential impacts from landslides and avalanches on transportation infrastructure and structures.	Public Works		HMGP, PDM, Mono County General Fund	<$100,000	Short-term	Safety and Security; Transportation	High
55	Track High Hazard Dams	Dam Failure	Track dams in the county with condition assessments of fair or lower, and be prepared to respond to public health and safety needs in an emergency.	OEM		HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security; Food, Hydration, Shelter; Transportation	Low
56	Updated Information on Dams	Dam Failure	Work with the County's dam owners to update information on potential impacts and inundation areas in the event of dam failure. Based on that information, develop land use standards and emergency response standards.	OEM, Sheriff's Office, FERC		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Safety and Security; Food, Hydration, Shelter	Low
57	Collaborate with FERC on Dam Trainings and Drills	Dam Failure	Participate in regular training drills and tabletop exercises with FERC and dam owners.	FERC	OEM	FERC Budget, Mono County General Fund	<$100,000	Short-Term	Safety and Security	Low
58	Disposal Site for HazMat	Hazardous Waste	Establish multiple sites for free or low-cost disposal of hazardous household wastes, including electronic waste.	Public Works		HMGP, PDM, Mono County General Fund	$1 million	Medium-Term	Safety and Security; Hazardous Materials	Low
59	Infectious Disease Monitoring	Disease and Pest Management	Improve the current system of monitoring the status of infectious diseases in Mono County and issue public health	Public Health		HMGP, PDM, Mono County General Fund	$200,000	Short-Term	Health and Medical	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			alerts for diseases that are new to the area or are becoming more widespread.							
60	Pest Management Strategies	Disease and Pest Management	Practice integrated pest management strategies on public landscapes, emphasizing a preventive approach and minimizing the use of chemicals.	Public Works, Inyo Mono Ag Commissioner, BLM, USFS, LADWP		HMGP, PDM, Mono County General Fund	$2 million	Short-Term	Food, Hydration, Shelter; Safety and Security; Hazardous Materials	Low
61	Educational Campaign for Pest Management	Disease and Pest Management	Conduct periodic educational campaigns through in-person events and various media types to encourage community members to remove standing water and practice other mosquito prevention strategies.	Public Health, Police, Fire, and OEM		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Food, Hydration, Shelter; Safety and Security	Medium
62	Wildlife Crossings Analysis	Wildlife Collisions	Work with Caltrans to analyze frequent collision areas to determine the type and placement of appropriate wildlife crossings.	Community Development, Public Works		HMGP, PDM, Mono County General Fund	<$100,000	Medium-Term	Transportation	Medium
63	Implement Proposed Wildlife Crossing Projects	Wildlife Collisions	Fund and implement the wildlife crossings identified in the wildlife crossing analysis.	Community Development, Public Works	TOML	HMGP, PDM, Mono County General Fund	$3 million	Medium-Term	Transportation	Medium
64	Pandemic Monitoring	Epidemic/Pandemic	Monitor viruses for pandemic and epidemic levels.	Public Health		HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security	Medium
65	Mutual Aid Agreements Pandemics	Epidemic/Pandemic	Work with outside health care providers to create mutual aid agreements in the event of a pandemic or epidemic.	Public Health		HMGP, PDM, Mono County General Fund	<$100,000	Short-Term	Safety and Security	High
66	Increase Backup Power Generation System Capacity	Energy Shortages and Energy Resilience	Seek grant funding to implement projects to increase backup power generation	Public Works		HMGP, PDM, Mono County General Fund	$1 million	Medium-Term	Safety and Security; Food, Hydration, Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			system capacity at County facilities and obtain a mobile charging unit for the County.							
67	Biomass Utilization	Energy Shortages and Energy Resilience; Wildfire	Utilization of wood waste and other appropriate biomass to generate electricity, heat, bioenergy products, etc. to support fuel reduction treatments and provide renewable energy.	Public Works, OEM, Community Development	ORMAT, ESCOG, Whitebark, Inyo County, all Fire Districts, Mammoth Disposal	$10 million awarded by DOE, Wood Utilization Grants (CAL FIRE/USDA)	$30M	Medium-Term	Safety and Security, Energy, Transportation, Hazardous Materials	Medium
68	Support Implementation of CWPP Projects	Wildfire	Mono County will support the implementation of applicable projects as outlined in the updated Community Wildfire Protection Plan.	OEM	TOML, all Fire Districts, Whitebark Institute, BLM, Inyo National Forest, Mammoth Disposal,	CAL FIRE grants, Community Wildfire Defense Grant, California Fire Safe Council grants, Mono County General Fund	Unknown	Long-Term	Safety and Security, Food, Hydration, Shelter, Energy, Transportation, Hazardous Materials	High
69	Analyze and implement fire-hardened recreation facilities (vegetation management corridors)	Wildfire	Analyze and implement fire-hardened trails and recreation facilities (multi-use pathways, soft-surface trails, etc.) to serve as vegetation management corridors and increase emergency access in Mono County communities, such as the June Lake Active Transportation Plan.	OEM		CAL FIRE grants, Community Wildfire Defense Grant, California Fire Safe Council grants, Mono County General Fund		Long-Term	Safety and Security, Transportation,	High
70	Implement the June Lake Active	Wildfire	Construct a multi-use pathways and trails in alignment with the	Community Development,		CAL FIRE grants,	$36 million	Long-term	Transportation	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	Transportation Plan		June Lake Active Transportation Plan. When wildfires occur, the path could act as a fuel break and emergency access point for firefighters. When no fires are occurring, it will be used as a recreational path. Support similar projects in other parts of the County as they arise.	Mono County Local Transportation Commission		Community Wildfire Defense Grant, Safe Streets and Roads for All Grant Program, Mono County General Fund				
71	Wildfire Mitigation Infrastructure Improvement Planning - Antelope Valley Fire Protection District	Wildfire	Mono County will support the Antelope Valley Fire Protection District in the planning and design of wildfire mitigation infrastructure in Walker, Topaz, and Coleville. Infrastructure could include systems of fire breaks, water tanks, water lines, and fire hydrants. The design and future construction will significantly reduce fire risk in Antelope Valley communities.	Antelope Valley Fire Protection District	OEM	CAL FIRE Grants, Community Wildfire Defense Grants, AVFPD General Fund, Mono County General Fund	$50,000	Short-term	Safety and Security	High
72	Explore Alternative/Natural Water Sources	Wildfire	Partnerships with local ranchers have shown success in locating alternative water sources that can be used for firefighting in rural and agricultural areas. Bridgeport Fire Protection District, with support from Mono County, will collaborate with local residents to identify and document alternative water sources and consider what equipment would be needed to access them.	Bridgeport Fire Protection District	OEM	CAL FIRE Grants, Community Wildfire Defense, BFPD General Fund, Mono County General Fund	$10,000	Short-term	Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
73	Create Evacuation Plan with Marine Corps Base	Flood; Severe Winter Weather and Snow; Volcanoes; Wildfire	Coordinate with the Marine Corps Base and Marine Housing to plan for evacuation in the case of a disaster. An evacuation plan will be created to outline roles and procedures for the evacuation.	OEM	Antelope Valley Fire Protection District, US Marine Corps	HMGP, Mono County General Fund	$10,000	Short-term	Safety and Security, Transportation	Medium

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Mitigation Action Prioritization

Mono County and the Town of Mammoth Lakes developed their own mitigation action prioritization ranking methodology in alignment with current priorities and hazard concerns for each community. Five questions were created as criteria for action prioritization:

- Does this action align with Town/County strategic priorities? (0 – No, 1 – Partially, 2 – Yes)
- Does this action align with the other planning partners' priorities? (0 – No, 1 – Partially, 2 – Yes)
- Is funding currently available? (0 – No, 1 – Partially, 2 – Yes)
- Does this action align with other planning mechanisms and policies currently in place? (0 – No, 1 – Partially, 2 – Yes)
- What is the ranking of this hazard? (0 – Low, 1 – Medium, 2 – High)

Based on the criteria above, actions were scored as High, Medium, or Low priority:

- **Low**: the action received less than 5 points.
- **Medium**: the action received 5-7 points.
- **High**: the action received 8-10 points.

Table 125 documents how each action was prioritized.

Table 125: Action Prioritization for Mono County

Action #	Does this action align with Town/ County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
1	2	2	2	2	2	High
2	1	1	1	1	2	Medium
3	2	2	1	2	2	High
4	2	2	1	2	2	High
5	2	2	1	2	2	High
6	1	1	1	1	2	Medium
7	2	1	1	2	2	High
8	2	1	1	2	2	High

Action #	Does this action align with Town/ County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
9	2	2	2	2	1	High
10	2	2	1	2	1	High
11	2	2	1	2	1	High
12	2	2	1	2	2	High
13	2	2	1	2	2	High
14	2	2	1	2	2	High
15	2	2	1	2	2	High
16	2	2	1	1	2	High
17	2	2	1	2	1	High
18	2	2	1	2	1	High
19	2	2	1	2	1	High
20	2	2	1	2	2	High
21	2	2	1	2	2	High
22	2	2	1	1	2	High
23	2	2	1	2	2	High
24	2	2	1	1	2	High
25	2	2	1	1	0	Medium
26	2	2	1	1	2	High
27	2	2	1	1	2	High
28	2	2	1	1	2	High
29	2	2	1	1	2	High
30	1	0	1	1	2	Medium
31	2	2	1	1	2	High
32	1	1	1	0	1	Low
33	1	1	1	0	1	Low
34	1	1	1	1	1	Medium
35	1	1	1	1	1	Medium
36	1	0	1	1	1	Low
37	1	0	1	1	1	Low
38	2	1	1	2	1	Medium

Action #	Does this action align with Town/ County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
39	2	1	1	2	2	High
40	1	1	1	1	1	Medium
41	2	2	1	2	2	High
42	2	2	1	2	2	High
43	2	2	1	1	0	Medium
44	2	2	1	1	0	Medium
45	2	1	1	1	0	Medium
46	2	2	1	1	0	Medium
47	2	1	1	1	0	Medium
48	2	1	1	1	0	Medium
49	2	2	1	2	1	High
50	1	1	1	1	0	Low
51	1	1	1	1	0	Low
52	1	1	1	1	1	Medium
53	1	1	0	1	1	Low
54	2	2	1	2	2	High
55	2	2	1	2	2	High
56	1	1	1	1	0	Low
57	1	1	1	1	0	Low
58	1	1	1	1	0	Low
59	2	1	1	2	0	Low
60	2	2	1	2	0	Medium
61	1	1	1	1	0	Low
62	2	1	1	2	0	Medium
63	2	1	1	2	0	Medium
64	1	1	1	2	2	Medium
65	2	2	1	2	2	High
66	2	2	1	2	1	High
67	1	2	2	1	1	Medium
68	2	2	2	2	1	High

Action #	Does this action align with Town/ County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
69	2	2	1	2	1	High
70	2	2	1	2	1	High
71	2	2	1	2	1	High
72	2	2	1	2	1	High
73	2	2	1	2	1	High

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of the hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards the community is vulnerable to
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to carry out in the future

Past Integration Efforts

Mono County reviewed previous plan integration efforts as noted in Table 126.

Table 126: Mono County Previous Plan Integration

Plan Name	How the Prior Plan Was Integrated
Mono County Safety Element	Incorporated the MJHMP via a General Plan Amendment including the updated policy and data in the 2019 MJHMP.

Future Integration Opportunities

Mono County identified future plan integration opportunities as described in Table 127.

Table 127: Mono County Future Plan Integration

Plan Name	Description	Process for Integration
Mono County Community Wildfire Protection Plan (CWPP)	The county's Community Wildfire Protection Plan (CWPP) will be updated as part of the MJHMP update and a more comprehensive update will be undertaken within the next two years.	The CWPP will receive a cursory update as part of the MJHMP update and then a more comprehensive update will take place in the year or two following the MJHMP adoption. Information that could be integrated from the hazard mitigation plan includes the wildfire hazard profile, GIS data, and wildfire-related mitigation actions.
Mono County Safety Element	Updates to the MJHMP trigger the need to update the Safety Element.	Following the formal adoption and approval of the MJHMP, Mono County Community Development staff will schedule a General Plan Amendment to incorporate relevant policy changes into the Mono County Safety Element.

Conclusion

This Mono County Jurisdictional Annex to the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) documents an important, locally focused risk assessment and mitigation strategy for Mono County, California, for the 2026–2031 planning cycle. Participating in this hazard mitigation plan and developing clear actions to reduce risk enables Mono County to be eligible for additional federal hazard mitigation funding. More than that, this document was developed through a collaborative planning process, involving many departments, stakeholders, plan participants, and the public. Participating in this plan update encouraged collaboration and a shared understanding of local risks and responsibilities. Situated in a uniquely rural environment with the real potential to be isolated post-disaster, Mono County and its partners must prepare to independently respond and recover from disaster events. Expanding local capacities and reducing risk pre-disaster will help reduce hazard vulnerabilities and impacts. Together, this mitigation plan reflects Mono County's commitment to supporting all communities through disasters.

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Town of Mammoth Lakes

Jurisdictional Annex

2026



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Town of Mammoth Lakes

The Town of Mammoth Lakes has demonstrated its commitment to a comprehensive mitigation program by developing a separate jurisdiction-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information such as hazard descriptions, extent, and location can be found. The annex has been amended from the last plan update to reflect changes in priority including meeting the new FEMA's Local Mitigation Planning Policy Guide (April 11, 2025) requiring public and stakeholder outreach, jurisdiction-specific vulnerabilities, community lifelines, expanded mitigation capabilities, and NFIP assessments. The following is intended to clarify what, if any, unique considerations and differences there are between the plan participants hazards and mitigation capabilities. Further, this annex documents the selected mitigation actions for Town of Mammoth Lakes.

Town of Mammoth Lakes Participation

This plan was developed through a collaborative planning process including Mono County, the Town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update is documenting the planning process itself, including who represented which plan participant. The Town of Mammoth Lakes was represented during the plan update process by the individuals listed in Table 128.

Table 128: Town of Mammoth Lakes Representatives in the Planning Process

Name	Title	Organization/Department
Pam Kobylarz	Assistant to the Town Manager	Town of Mammoth Lakes
Haislip Hayes	Public Work Director	Town of Mammoth Lakes
Amy Callanan	Engineering Manager	Town of Mammoth Lakes
Betsy Truax	Vice President of Community Engagement	Mammoth Lakes Tourism
Bill Sauser	Council Member	Town of Mammoth Lakes
Brent Truax	Council Member	Town of Mammoth Lakes
Christina Ackerman	Assistant to the Chief/Public Information Officer	Town of Mammoth Lakes - Police Department
Dan Casabian	Police Chief	Town of Mammoth Lakes - Police Department
Jason Heilman	Sergeant	Town of Mammoth Lakes - Police Department

Name	Title	Organization/Department
Michael Vanderhurst	Chair	Mammoth Lakes Planning and Economic Development Commission
Mike Martinez	IT Director	Town of Mammoth Lakes/Mono County
Nolan Bobroff	Community and Economic Development Director	Town of Mammoth Lakes
Rob Patterson	Town Manager	Town of Mammoth Lakes
Sierra Waugh	Deputy Airport Manager	Town of Mammoth Lakes
Soibian Spring	Manager – Mammoth Yosemite Airport	Town of Mammoth Lakes
Stuart Brown	Public Information Officer	Town of Mammoth Lakes

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participant in the plan update. A full list of stakeholders is included in the base plan. Table 129 lists at least one stakeholder per required stakeholder type that work in or have knowledge of the Town of Mammoth Lakes. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 129: Local Stakeholders

Name	Description	Stakeholder Type
Whitebark Institute	Non-Profit Organization dedicated to reducing wildfire risk and enhancing sustainability in Eastern Sierra Forests	Representatives of nonprofit organizations, including community-based organizations
Mammoth Mountain Ski Area/Mammoth Resorts	Mammoth Lakes Hospitality Industry Representatives	Representatives of businesses, academia, and other private organizations
Southern California Edison	Utility Company	Representatives of businesses, academia, and other private organizations

Name	Description	Stakeholder Type
Eastern Sierra Avalanche Center (ESAC)	Provides information and education on avalanche conditions for Eastern Sierra Region	Representatives of nonprofit organizations, including community-based organizations
TOML Council	Town of Mammoth Lakes Council Member, Elected to represent constituents.	Agencies that have the authority to regulate development
TOML Community and Economic Development	Community Economic Development, Housing Coordination	Agencies that have the authority to regulate development
TOML Police	Public Safety for TOML	Local and regional agencies involved in hazard mitigation activities
TOML Community Engagement	Sustainable tourism and community engagement	Agencies that have the authority to regulate development
Mammoth Yosemite Airport	Aviation/Airport Management	Representatives of businesses, academia, and other private organizations
TOML Engineering Services Department	Engineering services division of Town of Mammoth Lakes	Local and regional agencies involved in hazard mitigation activities
Mono County	County that surrounds Town of Mammoth Lakes on all sides.	Neighboring Community
Mammoth Geothermal Complex (Ormat)	Geothermal Power Station	Representatives of businesses, academia, and other private organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. The Town of Mammoth Lakes share the information on the town's website and post the flyer in public spaces. Public feedback was analyzed by the planning committee and incorporated into the risk assessment and mitigation strategy sections. Public feedback informed mitigation actions numbers 14 and 30 as well as the disease and pest management past hazard events.

Jurisdiction-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

Jurisdictional Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compare to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities utilizing the following Calculated Priority Risk Index (see Table 130).

Table 130: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time ***(Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration ***(The span of time local, state, and/or federal assistance will be necessary to prepare for,***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
respond to, and recover from a potential disaster event.)	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards identified as having as risk factor value greater than or equal to 2.5 are considered high risk. Risk factors ranging from 2.0 to 2.4 are considered moderate risk hazards. Hazards with a risk factor value less than 2.0 are considered low risk. The highest possible risk factor value is 4. The calculated priority risk index for Town of Mammoth Lakes is presented in Table 131.

Table 131: Calculated Priority Risk Index for Town of Mammoth Lakes

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	2	1	4	4	1	2.5
Dam Failure	1	1	1	1	3	1.2
Disease and Pest Management	2	3	2	2	3	2.3
Drought	2	3	2	4	1	2.3
Earthquake and Seismic Hazards	2	3	3	1	4	2.6
Energy Shortages and Energy Resiliency	3	3	1	4	3	2.5
Epidemic/Pandemic	1	4	1	4	4	2.2
Extreme Heat	1	3	1	2	1	1.5
Flood	1	1	1	4	1	1.3
Landslide	1	1	2	2	1	1.4
Hazardous Materials	1	1	1	1	1	1
Severe Wind	3	3	2	3	3	2.7

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Severe Winter Weather and Snow	3	3	2	1	4	2.3
Volcanoes	1	3	3	1	2	2.1
Wildfire	3	3	4	3	4	3.4
Wildlife Collisions	4	1	1	4	1	2.2

Past Hazard Events

The plan must present the history of hazards events. While the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides a description of general state and Federal Emergency Management Agency (FEMA) previous hazard occurrences. The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 132 lists these hazard events of local significance.

Table 132: Previous Disaster Impacts for Town of Mammoth Lakes

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	N/A	Annually	Multiple events with no damage or impacts[244]	Avalanche activity regularly reported https://www.esavalanche.org/observations/
Dam Failure	N/A	N/A	N/A	N/A
Disease and Pest Management	N/A	2025	Three deaths	Hantavirus has spread through the deer mice population to humans in the Town of Mammoth Lakes. The illness has led to three fatalities.
Drought	N/A	July 8, 2021	N/A	Governor Newsom Extends Regional Drought State of Emergency to Include

[244] Eastern Sierra Avalanche Center, 2025, "Recent Avalanche Observations Portal - September 1, 2024 to May 19, 2025." https://www.esavalanche.org/observations/#/view/avalanches?startDate=%222024-09-01%22&endDate=%222025-05-19%22&season=2025&impacts=[%22Humans+Caught%22]

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
				Mono County. https://www.monocounty.ca.gov/sites/default/files/fileattachments/county_administration/page/31650/pr_droughtdeclaration_07.08.21_final.pdf
Earthquake and Seismic Hazards	None	May 25, 1980	Broken windows and water mains, damage to residential structures and public structures	A 6.0 earthquake occurred near Mammoth Lakes
Energy Shortages and Energy Resiliency	N/A	N/A	N/A	N/A
Epidemic/Pandemic	DR-4482	2020–2023	Infections	Local Emergency related to the COVID-19 pandemic declared by the county health officer on March 15, 2020
Extreme Heat	N/A	N/A	N/A	N/A
Flood	N/A	N/A	N/A	N/A
Landslide	N/A	N/A	N/A	N/A
Hazardous Materials	N/A	N/A	N/A	N/A
Severe Wind	N/A	N/A	N/A	N/A
Severe Winter Weather and Snow	EM-3592-CA	Dec 2022-April 2023	Structural collapses and propane explosions[245]	Severe winter storms and snow fall exceeding normal seasonal levels, prompting emergency activation[246]
Volcanoes	N/A	N/A	N/A	N/A

[245] Town of Mammoth Lakes. "22/23 Winter Storms After-Action Reports," April 2024. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/14208/MammothLakes_WinterStorms-AAR_FinalDraft_052624.

[246] Town of Mammoth Lakes. "22/23 Winter Storms After-Action Reports," April 2024. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/14208/MammothLakes_WinterStorms-AAR_FinalDraft_052624.

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Wildfire		Sept. 4, 2020	The Creek Fire was a large wildfire which started on September 4, 2020 near Shaver Lake, California. The fire burned 379,895 acres (153,738 ha).	The Creek Fire was a large wildfire which started on September 4, 2020 near Shaver Lake, California. The fire burned 379,895 acres (153,738 ha) and was declared 100% contained on December 24, 2020. The Creek Fire was the fourth-largest wildfire in modern California history, and the largest single fire not part of a greater complex. This fire caused poor air quality in Mammoth Lakes and endangered back country hikers.
Wildlife Collisions	N/A	N/A	N/A	N/A







Figure 111: 2022–2023 Winter Storm Photographs in the Town of Mammoth Lakes

Jurisdiction-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each of the hazards affecting the overall planning area. Assets were determined by the community. Asset types may differ between plan participants, including the following:

- People (residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, lower-income individuals, etc.)
- Structures (residential, commercial, industrial, government-owned, planned capital improvement, etc.)
- Economic assets (major employers, primary economic sectors, key infrastructure like telecommunications networks, etc.)
- Natural, historic, and cultural resources (areas of conservation, parks, critical habitats, community centers, historic places, etc.)
- Critical facilities and infrastructure (hospitals, law enforcement, water, power, transportation systems, etc.)
- Community activities (major local events, such as festivals, or economic events, like farming or fishing)

The following problem statements describe the unique jurisdiction-specific vulnerabilities of Town of Mammoth Lakes. Where no unique considerations are noted, it can be assumed the information included in the base plan also applies to Town of Mammoth Lakes.

Avalanche

- **Location:** The southwestern part of the town located east and downslope of Mammoth Pass is at high risk due to steep terrain, geological features, orientation, and prevailing winds that contribute to avalanche conditions.
- **Extent:** Based on historical occurrences, the planning area can expect to experience D2 avalanche sizes as a worst-case scenario.
- **Impacts**: Damage to several areas in town, including homes in the Sherwin Range and Knolls neighborhoods, face the risk of avalanche damage. Also, the Mammoth Mountain Ski Resort ski lifts and lodges that are vulnerable to runout paths originating from Mammoth Mountain, which could impact the local economy and thousands of visitors on the slopes when avalanche risk is high.
- **Jurisdiction-Specific Vulnerabilities**:
  - Private homes and businesses located in the southwestern part of town are vulnerable to avalanche events.
  - Visitors to the ski slopes are vulnerable to avalanches in high-risk areas.
  - The local economy is primarily tourism-based, including skiing.
  - Lake Mary Road is at risk of avalanche damage from the nearby Mammoth Mountain and Mammoth Pass.

Dam Failure

- **Location:** Mammoth Creek, which drains the Mammoth Lakes Basin containing over a dozen lakes, including the three dammed lakes, collects water from the Sierra crest and flows downstream through Lake Mary, Lake Mamie, and into Twin Lakes. The creek exits the Mammoth Lakes Basin at the outlet of Twin Lakes and continues along the southern edge of the Town of Mammoth Lakes.
- **Extent:** None of the dammed lakes in Mammoth Lakes Basin considered high or significant risk dams, however urbanized flooding from any level of dam failure could occur.
- **Impacts**: A failure of any of these dams could lead to significant flood inundation within the urban area of Mammoth Lakes, potentially impacting numerous structures along the creek. In addition, a decline in tourism, critical for the area's economy, can occur if flooding deters visitors
- **Jurisdiction-Specific Vulnerabilities**:
  - Critical facilities, homes and businesses located near the outlet of Twin Lakes and the southern edge of the town may be vulnerable to inundation from dam failure.

- The local economy is large tourism-based which could be impacted by widespread street flooding if roads become unsafe.
- Data limitations exist, indicating there may be an additional unknown level of risk to this hazard.
- Residents on the eastern section of Mammoth Lakes downstream from Twin Lakes are most vulnerable from flooding from dam failure.

Disease and Pest Management

- **Location:** The entire planning area.
- **Extent:** Based on historical occurrences, the Disease Severity Scale for Town of Mammoth Lakes indicates a moderate susceptible/disease score 5. Pine mortality caused by the mountain pine beetle (*Dendroctonus ponderosae*) has remained high.
- **Impacts**: Diseases and pests can impact local water systems, agriculture, and natural resources like forests. There have been confirmed cases of avian influenza and hantavirus infections in Town of Mammoth Lakes that has impacted public health resources.
- **Jurisdiction-Specific Vulnerabilities**:
  - Water systems could be vulnerable to specific disease and pests. Recent detections of avian influenza in wastewater highlight the importance of surveillance in understanding and managing outbreaks.
  - Community activities, especially those in natural settings are vulnerable to decline as health concerns over pest-related diseases emerge, potentially leading to reduced participation in outdoor recreation.
  - Hantavirus can cause illness and potentially death for those who come into contact with rodents or rodent droppings. This particularly impacts cleaners and domestic workers who are at higher risk of coming in contact with rodent droppings.

Drought

- **Location:** The entire Town is susceptible to drought.
- **Extent:** Based on historical data, the Town of Mammoth Lakes can expect to experience Exceptional Drought (D4) as a worst-case scenario.
- **Impacts**: Drought can result in economic and environmental impacts, including reduced snowpack and groundwater supply. In the Town, related economic activities including tourism may be disrupted by prolonged drought. Water systems can also be impacted due to increased strain on the system.
- **Jurisdiction-Specific Vulnerabilities**:
  - Tourist economy for the town is vulnerable to the impacts of drought economically, as it is near ski resorts, parks, and lakes that can be directly impacted from reduced precipitation.

- Water systems are vulnerable. The Town receives water through the Mammoth Community Water District, which may necessitate water conservation measures or a switch from surface water to groundwater during prolonged drought conditions.
- Older residents may lack efficient cooling systems and face health risks from elevated temperatures and lack of water.

Earthquake and Seismic Hazards

- **Location:** The entire town can experience intense ground shaking from earthquake and seismic activity.
- **Extent:** Depending on the scenario, according to the Modified Mercalli Intensity Scale, the Town can expect to experience shaking levels ranging from IV – Light to VII – Very Strong.
- **Impacts**: Damage to buildings and critical facilities, people in the vicinity of weak structures. Critical infrastructure, including medical, communications, power, and transportation community lifelines can be impacted. Severe damage to popular tourist attractions could impact the local economy.
- **Jurisdiction-Specific Vulnerabilities**:
  - The Town of Mammoth Lakes is located in the vicinity of the Antelope Valley fault, the Hilton Creek Fault, White Mountains Fault and the Fish Lake Valley Fault, making the area prone to earthquakes.
  - Structures, including critical facilities, are likely at risk to seismic activity due to their age. However, data limitations exist, indicating further need to study this vulnerability.
  - Depending on the location and size of the event, transportation routes in and out of the community may be cut off.
  - A largescale event could put a strain on local housing and medical capacities. The time of the year may influence the vulnerability of the community as during peak tourism season, large quantities of visitors who may have only intended to stay for the day could be trapped without adequate food, water, and shelter.
  - The local economy is vulnerable to the long-term effects of an earthquake.
  - People living in vehicles or temporary housing may lack structurally sound shelter and communications access.

Energy Shortages and Energy Resiliency

- **Location:** Energy emergencies can affect any part of the planning area.
- **Extent:** Based on historical occurrences, the Town can expect to experience regular intervals of power outages that cause service disruptions.

- **Impacts**: Loss of power to local homes and businesses can impact daily life and the local tourist economy. Prolonged power outages could lead to loss of life and deterioration of health conditions for individuals dependent on life-sustaining medical equipment dependent on electrical power.
- **Jurisdiction-Specific Vulnerabilities**:
  - All of the town's critical facilities are vulnerable to the effects of frequent and prolonged power outages and have a direct impact on the local tourism industry if alternative energy sources are not available.
  - Vulnerable populations dependent on life-sustaining medical devices may experience health risks. Medical facilities like Mammoth Hospital are also at risk.
  - Vulnerability increases depending on the weather. As a worst case scenario, power outages during a significant winter storm especially when evacuation routes are closed could trap people in their homes without sufficient heating.
  - Propane can cause explosions and spark fires. Data limitations exist as some lines are unmapped across Town.

Epidemic/Pandemic

- **Location:** More densely populated areas like the Town of Mammoth Lakes would foster the spread of diseases like the flu, COVID-19, and RSV faster than less densely populated areas of the county.
- **Extent:** Defined by geographic spread, epidemic disease is spread on the local and community level, while a pandemic is national or global, both of which can occur quickly isolated communities, such as in the planning area.
- **Impacts**: Epidemic/pandemic can impact human health, causing everything from days off work to death. Widespread pandemics can impact worker productivity, potentially disrupting critical services like medical care. Economically, the local tourism sector, a crucial economic pillar, may experience declines as potential visitors are dissuaded by health risks.
- **Jurisdiction-Specific Vulnerabilities**:
  - The Town's remote location complicates the swift deployment of medical resources and personnel during a health crisis.
  - Transportation complications, such as road closures and limited helicopter landing sites, can impede efforts to quickly evacuate sick patients.
  - Medical services can be overwhelmed by an influx of tourists which far exceed the Town's regular population during peak seasons.
  - Additional information is needed on housing options during a major event such as global pandemic where infected people, including out of town visitors who may not have plans for long stays, are required to quarantine. There are limited shelters and long-term housing available.

- Residents with disabilities or without personal vehicles may be unable to travel to testing, treatment, or testing sites.

Extreme Heat

- **Location:** The entire planning area.
- **Extent:** The Town may receive extreme heat warnings based on current heat index, also known as the apparent temperature or how temperature feels to the human body when relative humidity is combined with the air temperature. (see Extreme Heat profile in base plan)
- **Impacts**: Extreme heat impacts can be on the transportation infrastructure from warming, include softening or buckling of road pavement and deterioration of concrete structures, compromising roadway integrity during heat waves or reducing their useful lifetimes.
- **Jurisdiction-Specific Vulnerabilities**:
  - The transportation infrastructure and energy infrastructure, critical facilities, including pavement, asphalt, and the power grid are vulnerable to extreme heat events and may require financial resources to improve structures and increase maintenance.
  - Individuals exposed to extreme heat may suffer from heat exhaustion, and other heat related medical conditions.

Flood

- **Location:** Generally low flood hazards with the exception of Mammoth Creek, which can carry significant volumes during peak 100-year flood conditions. FEMA flood maps likewise show areas adjacent to Mammoth Creek in the Old Mammoth area as within the 100-year flood zone. Over 444 acres of the town are located in the 100-year flood hazard zone. Rain, including rain-on-snow events, can impact the entire town.
- **Extent:** Flooding issues in Mammoth Lakes have been the result of shallow, overbank flooding, within the 100-year flood zone.
- **Impacts**: Flooding can damage or destroy local infrastructure, private property, transportation systems, water systems, and utility systems.
- **Jurisdiction-Specific Vulnerabilities**:
  - Communities living in flood prone areas may experience financial hardships due to loss of access to their homes and places of employment from flood damage, especially for those with limited savings or insurance coverage.
  - Flood risk may vary depending on snow accumulation. Rainwater can weigh down already snow-covered structures, potentially causing damage including structural collapse. Roofs that are not as well designed for snowy climates are particularly susceptible.

- The local tourism industry is vulnerable to loss of business due to closures from flood damage and loss of inventory.
- Visitors unfamiliar with flooding in the region may be caught off guard by fast developing events.
- Major roads, including Old Mammoth Road, along Mammoth Creek and its tributaries are vulnerable to flooding.

Landslide

- **Location:** All deep-seated landslide susceptibly classes are located in various sections of town.
- **Extent:** All landslide susceptibility classes are found in various locations throughout the Town of Mammoth lakes. All mass wasting movement types can be found in town.
- **Impacts**: The town's diverse climate, location and susceptibility to ground shaking from fault lines which can trigger landslides, exposing its critical facilities and infrastructure to landslides damage.
- **Jurisdiction-Specific Vulnerabilities**:
  - Critical facilities and infrastructure and the transportation system (HWY 203) are vulnerable to landslide damage, due to proximity to susceptibility zones.
  - Landslide-prone areas can cause substantial financial losses for property owners and businesses.
  - Residents in the southwestern neighborhoods of Mammoth Lakes, including The Bluffs, are particularly vulnerable to landslides.

Hazardous Materials

- **Location:** The town is not located in close proximity to the interstate highway corridor where the likelihood of a Hazmat incident occurring is higher. However, a Hazmat release along US 395 could affect the town if the wind carried gases or odors; if the release triggered other hazards, such as fire; or if it blocked key access into the town. In addition, some vehicles carry Hazmat such as propane for use in the town, which poses some risk.
- **Extent:** The Town would utilize the Hazmat Warning System to identify specific Hazmat incident levels. Levels range from 1- Minor to 5- Catastrophic.
- **Impacts**: Transportation in and out of Mammoth Lakes can be restricted due to a hazardous materials spill. Air and water quality may be impacted. Long-term environmental impacts may be experienced. Transportation routes may be disrupted, including potentially evacuation routes out of town. Economic losses may arise from road closures shutting down affected areas, impacting businesses and loss tourism revenue.
- **Jurisdiction-Specific Vulnerabilities**:
  - Major transportation routes, like State Route 203 (SR 203), are vulnerable to hazardous materials spills during transport.

- Residents that use propane are vulnerable to propane spills and potential explosions.

Severe Wind

- **Location:** Severe wind events have the potential to occur in a variety of locations around the Town of Mammoth Lakes.
- **Extent:** The extent of severe wind can be classified using the Beaufort Wind Scale. The worst-case scenario for severe winds are speeds more than 100 mph.
- **Impacts**: Prolonged power outages from downed power lines due to severe winds, or from wildfire ignition caused by downed power lines can impact homes and businesses. In addition, severe winds can overturn vehicles on the local highways that lead to road closures and increase risk on roads.
- **Jurisdiction-Specific Vulnerabilities**:
  - Severe wind can cause trees to fall impeding road access or even power lines to fall increasing the risk of a fire.
  - Individuals with pre-existing medical conditions dependent on electricity to power life-sustaining medical equipment can be put at risk when severe winds cause prolonged power shortages from downed power lines.
  - Housing quality significantly influences vulnerability. Structures built before the adoption of modern building codes may not be designed to withstand severe wind conditions, placing their occupants at greater risk.

Severe Winter Weather and Snow

- **Location:** All of the Town of Mammoth Lakes can be impacted by severe winter weather and snow.
- **Extent:** The National Weather Service Winter Storm Severity Index (WSSI) and the Wind Chill Temperature Index are both used to indicate severity levels for winter weather and snow. The worst-case scenario for winter storms based on the winter severity index is extreme.
- **Impacts**: Disruption of local businesses and decline in tourism. The structural integrity of homes and historic sites may be compromised as snow and ice cause damage necessitating costly repairs and preservation efforts.[247] Community lifelines, including energy, water, and communications can be damaged or destroyed. Prolonged outages can delay response and hinder recovery efforts.
- **Jurisdiction-Specific Vulnerabilities**:
  - Severe winter weather and snow can cause significant disruption that make transportation and infrastructure unsafe, and vulnerable to the hazard.

[247] Town of Mammoth Lakes. "22/23 Winter Storms After-Action Reports," April 2024. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/14208/MammothLakes_WinterStorms-AAR_FinalDraft_052624.

- Individuals in the community with limited access to alternative heating and cooling methods during prolonged power outages due to severe winter weather and snow can experience health impacts.
- Communicating important messages in English and Spanish has been a challenge.
- There is a limited number of pre-identified locations suitable for sheltering.
- Propane leaks or explosions around town can increase during severe winter storm and snow events. A clear protocol is needed to assess and mitigate this risk. Data limitations exist as not all propane tanks and lines are mapped.
- Building closures or disruption to services due to unplowed streets and an overwhelming amount of snow as well as the cost of snow removal can result in economic impacts.
- As of the 22/23 Winter Storms After-Action Report, the Town's buildings codes did not sufficiently account for the significant snow loads and propane infrastructure deficiencies highlighted during this disaster event.

Volcanoes

- **Location:** The Town of Mammoth Lakes is near the southwest edge of the Long Valley Caldera. Mammoth Mountain and basaltic volcanic vents have been historically active within the town boundaries. In addition, an area of potential future volcanic vents, inferred based on seismic activity, extends into the town's east side. The entire town is within hazard areas for pyroclastic flows and tephra falls.
- **Extent:** The Long Valley Volcanic Center, which is considered in the impact proximity to the planning area, is one of 18 "very high threat" volcanoes listed in a 2005 ranking developed as part of the National Volcano Early Warning System (NVEWS).
- **Impacts**: Ash accumulations from volcanic eruption can collapse building roofs, close roads, and seriously disrupt utilities and communications.
- **Jurisdiction-Specific Vulnerabilities**:
  - All assets—including people, structures, and infrastructures are at-risk from disruption, damage, or destruction from this hazard.
  - Ash can pose a threat to air and water quality.
  - Tourists may be particularly vulnerable, especially those unfamiliar with this hazard, to death or injury.

Wildfire

- **Location:** Wildfire is a concern for the entire Town of Mammoth Lakes; historically, wildfires have occurred on all sides of the town. However, certain portions of Mammoth Lakes have higher hazard

exposure, including areas close to the Valentine Reserve Ecological Study Area and neighborhoods south of Old Mammoth Road (typically referred to as Old Mammoth and Lake Mary).

- **Extent:** CAL FIRE has mapped the entire Town of Mammoth Lakes in considered to be in the Wildland Urban Interface, and in the high and very high wildfire severity zone.
- **Impacts**: Wildfire can damage or destroy structures, including homes, businesses, critical facilities, and other community assets in the town. People may be injured or killed.
- **Jurisdiction-Specific Vulnerabilities**:
  - Wildfire can damage structures and community lifelines including critical power and communication infrastructure in Mammoth Lakes, including internet connection.
  - Wildfires can block access to transportation routes isolating communities and preventing emergency services.
  - Woodlands and other natural vegetation can be destroyed resulting in a loss of timber, wildlife habitat, scenic quality, and recreational resources.
  - People living in the WUI are at higher risk.
  - During evacuation and emergency response procedures, the lack of alternative routes could inhibit transportation in and out of most areas.

Wildlife Collisions

- **Location:** Wildlife collisions are most common on SR 203 between Crowley Lake and the Town of Mammoth Lakes.
- **Extent:** Due to its more developed nature and lower speed limits, the risk of wildlife collisions in Town of Mammoth Lakes is significantly lower than the rest of the county.
- **Impacts**: Wildlife collisions pose significant risks to both human safety and animal populations in Mammoth Lakes. Incidents can lead to injuries or fatalities for both animals and drivers, and they may also result in extensive vehicle damage and expensive repair costs.
- **Jurisdiction-Specific Vulnerabilities**:
  - The diverse ecosystems in the region, home to species such as deer, bears, and various small mammals, increase the risk of vehicle encounters, particularly near roadways that intersect natural habitats.
  - Transportation routes can be temporarily closed due to wildlife collisions.

Jurisdiction-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each jurisdiction since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the jurisdiction), conditions that may affect the risks and vulnerabilities of the jurisdictions (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 133 lists the changes in development for Town of Mammoth Lakes.

Table 133: Town of Mammoth Lakes Changes in Development

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
Avalanche	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mammoth Lakes avalanche conditional development areas.	Potentially increases population in these areas	Climate change is exacerbating this hazard.	Increased
Dam Failure	None	None	Climate change	Stayed the same
Disease and Pest Management	None	None	Climate change	Increased
Drought	None	None	Climate change	Increased
Earthquake and Seismic Hazards	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mammoth Lakes.	None	None	Increased
Energy Shortages and Energy Resiliency	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the structures using electricity in the Town.	None	Climate change	Increased
Epidemic/Pandemic	During the pandemic, second homeowners chose to stay in the Eastern Sierra which increased the	Increased population	Climate change	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
	regional population and strained local resources. The pandemic fundamentally changed the housing market during the work from home "Zoom Cabin" trend which increased the pace of local development and decreased the housing options available locally.			
Extreme Heat	None	None	Climate change	Increased
Flood	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mammoth Lakes.	None	Climate change	Increased
Landslide	None	None	None	Stayed the same
Hazardous Materials	None	None	None	Stayed the same
Severe Wind	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mammoth Lakes.	None	Climate change	Increased
Severe Winter Weather and Snow	State law streamlining the construction of Accessory Dwelling Units (ADU) increases the habitable structures being constructed in Mammoth Lakes.	None	Climate change	Increased
Volcanoes	None	None	None	Stayed the same

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
Wildfire	Changes to State Minimum Fire Safe Regulations (setbacks, emergency water, and road/access standards) and the conflict of those regulations with State ADU streamlining law. Changes to ADU state law that increases habitable structures in fire hazard areas and provides for a reduction in setbacks to 4' (as opposed to the BOF standard of 30').	None	Climate change	Increased

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help to carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision-makers determine feasible mitigation actions. The Town of Mammoth Lakes assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 134: Town of Mammoth Lakes Plans

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	Yes	Identifies overarching policies and programs that affect land use, public	Last updated: 2019

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		services, housing, natural resources, and safety, among other items. The General Plan can be updated to include information and mitigation measures identified in this Plan.[248]	Next updated: As needed
Capital Improvement Plan (CIP)	Yes	The CIP can be used to propose mitigation actions projects and identify funding sources. [249]	Last updated: 2025–2026 Next updated: Annually
Climate Change Adaptation Plan	No		Next updated: 2028
Community Wildfire Protection Plan	Yes	The CWPP, located in the 2021 MCHMP, involves wildfire mitigation best practices, resources, and community partners to propose wildfire risk reduction mitigation actions and provide funding sources	Last updated: 2021 Next updated: 2026
Economic Development Plan	Y	Economic Development element, located in the General Plan can be used in developing mitigation actions and provide alternative funding sources.[250]	Last updated: 2007 Next updated: As needed
Land Use Plan	Yes	Located in the General Plan, the Future Land Use Map can be used in developing mitigation actions.[251]	Last updated: 2016 Next updated: As needed
Local Emergency Operations Plan	Yes	Located in General Plan, the Local Emergency Operations element describes the responsibilities, roles, and resources of local agencies	Last updated: 2017 Next updated: As needed

[248] Town of Mammoth Lakes. "Town of Mammoth Lakes General Plan," 2019. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.
[249] Town of Mammoth Lakes. "Capital Improvement Plan," 2023. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/13231/Draft-CIP-2023-24.
[250] Town of Mammoth Lakes. "Town of Mammoth Lakes General Plan," 2019. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.
[251] Town of Mammoth Lakes. "Town of Mammoth Lakes General Plan," 2019. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		before, during, and directly after an emergency.[252]	
Stormwater Management Plan	Yes	Located in General Plan, the Stormwater Management element can support identification of flood mitigation actions and define objectives.[253]	Last updated: 2019 Next updated: As needed
Transportation Plan	Yes	Located in the General Plan, the Mobility and connectivity element in the plan can be used in developing transportation lifelines mitigation actions.[254]	Last updated: 2024 Next updated: 2028
Substantial Damage Plan	No	A Substantial Damage Plan can be used to understand what regulations exist before developing mitigation actions	N/A

Table 135: Town of Mammoth Lakes Regulations and Ordinances

Plans	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes; 2022 California Building Code	Yes	Last updated: 12/7/2022 Next updated: 01/01/2026
Flood Insurance Rate Maps	Yes	Yes	Last updated: 02/18/2011 Next updated:

[252] Town of Mammoth Lakes. "Town of Mammoth Lakes General Plan," 2019. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.
[253] Town of Mammoth Lakes. "Town of Mammoth Lakes General Plan," 2019. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.
[254] Town of Mammoth Lakes. "Town of Mammoth Lakes General Plan," 2019. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/9579/General_Plan-Updated-Sep-2019?bidId=.

Plans	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Floodplain Ordinance	Yes	Yes	Last updated: 03/19/2025 Next updated: N/A
Subdivision Ordinance	Yes	Yes	Last updated: 10/15/2008 Next updated: As needed
Zoning Ordinance	Yes	Yes	Last updated: 03/19/2014 Next updated: As needed
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Last updated: 03/19/2014 Next updated: As needed
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They also include tools that can help you carry out mitigation actions.

Table 136: Town of Mammoth Lakes Administrative Capabilities

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	Yes	Yes	Yes	Yes
Civil Engineer	Yes	Yes	Yes	Yes
Community Planner	Yes	Yes	Yes	Yes
Emergency Manager	Yes	No	No	Yes

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Floodplain Administrator	Yes	Yes	Yes	Yes
Geographic Information System (GIS) Coordinator	Yes, under contract with Mono County	Yes	Yes	Yes
Planning Commission	Yes	Yes	Yes	Yes
Fire Safe Council	Coordinated by Mammoth Lakes Fire Protection District	Yes	Yes	Yes
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOADs (Voluntary Organizations Active in Disasters)	No	N/A	N/A	N/A

Table 137: Town of Mammoth Lakes Technical Capabilities

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Applied for project specific mitigation measures as appropriate.	To assist with funding resources capability
Hazard Data and Information	Yes	To assist with data and information management. For example, to manage damaged building inventory during the 2022-23 snow emergency.	To assist with data and information management
GIS	Yes	To assist with management of data including asset management and tracking of patterns with a georeferenced database.	To assist with GIS capability and mapping

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mutual Aid Agreements	Yes	The Town of Mammoth Lakes maintains mutual aid agreements with Mono County and the US Forest Service to support each other in emergencies. The MLPD has a mutual aid agreement with Madera County due to the Town's proximity to Devil's Postpile National Monument.	Continue to maintain and/or enter into mutual aid agreements with partner agencies to allow the Town to share limited resources during emergencies.

Financial

Financial capabilities are the resources to fund mitigation actions.

Table 138: Town of Mammoth Lakes Financial Capabilities

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Yes, capital improvement projects	Yes	Yes
General Funds	Yes	Yes, capital improvement projects	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Yes. Mitigation projects	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	No	N/A	No, this grant funding has been discontinued by the federal government.	N/A
Flood Mitigation Assistance (FMA)	No	N/A	Yes	No

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	Yes	No
Community Development Block Grant (CDBG)	Yes	This funding source has been used in the past for housing and childcare programs.	Yes	No
Natural Resources Conservation Services (NRCS) Programs	No	N/A	Yes	No
US Army Corps (USACE) Programs	No	N/A	Yes	No
Property, Sales, Income, or Special Purpose Taxes	Yes	These taxes enter the general fund and have been used for mitigation projects in the past.	Yes	Yes
Stormwater Utility Fee	No	N/A	Yes	Yes
Fees for Water, Sewer, Gas, or Electric Services	Yes	These funds have been used for various mitigation projects in the past.	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	These funds have been used for various mitigation projects in the past.	Yes	Yes
General Obligation or Special Purpose Bonds	Yes	No	Yes	Yes
Federally Funded Programs (Please describe)	Yes	These funds have been used for various mitigation projects in the past.	Yes	Noe
State-Funded Programs (Please describe)	Yes	These funds have been used for	Yes	Yes

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
		various mitigation projects in the past.		
Private Sector or Nonprofit Programs	Yes	These funds have been used for various mitigation projects in the past.	Yes	Yes

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction.

Table 139: Town of Mammoth Lakes Education and Outreach Capabilities

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	Yes	Yes	Town E-News (weekly)
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	Social media posts that target current weather impacts/hazards. Fire mailers are sent to all residences to encourage defensible space work.
Public Meetings/Events (Please describe.)	Yes	Yes	Various as needed (e.g., winter expo, summer expo, Kidapalooza)
Emergency Management Listserv	No	Yes	Informal internal processes that are dependent upon each specific hazard
Local News	Yes	Yes	Town frequently advertises in local news to heighten public awareness.
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	Yes	Yes	Various flyers/posters as needed.

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Insurance Disclosures/Outreach	No	No	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	Yes	Yes	Various organizations work with the Town to reach vulnerable communities.
Social Media (Please describe.)	Yes	Yes	Social media posts that target current weather impacts/hazards.

Ability to Expand and Improve Existing Capabilities

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The Town of Mammoth Lakes could work with its planning department to create more in-depth hazard focused plans including a flood management strategy, slope assessment, and hazmat assessment. These plans will allow the Town of Mammoth Lakes to better address hazards.
Administrative and Technical	The Town of Mammoth Lakes could improve its use of direct technical assistance to develop hazard mitigation projects, by obtaining parcel-specific information and incorporating this information into GIS related databases
Financial	New grant writing staff could help the current emergency management staff to access grant funds for hazard mitigation projects. Several grants have not been applied for due to lack of staff to apply and manage the grant.
Education and Outreach	The Town of Mammoth Lake could improve their outreach by creating a hazard mitigation page on the Town website that is updated regularly with hazard mitigation information. Linking the digital HMP to public outreach efforts will help expand its reach.

National Flood Insurance Program Capability Assessment

The National Flood Insurance Program (NFIP) is a FEMA program that provides flood insurance to millions of policyholders across the country. The plan must describe participation in the NFIP for each participant, as applicable, in accordance with NFIP regulatory requirements. Town of Mammoth Lakes participates in the NFIP.

Table 140: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Public Works Director, secondary
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Floodplain Management (Chapter 12.10 of the Town of Mammoth Lakes Municipal Cod. The chapter establishes regulations for development in floodplain areas to minimize public and private losses due to flood conditions.
Have there been any changes in your community floodplain management program since the last version of the plan in 2020?	None
When was the community's most recent Community Assistance Visit (CAV)?	Unknown
Were any violations noted on the community's most recent CAV?	Unknown
Is there an upcoming CAV? If no, is one needed?	No
When was the most recent floodplain management ordinance adopted?	August 2024
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Yes. Floodplain Management Section12.20.040. - Methods of reducing flood losses and 12.20.080. - Provisions for flood hazard reduction.
Who is responsible for permitting?	Building Official
How does the community issue development permits in the special flood hazard area?	Duties and responsibilities of the floodplain administrator. The duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following: (1) Permit review: Review all development permits to determine that: a. Permit requirements of this chapter have been satisfied; b.

Question	Response
	All other required State and Federal permits have been obtained; c. The site is reasonably safe from flooding; and d. The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated.
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No
How many repetitive loss (RL) structures does the community have? (List number and type of structure.)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure.)	None
Have any RL/SRL properties been mitigated since the last plan update?	None
Who is responsible for making substantial damage/substantial improvement determinations?	Floodplain Administrator
How does the substantial damage/substantial improvement process work in your community?	Substantial damage/substantial improvement structures are identified through the permitting process and required to come into compliance with the requirements outlined in 12.20.080. - Provisions for flood hazard reduction. (a)Standards for construction.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	ENews on Town website
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (Simply stating	The Town's Floodplain Administrator will engage in Floodplain Mangers membership to stay

Question	Response
"the community will continue to comply with the NFIP" will not meet FEMA's planning requirements.)	informed of upcoming changes to the NFIP and potential effects these changes could have

Table 141: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	Requests map changes during the Risk MAP process.
When did the latest Flood Insurance Rate Map (FIRM) become effective?	02/18/2011
When was the latest FIRM adopted?	09/30/1987
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	The study, FIRMs and FBFMs are on file at the Town offices and can be furnished upon request.
Does the community use any Risk MAP products? If so, describe.	12.20.060. - General provisions. This FIS and attendant mapping is the minimum area of applicability of this chapter and may be supplemented by studies for other areas which allow implementation of this chapter and which are recommended to the Town Council by the floodplain administrator.
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No

Table 142: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Information about floodplain management and flood insurance is posted on the Town's website.
How does the community engage with insurance agents on flood insurance?	Unknown
Does the community (or state) have flood hazard disclosure laws?	15.24.140. - Flood hazard areas. Design for structures within flood hazard areas shall be per the requirements established in the

Question	Response
	most recently adopted floodplain management ordinance. (Code 1990, § 15.24.120; Ord. No. 13-10, § 3(exh. A), 12-4-2013; Ord. No. 19-05, § 2(exh. A), 11-20-2019)
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	None
Are there any areas where flood insurance is lacking?	None

Town of Mammoth Lakes 2026–2031 Mitigation Strategy

The mitigation strategy is often known as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities reflects an ongoing process to identify, analyze, and address hazards of concern. The strategy is comprised of goals (included in the base plan), actions, and the mitigation action plan. The goals for this plan are as follows:

- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- GOAL 2. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- GOAL 3. Prepare for changing climate conditions in Mono County.
- GOAL 4. Maintain adequate emergency response capabilities.
- GOAL 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole community approach to response, recovery, and mitigation.
- GOAL 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- GOAL 7. Study and implement mitigation actions to address potential impacts of compounding hazards such as flood following wildfire.

- GOAL 8. Utilize the mitigation planning process as a call to action demonstrating plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

Documenting the status of the actions identified in the plan helps show progress in implementing mitigation measures. At the same time, it provides the opportunity to reevaluate priorities and resources, as well as lessons learned which can be captured and utilized during future mitigation action development and implementation. For this plan updated, the plan participants reviewed all of the actions identified in the previous plan and indicated whether the action has been completed or not.

Table 143: Town of Mammoth Lakes Mitigation Actions

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
Multiple Hazards				
1.3	Require individuals and companies that provide home or accommodation rentals to clearly post available emergency evacuation routes for guests.	Town of Mammoth Lakes	Implemented.	No
1.4	Collect parcel-specific information necessary to complete a more accurate "estimate losses" for inclusion in the next LHMP update. The County and Town should inventory existing developments to obtain the following data: types of structures, construction types, building sizes, building footprints, structure values, and replacement values. Incorporate data into a geographic information system (GIS) and related databases.	Community Development, Information Technology, Assessor's Office		No
1.5	Continue to work with state and federal agencies and wireless providers to expand and improve coverage and interoperability of	Sheriff's Office, Police, Fire, and Mono County IT	Ongoing effort, CRIS system is currently being upgraded	Yes

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
	cell and radio service throughout the County.			
1.6	For communities with only one access route, evaluate options to provide an emergency access route, prioritized based on multi-hazard risk to existing access. Design and create the alternative access route(s) if an option is chosen and if funding and resources are available.	Public Works, Community Development		No
1.7	Provide information to community members during emergencies through the following media: 1) coordinated through Public Information Officer (PIO); 2) local radio in English and Spanish; 3) reverse 911; 4) internet; and 5) local phone trees.	Sheriff's Office, Police, Fire, and EMS, PIO		No
1.8	Each department should have emergency supplies, including, at minimum, drinking water and meals ready to eat (MREs) to support its personnel for 24–48 hours.	Sheriff's Office, Administration		No
1.9	Require applicants for major development projects to conduct hazard assessment studies and to design new or significantly retrofitted structures to be resilient to identified priority hazards in this plan.	Community Development		No
1.10	Develop procedures that allow public infrastructure and service personnel with appropriate identification to access areas affected by a hazard event that has been deemed safe to assist in response and early recovery	Sheriff's Office, Police, Fire, and EMS, Public Works		No

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
	activities. Incorporate procedures in the Emergency Operations Plan upon its next update.			
1.11	In communities with limited evacuation options, review residents' ability to obtain shelter within their community. For areas that do not have a suitable shelter location, evaluate locations for creating one and work with local resident groups and emergency response providers to do so.	Sheriff's Office, Community Development		No
Wildfire				
2.1	For communities and neighborhoods identified to be at the highest fire risk, complete a parcel-level analysis. Incorporate it into a GIS system and use it to prioritize parcel-level defensible space improvements. Upon completion of the analysis, update the CWPP to incorporate information.	TOML, MLFPD	In 2025, the Town of Mammoth Lakes established a wildfire prevention task force. As part of these ongoing efforts, Fireaside is being used to track parcel-level wildfire risk data and prioritize defensible space improvements.	Yes
2.3	Request Caltrans to install more and higher-visibility "fire awareness" signs along major highways to inform the public of the current fire danger and promote fire prevention.	Public Works, Community Development		No
2.5	Support efforts by Firewise communities and community groups to promote fire prevention, fuel treatments, invasive species control, and defensible space in the WUI and assist in identifying	Town of Mammoth Lakes	There are ongoing efforts to create Firewise communities in the Town. There are currently three	Yes

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
	and pursuing funding opportunities to complete these activities.		active Firewise communities in the Town.	
2.6	Develop community-level fire plans for all communities with the highest fire risk, utilizing resources and assistance from the California Fire Alliance.	Fire, Police, and EMS		No
2.7	Educate homeowners about forest health, fire prevention, and home defense and distribute information on fire prevention resources.	Fire, Police, and TOML	Ongoing efforts through the Mammoth Lakes Wildfire Taskforce.	Yes
2.8	Ensure that wildland fire hazards are disclosed during the building permit process, emphasizing properties in the WUI zone.	Community Development		No
2.9	Encourage local landowners to participate in state and federal programs for fuel reduction on private property, such as the CAL FIRE Vegetation Management Program, CAL FIRE Hazardous Fuel Reduction Program, and BLM Wildland Urban Interface Grant Awards program.	TOML	Ongoing outreach efforts as part of the Mammoth Lakes Wildfire Taskforce	Yes
2.10	Support efforts by the US Forest Service, the Bureau of Land Management, and other landowners to control or eradicate invasive and/or highly destructive forest pests.	Community Development		No
2.12	Investigate a program that provides residents who own older, non-compliant WUI structures the opportunity to make the exteriors code compliant.	TOML	Not yet begun. Looking for funding sources.	Yes
2.13	Supports fuel reduction, maintenance of treated areas, and	Fire and TOML	Ongoing.	Yes

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
	broadcast burning in areas around the private land boundary.			
2.15	Prepare for the health impacts of smoke from wildfires, including designating clean air shelters in additional communities as needed and notifying residents of their locations.	TOML	There is an ongoing study to determine best location for a resilience center.	Yes
Severe Winter Weather and Snow				
3.1	Maintain a list of the residences and needs of vulnerable persons, including elderly residents, socially isolated persons, and immune-compromised individuals, that could require special emergency response resources during hazard events. Develop a response plan for vulnerable persons for use by emergency operators during hazard events.	Public Health, Sheriff's Office, Fire, Police, and EMS	Ongoing effort by Mono County.	No
3.2	Coordinate and work with Caltrans and local snow removal resources to maintain critical roadway operations.	TOML	Town coordination with Caltrans is ongoing as needed during major snow events.	No
3.3	Educate community members about severe storm preparedness, including home and vehicle supplies and public refuge locations.	Sheriff's Department, Fire, Police, and EMS		No
3.4	Operate and make accessible public refuge locations within 10 miles of all urbanized communities during severe storm events. Each location should be heated and have on-site backup generators,	Sheriff's Department, Social Services	There is an ongoing study to determine best location for a resilience center.	No

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
	adequate parking, and sufficient food and water to serve vulnerable nearby residents and visitors.			
	Seismic			
4.1	Conduct a comprehensive survey of the structural condition of all public buildings and critical facilities, including identification of unreinforced masonry and soft-story structures. Prioritize surveying buildings and facilities in earthquake fault zones. Retrofit or replace structures, as funding allows, identified as being at high risk of collapse in a seismic event.	Public Works, Community Development		No
4.2	Continue to require new and retrofitted structures to meet minimum state seismic safety standards and encourage property owners to exceed these standards.	Public Works, Community Development		No
4.3	Require property owners to locate new developments outside of known fault rupture hazard zones or design to appropriate standards.	Community Development		No
4.4	Design Town- and County-owned infrastructure in fault rupture zones to resist damage from fault rupture and encourage other agencies to use similar strategies. Use similar strategies outside of fault rupture zones to the extent feasible.	Public Works		No
4.5	Require new development in areas susceptible to liquefaction to conduct a geotechnical evaluation and implement actions to mitigate liquefaction risk. Avoid	Public Works, Community Development		No

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
	development in areas where liquefaction risk cannot be adequately mitigated.			
Volcano				
5.1	Distribute information regarding evacuation procedures in the event of potential volcanic lava, pyroclastic, debris flow, or ash distribution.	Sheriff's Department, Fire, Police, and EMS		No
5.2	Support efforts to improve volcanic forecasting strategies.	Information Technology		No
Drought				
6.1	Encourage retrofits of private homes and businesses for increased water conservation. Continue to educate about and promote the Property Assessed Clean Energy (PACE) programs in funding retrofits.	MCWD		No
6.3	Provide landowners with resources about irrigation efficiency and crops with reduced water requirements. Encourage landowners to use plants that require little or no irrigation in new or retrofitted landscapes.	Community Development	Mammoth Community Water District, not the Town, works with landowners on irrigation. That part of this action has been removed.	No
Extreme Heat				
7.1	Identify ways to provide free or low-cost weatherization and energy-efficient heating and cooling appliances to lower-income residents without access to these devices.	Community Development		No

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
Severe Wind				
8.1	Work with Caltrans to install a real-time wind and visibility tracking system for crucial access road segments and incorporate warnings into online notifications and the emergency notification system.	Community Development		No
8.2	Encourage project applicants to incorporate wind-resistant design features into new or significantly renovated buildings.	Community Development		No
Flood				
9.3	Document past flood events in the GIS system to identify historic flooding patterns that can be used to understand better where repetitive flooding hazards occur and enable the County and Town to minimize risks to existing development in those areas.	Community Development, Public Works, Information Technology		No
9.4	Through an ongoing public education program, ensure that property owners are aware of flood hazards and practices necessary to diminish the impacts of those hazards. This program should include information on participation in the NFIP.	Community Development, Public Works		No
9.5	Develop a Comprehensive Flood Management Strategy for the County and Town.	Public Works		No
9.6	Consider investment in of stormwater infrastructure in areas of recurrent flooding and identify improvements that need to be implemented as funding becomes available.	TOML		Yes

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
Avalanche				
10.1	Update parcel-level avalanche mapping for the County's GIS system, including the Town of Mammoth Lakes data. Upon completion of mapping, develop a zoning overlay that requires a fair warning of avalanches for all permits and an avalanche risk assessment for all new residential development that recommends required construction standards.	Community Development		No
10.2	Support efforts by the US Forest Service and organizations such as the Eastern Sierra Avalanche Center to post information about avalanche risks and current conditions at trailheads throughout avalanche-prone areas, in visitor centers, and online.	TOML	Ongoing.	Yes
10.3	Develop a map for the County website that identifies roadway segments at avalanche risk and educates communities about the risks, forecasting methods, and roadway operations within areas at avalanche hazard areas. As part of the countywide notification system, provide real-time avalanche conditions along the identified roadway segments.	Public Works, Information Technology		No
10.4	Work with federal agencies to transfer privately owned properties in avalanche hazard zones adjacent to or on public lands into federal ownership or the ownership of land conservation organizations and restrict their use to permanent open space use.	Community Development		No

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
Hazardous Waste				
12.1	Establish multiple sites for free or low-cost disposal of hazardous household wastes, including electronic waste.	Public Works	This program is in progress. Mammoth Disposal has opened up a hazardous waste disposal site at their Transfer Station.	No
12.2	Support and publicize propane tank exchange and recycling programs.	Public Works	This program has been discontinued due to high costs.	No
12.3	Support public information and enforcement of standards for proper installation and storage of propane tanks.	TOML	Ongoing.	Yes
Disease and Pest Management				
13.3	Practice Integrated Pest Management strategies on public landscapes, emphasizing a preventive approach and minimizing the use of chemicals.	Community Development, Public Works		No
13.4	Conduct periodic educational campaigns through in-person events and various media types to encourage community members to remove standing water and practice other mosquito prevention strategies.	Public Health, Police, Fire, and EMS		No
13.5	Support efforts by the US Forest Service, the Bureau of Land Management, and other landowners to control or eradicate invasive and/or abnormally active forest pests.	TOML	Ongoing.	Yes

Measure Number	Measure Description	Lead Agency (include relevant Department and Position Title)	Status Update	Should this action be retained in the plan update?
Climate Change				
15.1	Based on more current information, reevaluate changes to hazards and risks caused by climate change every five years and revise the LHMP to account for new information.	Community Development, Public Health	Complete; climate change is considered in LHMP at every update.	No

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risk and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may also include additional response, preparedness, or prevention focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures Town of Mammoth Lakes has identified. Actions may not be completed within five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Further, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, the Town of Mammoth Lakes will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Landslides
- Hazardous Materials
- Severe Wind
- Severe Winter Weather and Snow
- Volcanoes
- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years

- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

The link below will provide more information on community lifelines.[255] Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA Community Lifelines are as follows:

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

Priorities

Priorities are defined by the community. Each action was assigned a prioritization category of low, medium, or high to each natural hazard action item being retained or created. The criteria to calculate the following priority categories is included in Table 145:

- **Low**: the action received less than 5 points.
- **Medium**: the action received 5-7 points.
- **High**: the action received 8-10 points.

Table 144 shows the mitigation actions Town of Mammoth Lakes has selected for this planning cycle.

[255] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

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Table 144: Town of Mammoth Lakes 2026–2031 Mitigation Actions[256]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Develop Snowpack/ Avalanche Danger Monitoring System	Avalanche, Drought	Obtain ongoing and enhanced funding sources for snowpack monitoring and avalanche threat monitoring in TOML and Mono County.	Public Works, Mono County	ESAC, Mammoth Resorts	Hazard Mitigation Grant Program, Pre-Disaster Mitigation Grant Program TOML General Funds	$250,000	Short-term	Safety and security	High
2	Installation of Outdoor Warning Systems	Avalanche, Dam Failure, Earthquake/Seismic Hazards, Flood, Landslides, Severe Wind, Severe Winter Weather and Snow, Volcanoes, Wildfire	Install audible sirens or an alternative method for notifying residents of imminent threat from various hazards including dam failure and wildfire. Areas with limited cell service will be specifically targeted for the system.	Mono County, OEM, Public Works	Fire districts, MCWD, State and Federal agencies	HMGP, PDM, TOML General Funds	$100,000-$300,000	Short-term	Safety and Security, Communications	Medium
3	Bark Beetle Mitigation Project(s)	Disease/Pest Management, Wildfire	Implement various bark beetle mitigation strategies including, but not limited to, pheromone treatments, SPLAT, etc. to help protect various tree species including the protected White Bark Pine.	USFS, Mono County, TOML Parks and Recreation	USFS, Mono County, TOML, LADWP, non-profits (Whitebark Institute)	HMGP, PDM, TOML General Funds	$250,000-$500,000	Medium-term	Safety and security	High
4	Biodiversity Friendly Landscaping Opportunities	Disease/Pest Management, Drought, Wildfire	Create a homeowners' guide to biodiverse, native landscaping. This will include suggestions for plant selection and best practices for planting	Community and Economic Development	USFS, Mono County	HMGP, PDM, TOML General Funds	<$100,000	Short-term	All	Low

[256] BLM = Bureau of Land Management, CEQA = California Environmental Quality Act, CRIS = California Radio Interoperable System, ESAC = Eastern Sierra Avalanche Center, FERC = Federal Energy Regulatory Commission, IMACA = Inyo Mono Advocates for Community Action, LADWP = Los Angeles Department of Water and Power, MCWD = Mono County Water District, MLFD = Mammoth Lakes Fire District, MLMAD = Mammoth Lakes Mosquito Abatement District, MMSA = Mammoth Mountain Ski Area, MUP = Multi-Use Paths, NEPA = National Environmental Policy Act, OEM = Office of Emergency Management, SCE = Southern California Edison, SMHD = Southern Mono Healthcare District, TOML = Town of Mammoth Lakes, USFS = United States Forest Service.

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			and maintenance. These gardens will support beneficial insects and animals, reduce water usage, and be fire-resistant.							
5	TOML Recycled Water Infrastructure Project	Drought	Install pumps and other infrastructure at Shady Rest Park and other TOML facilities/parks to allow future use of recycled water.	Public Works	MCWD, Mono County	HMGP, PDM, TOML General Funds	$200,000	Medium-term	Water systems	Low
6	Stormwater Retention Systems Improvements	Drought	Create programs and incentives to facilitate the installation of stormwater retention systems to promote groundwater recharge.	Public Works	MCWD, Mono County	HMGP, PDM TOML General Funds	$100,000–$500,000	Medium-term	Water systems	Medium
7	Cloud Seeding	Drought	Support Mammoth Mountain's program to cloud seed around hydrologic basins to create more snowfall.	Public Works, Mono County, USFS	MCWD, MMSA	HMGP, PDM TOML General Funds	$100,000–$200,000	Short-term	Water systems	Low
8	Water Conservation Education Efforts	Drought	Support programs to educate the public on water conservation.	Community and Economic Development, Mono County	MCWD, other water service districts	HMGP, PDM TOML General Funds	<$100,000	Short-term	Water systems	Low
9	Community Retrofit Assessment Project	Earthquake/Seismic Hazards, Flood, Wildfire, Severe Winter Weather, Severe Wind	Conduct data-driven analysis of public buildings and infrastructure to identify the potential need for retrofitting community infrastructure and structures. This assessment would inform potential alternate locations for the Town EOC. This would include	Mono County, Public Works		HMGP, PDM, TOML General Funds	<$100,000	Medium-term	Safety and security	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			upgrading HVAC systems to deal with wildfire smoke.							
10	Seismic retrofit of community infrastructure.	Earthquake/Seismic Hazards	Conduct seismic retrofit work on community infrastructure identified in the retrofit assessment project.	Mono County, Public Works		HMGP, PDM, TOML General Funds	$500,000 - $2 million	Long-term	Safety and security, Water and wastewater, Transportation Systems	Low
11	Seismic risk assessment of private residences and buildings	Earthquake/Seismic Hazards, Severe Winter Weather and Snow	Utilize data to determine building codes that were applied when certain buildings were built to assess current risk to hazards. This can be used to conduct outreach to property owners about risk and options for mitigation.	Mono County, Public Works		HMGP, PDM, TOML General Funds	<$100,000	Medium-term	Safety and security, Water and wastewater, Transportation Systems	Medium
12	Seismic risk assessment for propane infrastructure	Earthquake/Seismic Hazards	Assess propane systems that lack infrastructure to allow shut-off or maintenance during emergencies. This assessment will be used to prioritize upgrades to the propane systems.	Public Works, Mono County	Gas utility providers	HMGP, PDM, TOML General Funds	<$100,000	Medium-term	Energy	Low
13	Conduct residential subdivision ingress/egress studies to identify high risk areas	Avalanche, Dam Failure, Earthquake/Seismic Hazards, Flood, Landslides, Hazardous Materials, Severe Winter Weather and Snow, Volcanoes, Wildfire	Work with partners on Sherwin Creek Road, ORMAT Shady Rest access, June-Mammoth MUP, and other alternative egress options for communities throughout Mono County.	Mono County, Public Works	USFS, LADWP, BLM	HMGP, PDM, TOML General Funds	<$100,000	Short-term	Transportation	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
14	Backup power assessment plan	Energy Shortages and Energy Resiliency	Evaluate emergency power options—including generators, microgrids, solar panels, and battery backup systems—to determine the most efficient backup power source.	Community and Economic Development	SCE	HMGP, PDM, TOML General Funds	<$100,000	Short-term	Energy	Medium
15	Community-wide fuel resiliency plan	Energy Shortages and Energy Resiliency	Work with public and private partners to develop strategies to ensure fuel security, access, and availability during emergencies.	Mono County, Community and Economic Development	SCE, MMSA, private fuel providers, Mammoth Yosemite Airport, MCWD	HMGP, PDM, TOML General Funds	<$100,000	Short-term	Energy	High
16	Business emergency communication plan	Energy Shortages and Energy Resiliency	Create a communication plan to ensure private providers have the information they need to access and secure the movement of goods and services during an emergency.	Mono County, Community and Economic Development	Chamber(s), private fuel providers,	HMGP, PDM, TOML General Funds	<$100,000	Short-term	Energy	Medium
17	Expand Firewise Communities Program	Wildfire	Increase community participation in Firewise education and preparation. Establish new Firewise Council in TOML to assist with implementation of the CWPP (including fuels reduction treatments, home hardening, defensible space, education, etc.).	OEM, Community and Economic Development	Local Fire Safe Councils, Private Property Owners, Special Districts, TOML	CalFire Grant Funds for Coordinator, US Fire Service Grant, SCE International, Whitebark	<$100,000	Short-term	All	Medium
18	Advocate for legislative actions to streamline wildfire mitigation projects	Wildfire	Work with lobbyists, legislature, USFS, etc. to change NEPA and CEQA permitting processes to facilitate healthy forests and defensible space.	Mono County, TOML Town Manager		HMGP, FMAG, PDM, TOML General Funds	<$100,000	Medium-term	Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
19	Community education and outreach programs	Avalanche, Dam Failure Disease/Pest Management, Drought, Earthquake/Seismic Hazards, Energy Shortages and Energy Resiliency, Epidemic/ Pandemic, Flood, Landslides, Hazardous Materials, Severe Wind, Severe Winter Weather and Snow, Volcanoes, Wildfire, Wildlife Collisions	Educate the community about household mitigation actions, and prepare education materials, adding them to the Town's website, and tabling at local events to educate residents, etc.	Community and Economic Development	Mono County, TOML, Eastern Sierra Community Housing (ESCH)	HMGP, PDM, TOML General Funds	<$100,000	Short-term	Communications	Low
20	Establishing and funding a residential home hardening program	Wildfire	Develop and fund incentives and programs for residential property owners to retrofit with fire-resistant materials.	Community and Economic Development	MLFD	HMGP, FMAG, PDM, TOML General Funds	$1 million	Medium-term	Safety and Security	Medium
21	Facilitate, perform, or assist with fuels reduction projects to reduce the risk of wildfire.	Wildfire	Develop a funding plan to reduce the risk of catastrophic wildfire at the landscape level. Examples include pile burning, managed fire, or general forest health (fuels reduction) projects.	Mono County, Community and Economic Development, MLFD		HMGP, FMAG, PDM, TOML General Funds	<$100,000	Medium-term	Safety and Security,, Hazardous Materials	High
22	TOML Community Resiliency Center	Extreme Heat, Earthquake, Flood, Severe Winter Weather and Snow, Volcanoes, Wildfire	Construct a Community Resiliency Center that has the capacity to function as a cooling center during extreme heat events or a shelter during other emergencies.	Public Works	Mono County	HMGP, PDM, TOML General Funds	$8,000,000	Medium-term	Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
23	Slope assessment and scaling project	Landslides	Evaluate slopes and burn areas along roadways, critical infrastructure, and private property for potential hazards, and implement scaling and hazard removal measures. Track hazard events that could have destabilized slopes.	Public Works	USFS	HMGP, PDM, TOML General Funds	$100,000-$200,000	Medium-term	Safety and Security	Medium
24	Review and Update Building Codes for Heavy Snow Loads	Severe Winter Weather and Snow	Review and update building codes to incorporate provisions for structures to withstand heavy snow loads, ensuring structural integrity during severe weather events. Consider the following: • Revising regulations related to propane infrastructure to address structural deficiencies. • Developing plans and standards to implement isolation valves for underground propane infrastructure, residential tank remote shutoffs, and retrofits for emergency shutoffs for existing commercial and residential properties. • Conducting comprehensive risk assessments to identify vulnerable areas and structures susceptible to snow-related hazards and	Public Works		HMGP, PDM, TOML General Funds	<$100,000	Short-term	Safety and Security, Energy, Hazardous Materials	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			propane infrastructure failures.							
25	Mutual Aid Agreement with Caltrans and Mono County	All Hazards	Develop a formal mutual aid agreement between the Town, Caltrans, and Mono County to facilitate efficient sharing of services during emergencies and high-impact events. Consider outlining clear protocols, responsibilities, and resource-sharing mechanisms to ensure seamless coordination and mutual support in times of need.	TOML Town Manager, Mono County, Caltrans		TOML General Funds	<$100,000	Short-term	Safety and Security	High
26	Develop a Plan for Snow Storage	Severe Winter Weather and Snow	Develop plans to increase snow storage capacity in high-elevation areas by identifying new storage locations or optimizing existing ones. Consider acquiring land for designated snow storage areas or implementing innovative solutions, such as snow-melting systems.	Public Works		HMGP, PDM, TOML General Funds	<$100,000	Short-term	Transportation	High
27	Wildlife Outreach and Education	Wildlife Collisions	Develop and implement an educational outreach campaign and signage to help reduce vehicle-wildlife collisions within TOML.	Transportation		HMGP, PDM, TOML General Funds	<$100,000	Short-term	Transportation	Low
28	Residential Propane Enclosures	Flooding, Hazardous Materials	Develop a local program that reimburses homeowners for retrofitting propane enclosures to protect against flooding and other hazards.	Public Works		HMGP, PDM, TOML General Funds	$250,000-$500,000	Medium-term	Energy	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
29	Implement Alternative Communication Methods	All Hazards	Explore and implement alternative communication methods to reach individuals with hearing impairments for public meetings. Consider utilizing technologies such as closed captioning and video relay services to enhance accessibility in media coverage and press releases, and create guidelines for producing accessible media content and press releases tailored to individuals with visual or hearing impairments.	Town Council		HMGP, PDM, TOML General Funds	<$100,000	Short-term	Communications	Low
30	Assess Additional Shelter Locations	Extreme Heat, Earthquake, Flood, Severe Winter Weather and Snow, Volcanoes, Wildfire	Identify and assess additional potential shelter locations within the Town and surrounding areas. Consider prioritizing spaces that can accommodate a larger number of individuals effectively during disasters. Collaborate with local businesses, hotels, schools, and community organizations to establish agreements for using their facilities as emergency shelters when needed. Improve the effectiveness of sheltering efforts by ensuring shelter locations are clearly identified and integrated into platforms like Zonehaven.	Police	ESCH	HMGP, PDM, TOML General Funds	<$100,000	Short-term	Food, Hydration, Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
31	Wildlife Security Fence	Wildlife Collisions	Install 23,000 ft. of 8-foot-tall chain link fence along the airport perimeter per the Hazard Mitigation Plan to mitigate wildlife versus aircraft collisions.	Airport	Caltrans/FAA/DOT Aeronautics Division/USFS	Caltrans/Federal Aviation Administration/DOT Aeronautics Division	$4,900,000	Short-term	Transportation	High
32	PFAS Monitoring Wells	Hazardous Materials	Install two PFAS-monitoring wells to detect PFAS in groundwater prior to it reaching the airports two production wells.	Public Works	CA State Water Board	HMGP, PDM, TOML General Funds	$75,000	Short-term	Hazardous Materials	Medium
33	Water System Generator	Energy Shortage/Wildfire	Purchase and install a generator to run the water distribution system during power outages to support wildfire mitigation and firefighting.	Public Works, MLFD	Cal OES	HMGP, PDM, TOML General Funds	$230,000	Short-term	Water Systems	High
34	Water Distribution System Replacement	Wildfire/ Earthquake/Seismic Hazards	Replace aging water distribution systems and related infrastructure to improve water delivery and protect infrastructure during a disaster.	Public Works		Integrated Regional Water Management Program Grants	$3 million	Short-term	Water Systems	High
35	Regional Emergency Training Center	Earthquake, Flood, Severe Winter Weather and Snow, Volcanoes, Wildfire	Construct a regional emergency resource center, including a burn tower and classroom facility located at the Mammoth Yosemite Airport. This facility meets the needs identified in the 2022/23 Winter Storms After-Action Report and could be used to hold Firewise meetings and	Airport, Public Works, Police	MLFD, LVFD, CALFIRE, Cal OES, Mono County Fire Chiefs Association, FAA	Assistance to Firefighters Grant (AFG)	$5 million	Long-term	Safety and Security	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			property owner education programs.							
36	Replace Obstruction Lights	Earthquake/Seismic Hazards	Replace Doe Ridge and Sub-hill Obstruction Lights to improve their durability to mitigate potential seismic damage and protect critical facility infrastructure required to maintain airport operations.	Airport	FAA/USFS	HMGP, PDM, TOML General Funds	$500,000	Medium-term	Transportation	Low
37	Plan for Moving Ammo Cache to JMSA	Hazardous Materials, Wildfire	Develop a plan to upgrade the ammo cache to allow transport of explosives from Mammoth Mountain Ski Area (MMSA) to June Mountain Ski Area (JMSA) in case of wildfire.	Public Works	JMSA/USFS	HMGP, PDM, TOML General Funds	$100,000	Short-term	Hazardous Materials, Safety and Security	Low
38	Gazex at Lake Mary and Canyon Trail	Avalanche	Install Gazex avalanche systems on Lake Mary Road and Canyon Trail for avalanche control.	Public Works	MMSA/JMSA/USFS / TOML/Mono County	HMGP, PDM, TOML General Funds	$2,000,000 ($1M each)	Medium-term	Safety and Security, Transportation	Low
39	Traffic Control Plan for Emergencies	Earthquake, Energy Shortages and Energy Resiliency, Flood, Severe Wind, Severe Winter Weather and Snow, Volcanoes, Wildfire	Upgrade and retrofit traffic control devices with backup power. Develop plans for traffic control devices/ secondary public safety transportation issues during emergency events.	Transportation	SCE	HMGP, PDM, TOML General Funds	$300,000	Short-term	Transportation, Energy	Medium
40	Collaborate with SCE on PSPS Messaging and Education	Energy Shortages and Energy Resiliency	Work with SCE to develop an action plan for communicating PSPS incidents to residents. This will include providing feedback to SCE after PSPS on how communication systems functioned. TOML will also	Community and Economic Development, SCE		HMGP, PDM, TOML General Funds	<$100,000	Short-term	Energy, Safety and Security	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			work with SCE to provide education to local residents and businesses on PSPS and ways to mitigate impacts (e.g., backup generation capability).							
41	California Radio Interoperability System (CRIS)	Avalanche; Dam Failure; Earthquake; Seismic; Energy Shortages and Energy Resilience Extreme Heat; Flood; Landslide; Hazardous Materials; Severe Wind; Severe Winter Weather and Snow; Volcanoes; Wildfire	Implement radio communications technologies that will provide more reliable service than existing radio communications technology in use. Anticipate this project beginning in the first quarter of 2026. Continue to work with state and federal agencies and wireless providers to expand and improve coverage and interoperability of cell and radio service throughout the County.	Radio Governance Committee, Mono County IT, TOML IT	MLPD, Fire Districts	Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Grant Program (PDM), TOML General Fund	$4 million	Short-term	Communications; Energy; Safety and Security	High
42	Defensible Space Improvement Prioritization	Wildfire	For communities and neighborhoods identified to be at highest fire risk, complete a parcel-level analysis. Incorporate the data into a GIS system, and use it to prioritize parcel-level defensible space improvements. Upon completion of the analysis, update the CWPP to incorporate the information.	Community and Economic Development, Mono County IT, OEM	Local Fire Safe Councils, Fire Protection Districts	CalFire Grants, USFS Grants, TOML General Funds	<$100,000	Medium-term	Safety & Security; Food Hydration Shelter; Energy; Communications; Transportation; Water Systems	High
43	Facilitate Participation in	Wildfire	Facilitate local landowner participation in state and federal programs for fuel	Community Development	BLM, CalFire	TOML General Funds	<$100,000	Short-term	Safety and Security	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	Fuels Reduction Programs		reduction on private property, such as the CAL FIRE Vegetation Management Program, CAL FIRE Hazardous Fuel Reduction Program, and BLM Wildland Urban Interface Grant Awards program.							
44	Low-Cost Weatherization	Extreme Heat	Identify ways to provide free or low-cost weatherization and energy-efficient heating and cooling appliances to lower-income residents without access to these devices.	Community Development	IMACA, High Sierra Energy Foundation	HMGP, PDM, TOML General Fund	<$100,000	Medium-Term	Energy	Low

Mitigation Action Prioritization

The Town of Mammoth Lakes and Mono County developed their own mitigation action prioritization ranking methodology in alignment with current priorities and hazard concerns for each community. Five questions were created as criteria for action prioritization:

- Does this action align with Town/County strategic priorities? (0 – No, 1 – Partially, 2 – Yes)
- Does this action align with the other planning partners' priorities? (0 – No, 1 – Partially, 2 – Yes)
- Is funding currently available? (0 – No, 1 – Partially, 2 – Yes)
- Does this action align with other planning mechanisms and policies currently in place? (0 – No, 1 – Partially, 2 – Yes)
- What is the ranking of this hazard? (0 – Low, 1 – Medium, 2 – High)

Based on the criteria above, actions were scored as High, Medium, or Low priority:

- **Low**: the action received less than 5 points.
- **Medium**: the action received 5-7 points.
- **High**: the action received 8-10 points.

Table 145 documents how each action was prioritized.

Table 145: Action Prioritization for the Town of Mammoth Lakes

Action #	Does this action align with Town/County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
1	2	2	0	2	2	High
2	2	1	0	1	2	Medium
3	2	2	0	2	2	High
4	1	0	0	1	2	Low
5	1	1	0	1	1	Low
6	2	1	0	1	1	Medium

Action #	Does this action align with Town/County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
7	1	1	0	1	1	Low
8	1	1	0	1	1	Low
9	1	1	0	2	2	Medium
10	1	0	0	1	2	Low
11	1	1	0	1	2	Medium
12	2	2	0	2	2	Low
13	1	1	0	1	2	Medium
14	1	1	0	2	2	Medium
15	2	2	2	2	2	High
16	1	1	0	1	2	Medium
17	1	1	1	2	2	Medium
18	2	2	2	2	2	High
19	0	0	1	1	2	Low
20	1	1	1	2	2	Medium
21	2	2	1	2	2	High
22	2	2	0	2	2	High
23	2	2	1	1	0	Medium
24	2	2	0	1	2	Medium
25	2	2	2	2	2	High
26	2	2	1	2	2	High
27	0	0	0	1	1	Low
28	2	2	1	2	2	High
29	0	0	0	1	2	Low
30	2	2	1	2	2	High
31	2	2	1	2	1	High
32	2	2	1	2	0	Medium
33	2	2	1	2	2	High
34	2	2	1	2	2	High
35	1	1	0	1	2	Medium

Action #	Does this action align with Town/County strategic priorities?	Does this action align with the other planning partners' priorities?	Is funding currently available?	Does this action align with other planning mechanisms and policies currently in place?	What is the ranking of this hazard?	Priority (High, Medium, Low)
36	0	0	0	1	2	Low
37	0	0	0	0	2	Low
38	0	0	0	1	2	Low
39	1	1	0	1	2	Medium
40	1	2	1	1	2	Medium
41	2	2	2	2	2	High
42	2	2	1	2	2	High
43	2	2	1	2	2	High
44	1	0	0	0	2	Low

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of the hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards the community is vulnerable to
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to carry out in the future

Past Integration Efforts

Town of Mammoth Lakes reviewed previous plan integration efforts as noted in Table 146.

Table 146: Town of Mammoth Lakes Previous Plan Integration

Plan Name	How the Prior Plan Was Integrated
None	

Future Integration Opportunities

Town of Mammoth Lakes identified future plan integration opportunities as described in Table 147.

Table 147: Town of Mammoth Lakes Future Plan Integration

Plan Name	Description	Process for Integration
Capital Improvement Plan	A plan which identified financing, location, and timing for capital improvement projects around the Town of Mammoth Lakes.	The Town of Mammoth Lakes will seek to integrate the mitigation actions in this current plan into its Capital Improvement Plan to identify hazard risks and implement mitigation projects to reduce those risks.

Conclusion

This hazard mitigation plan update represents a collaborative effort between local governments, special districts, federal, state and local stakeholders and the public. The Town of Mammoth Lakes has actively participated through meetings, plan participant input forms, and draft plan review. The Town also provided significant opportunity for the public and stakeholders to engage in the process. The Town extended invitations to private sector partners such as Southern California Edison and Mammoth Mountain Ski, and nonprofit partners Whitebark Institute and the Eastern Sierra Avalanche Center to create public-private partnerships as a whole community effort to secure the future of its the community and preserve a pristine ecological environment for its valued residents and visitors. The Town of Mammoth Lakes Annex provides mitigation strategy goals and objectives that focus on developing mitigation actions and projects supporting the Town's Strategic Priorities.

Mitigation Success Stories

TOWN GENERATOR PROJECT 2020

In response to the high number of Power Safety Power Shutoff (PSPS) events that impacted the Town of Mammoth Lakes installed and upgraded generators at five Town owned sites. These locations included the Town Administrative Offices, Community Center, Transit Building, Airport Administrative Building, Police Station, and Airport Terminal. Three generators were purchased and two generators that the Town already owned were also used. The newly installed generators significantly mitigate the Town's exposure to PSPS events. The Town was awarded a grant from Cal OES that covered $215,000 of the cost to provide the generators. The remaining $247,000 was covered by General Fund.[257]

[257] Town of Mammoth Lakes.ca.gov, 2025, "2022/2023 Town of Mammoth Lakes Capital Improvement Plan," https://www.townofmammothlakes.ca.gov/DocumentCenter/View/12258/2022-23-Capital-Improvement-Plan.

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Bridgeport Public Utility District Special District Annex

2026



MONO COUNTY CALIFORNIA

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Bridgeport Public Utility District

The Bridgeport Public Utility District (BPUD) has demonstrated its commitment to a comprehensive mitigation program by developing a district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and location, can be found. This is the first time the special district is participating in a hazard mitigation plan; therefore, there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. Furthermore, this annex documents the selected mitigation actions for BPUD.

Bridgeport Public Utility District Participation

This plan was developed through a collaborative planning process that included Mono County, the Town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update was documenting the planning process itself, including who represented which plan participant. BPUD was represented during the plan update process by the individual listed in Table 148.

Table 148: Representatives of the Bridgeport Public Utility District in the Planning Process

Name	Title	Organization/Department
Thomas Mullinax	Manager	Bridgeport Public Utility District

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 149 lists at least one stakeholder per required stakeholder type that works in or has knowledge of BPUD. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 149: Local Stakeholders

Name	Description	Stakeholder Type
Bridgeport Fire Department	The Bridgeport Fire Protection District (BFPD) is a fire protection agency serving the community of Bridgeport, California. It is responsible for providing emergency services, including fire suppression, emergency medical response, rescue operations, and fire prevention efforts in its jurisdiction. Located in the Mono County area, the district covers the town of Bridgeport and potentially other nearby areas.	Local and regional agencies involved in hazard mitigation activities
Mono County Department of Public Works	The department is involved in the planning, design, and construction of infrastructure projects in the unincorporated areas of Mono County.	Agencies that have the authority to regulate development
Hilton Creek Community Service District (HCCSD)	HCCSD is a local government agency that provides essential public services to the residents of the Hilton Creek area, in Mono County, California. The district is primarily focused on providing water and sewer services, maintaining infrastructure, and ensuring the health and safety of its community.	Neighboring community
Southern California Edison	This is the primary electric utility for Southern California.	Representatives of businesses, academia, and other private organizations
Mono County American Red Cross	This nonprofit humanitarian organization provides emergency assistance, disaster relief, and disaster preparedness education in the United States.	Representatives of nonprofit organizations, including community-based organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. BPUD utilized outreach through Mono County to make local residents aware of the hazard mitigation plan update. On January 30, 2025, the county provided a public presentation at the Mono County Collaborative Planning Team meeting to discuss the MJHMP update and to seek feedback from the public. A presentation was made to the County Regional Planning Advisory Committee in Bridgeport Valley. Public feedback was incorporated into the risk assessment and mitigation strategy sections through specific vulnerabilities identified and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex. Table 150 provides an overview of hazards that have been omitted from the risk assessment due to their irrelevance or lack of impact on BPUD.

Table 150: Hazard Omissions

Hazard	Statement of Omission
Avalanche	Not applicable, most of BPUD's infrastructure is underground and has not been impacted by past avalanches.
Dam Failure	Not applicable, no dam facilities uphill of water systems.
Disease and Pest Management	Not applicable, no risk to water system infrastructure.
Drought	Not applicable, no impact/risk to water systems, highly unlikely. No historical impacts on drought on critical district infrastructure.
Epidemic/Pandemic	Not applicable, no impact/risk to water systems. No historical impacts on epidemic/pandemic on critical district infrastructure.
Extreme Heat	Not applicable, no impact/risk to water systems No historical impacts on critical district infrastructure, infrastructure also located above typical impacts of extreme heat at all.
Landslide	Not applicable. No historical impacts from Landslides on critical district infrastructure, which is predominantly underground.
Hazardous Materials	Not applicable, water systems in residential communities have no hazardous materials impact/risk.
Volcanoes	Not applicable, highly unlikely, air quality issues will not affect the district's water systems.
Wildfire	Not applicable, most of BPUD's infrastructure is underground and has not been impacted by past wildfires.
Wildlife Collisions	Not applicable, incidents will have no impact/risk to water systems. No historical impacts on wildlife collisions on district critical infrastructure.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities using the Calculated Priority Risk Index in Table 151 and the equation below it.

Table 151: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time (***Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration (***The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for BPUD is presented in Table 152.

Table 152: Calculated Priority Risk Index for the Bridgeport Public Utility District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Earthquake and Seismic Hazards	3	4	2	4	3	3
Energy Shortages and Energy Resiliency	4	4	2	4	2	3.2
Flood	2	1	1	2	2	1.5

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides descriptions of general hazard occurrences identified by the state and/or the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 153 lists these hazard events of local significance.

Table 153: Previous Disaster Impacts for the Bridgeport Public Utility District

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Earthquake and Seismic Hazards	N/A	N/A	N/A	N/A
Energy Shortages and Energy Resiliency	N/A	Annual	Certain BPUD facilities cannot function without power, resulting in disruption in service.	Public Safety Power Shutoffs disrupt BPUD operations on a regular basis.
Flood	N/A	N/A	N/A	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each hazard that affects the overall planning area. Assets were determined by the community. Asset types may differ among plan participants, including the following:

- **People:** Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, and lower-income individuals
- **Structures:** Residential, commercial, industrial, government-owned, planned capital improvement, etc.)

- **Economic Assets:** Major employers, primary economic sectors, key infrastructure like telecommunications networks
- **Natural, Historic, and Cultural Resources:** Areas of conservation, parks, critical habitats, community centers, historic places, etc.
- **Critical Facilities and Infrastructure:** Hospitals; law enforcement; water, power, transportation systems; etc.
- **Community Activities:** Major local events, such as festivals, or economic events, like farming or fishing.

The following problem statements describe the district-specific vulnerabilities of BPUD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to BPUD.

Earthquake and Seismic Hazards

- **Location:** All of the unincorporated community of Bridgeport where BPUD operates is susceptible to the impacts of earthquakes. Nearby faults include the Robinson Creek fault.
- **Extent:** Moderate intensity shaking level is the worst-case scenario for Bridgeport.
- **Impacts**: Major earthquakes could damage buildings, disrupt essential utilities including BPUD's water systems, and isolate communities by damaging key roadways such as US 395. Liquefaction could occur, damaging facilities or transportation systems.
- **District-Specific Vulnerabilities**:
  - Aging pipes in BPUD's system are vulnerable to damage during earthquakes.
  - BPUD's system is vulnerable to both ground shaking and liquefaction.
  - The population BPUD serves could experience disruptions in service due to water systems being damaged or destroyed. Depending on the extent of the earthquake, the population could have concerns regarding life safety, recovery costs, and economic losses.

Energy Shortages and Energy Resiliency

- **Location:** All of Bridgeport is susceptible to the impacts of energy shortages.
- **Extent:** The System Average Interruption Duration Index measures the average amount of time a customer is without power in a year due to sustained interruptions (measured in minutes per customer). The planning area can expect to experience regular intervals of power outages in any given year.
- **Impacts**: Energy outages disrupt critical infrastructure, including water systems like BPUD's systems. Customers can experience outages of public utilities, potentially impacting public health.

- **District-Specific Vulnerabilities**:
  - BPUD facilities that do not have backup generators cannot function during a power outage, disrupting service during that time.
  - The population BPUD serves may experience service disruptions, potentially resulting in public health concerns in the case of power outage over an extended period of time.

Flood

- **Location:** The eastern part of Bridgeport, near the Eastern Walker River, is susceptible to flooding.
- **Extent:** Flooding issues in Bridgeport have been caused by shallow overbank flooding in the 100-year flood zone.
- **Impacts**: Flooding can isolate entire communities by cutting off primary access roads, delaying emergency response, damaging public infrastructure, and displacing residents. BPUD's system may be inundated, resulting in impacts on the overall water system's ability to function.
- **District-Specific Vulnerabilities**:
  - Sewer lift stations located on South Drive and on South Buckeye Drive are susceptible to flooding, which impacts their ability to function.
  - The population BPUD services, particularly those affected by the sewer lift stations along South Drive and South Buckeye Drive, may experience service disruptions.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district), conditions that may affect the risks and vulnerabilities of the districts (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 154 lists the changes in development for BPUD.

Table 154: Changes in Development for the Bridgeport Public Utility District

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Earthquake and Seismic Hazards	No change	No change	None	Stayed the same

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Energy Shortages and Energy Resiliency	No change	No change	Climate change putting more pressure on Southern California Edison's infrastructure, potentially increasing the possibility of power outages.	Increased
Flood	No change	No change	Climate change increasing the frequency and severity of flood events.	Increased

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. BPUD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 155: Plans of the Bridgeport Public Utility District

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Other? (Describe.)	No	N/A	N/A

Table 156: Regulations and Ordinances of the Bridgeport Public Utility District

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	While the BPUD does not adopt the building code directly, BPUD facilities are developed in accordance with the latest adopted building codes by Mono County, the 2022 California Building Codes.	BPUD does not administer and enforce the building code, but Mono County effectively does so.	Mono County adopted the latest building codes in 2022. They will update the building codes again in 2026.
Flood Insurance Rate Maps	Yes	Yes – by Mono County.	December 2012.
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A
Other? (Describe.)	N/A	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They include tools that can help you carry out mitigation actions. Table 157 provides a list of the district's administrative capabilities, while Table 158 lists the district's technical capabilities.

Table 157: Administrative Capabilities of the Bridgeport Public Utility District

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOAD (Voluntary Organizations Active in Disasters)	No	N/A	N/A	N/A
Other? (Please describe.)	No	N/A	N/A	N/A

Table 158: Technical Capabilities of the Bridgeport Public Utility District

Technical Capability	In place? (Y/N)	How has the capability been used to assess/ mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/ mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A
Other? (Please describe.)	No	N/A	N/A

Financial

Financial capabilities are the resources available to fund mitigation actions. Table 159 outlines the district's financial capabilities.

Table 159: Financial Capabilities of the Bridgeport Public Utility District

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	No	N/A	N/A	N/A
General Funds	No	N/A	N/A	N/A
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure & Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
US Army Corps (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income, or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas, or Electric Services	Yes	Monitor and maintain infrastructure	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	Monitor and maintain infrastructure	Yes	Yes
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federally Funded Programs (Please describe)	No	N/A	N/A	N/A
State-Funded Programs (Please describe)	Yes	The Bridgeport Arsenic Treatment Facility	Yes	Depends on grant
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A
Other?	No	N/A	N/A	N/A

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction. Table 160 summarizes the district's education and outreach capabilities.

Table 160: Education and Outreach Capabilities of the Bridgeport Public Utility District

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events (Please describe.)	No	N/A	N/A
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	No	N/A	N/A
Insurance Disclosures/Outreach	No	N/A	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	No	N/A	N/A
Social Media (Please describe.)	No	N/A	N/A
Other? (Please describe.)	Website	No	The website includes water quality information.

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 161.

Table 161: Opportunities to Expand or Improve Capabilities of the Bridgeport Public Utility District

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	BPUD is a small special district without any plans or regulations of note. In the future, the district can plan for and develop a budget to address power outages that are devastating to the functionality of the facilities that do not have backup generators. Without power, they cannot function, and public safety shutoffs of the power grid happen regularly. BPUD is planning to install backup generators at all of its facilities so it can maintain power during an energy shortage.
Administrative and Technical	BPUD has not mapped the full extent of its infrastructure. The district would like to bring on GIS expertise to locate and map each valve and mainline to gain a better understanding of where upgrades are needed. Hiring additional GIS expertise will help identify future mitigation action opportunities.
Financial	With a small staff, BPUD does not have the capacity to apply for many grants. The district would like to provide training to its board and staff members and bring on a part time staff member to apply for HMGP grants.
Education and Outreach	BPUD does very little public outreach. It would like to improve hazard messaging on the district website and start social media accounts, including Facebook and X, to communicate more widely with district customers, including about mitigation.

National Flood Insurance Program Capability Assessment

BPUD does not participate and is not eligible to participate in the National Flood Insurance Program (NFIP), a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 162 includes a high-level overview of what, if anything, the district does to support floodplain management for known risks.

Table 162: NFIP Capabilities of the Bridgeport Public Utility District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	BPUD has flooding issues around Stock Drive in Bridgeport.
Which of your assets are at-risk from flooding?	The lift stations at Stock Drive and South Buckeye Drive are at risk of flooding.
Is your organization involved in floodplain management? If so, how?	No

Bridgeport Public Utility District 2026–2031 Mitigation Strategy

The mitigation strategy is often seen as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities is an ongoing process to identify, analyze, and address hazards of concern. The strategy comprises goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- **Goal 1:** Avoid the exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- **Goal 2:** Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks of natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- **Goal 3:** Prepare for changing climate conditions in Mono County.
- **Goal 4:** Maintain adequate emergency response capabilities.
- **Goal 5:** Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- **Goal 6:** Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- **Goal 7:** Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- **Goal 8:** Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

BPUD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures BPUD has identified. Actions might not be completed in five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, BPUD will pursue the mitigation actions included in this plan. Implementing

mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Flood

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when.

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[258]

[258] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, and Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

Priorities

Priorities are defined by the plan participant. After considering the following evaluation criteria and the definitions, the district assigned a prioritization category of low, medium, or high to each natural hazard action item. The criteria to calculate the following priority categories (STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental) are listed in Table 164:

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the district but has multiple potential challenges. The action should be implemented as funding becomes available.
- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the district, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the district with minimal to no concerns. It is essential for the district to implement and may be prioritized in the short term.

Table 163 shows the mitigation actions BPUD has selected for this planning cycle.

Table 163: Bridgeport Public Utilities District 2026–2031 Mitigation Actions[259]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Upgrade Water & Sewer Mains	Earthquakes	Replace ageing AC pipe infrastructure. Rebuild with seismic-resistant building materials.	BPUD Operations & Field Manager		BPUD (District fees), PA Mitigation (406)	Unsure	Long-term	Water Systems	Low
2	Obtain Backup Power	Energy Shortage and Energy Resiliency	Acquire backup power for in-line sewer grinder.	BPUD Operations & Field Manager		BPUD (District fees), HMGP, PDM	$13,000.00–$16,000.00	Short-term	Water Systems	Medium
3	Stock Dr. Lift Station Improvement	Flood	Revamp/upgrade sewer lift station to submersible pumps and relocate electrical to above ground.	BPUD Operations & Field Manager		BPUD (District fees), HMGP, PDM	Unsure	Long-term	Water Systems	Medium

[259] BPUD = the Bridgeport Public Utility District, BRIC = Building Resilient Infrastructure and Communities, HMGP = Hazard Mitigation Grant Program, PDM = Pre-Disaster Mitigation.

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Mitigation Action Prioritization

BPUD considered the STAPLEE criteria when prioritizing their actions. Table 164 documents how each action was prioritized.

Table 164: STAPLEE Prioritization for Bridgeport Public Utility District

Action	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	1	3	2	2	3	3	3	Low
2	3	4	2	2	3	3	4	Medium
3	3	4	2	2	3	3	4	Medium

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other planning mechanisms include the following:

- The integration of the hazards to which the plan participant is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to be carried out in the future

Past Integration Efforts

BPUD did not meaningfully integrate the prior plan anywhere, as the district was not a plan participant in the prior plan.

Future Integration Opportunities

BPUD does not have any traditional plans or planning mechanisms of note, and due to the small size of the district, there is no intention to develop additional plans. However, the district may develop plans and studies for specific projects that will be used as planning mechanisms for long-term decision-making in the future. BPUD identified future plan integration opportunities, as described in Table 165.

Table 165: Future Plan Integration

Plan Name	Description	Process for Integration
Backup Generator Placement Plan	Bridgeport Public Utility District is planning the placement of backup generators for their facilities. This plan will outline when and where the Bridgeport PUD will place future generators.	Bridgeport PUD will use the updated Mono County MJHMP to think through hazards and funding options when pursuing backup generators.

Conclusion

As a public utility, the Bridgeport Public Utility District plays a critical role in maintaining public health and environmental safety by ensuring that water is safe to drink and that wastewater is properly treated to prevent contamination of local water sources. BPUD takes this role seriously and considers hazard mitigation a part of it. BPUD looks forward to incorporating the updated hazard mitigation plan into its work through project planning and grant applications.

Hilton Creek Community Services District Special District Annex

2026



MONO COUNTY CALIFORNIA

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Hilton Creek Community Services District

The Hilton Creek Community Services District (CSD) has demonstrated its commitment to a comprehensive mitigation program by developing a district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and location, can be found. This is the first time the special district is participating in a hazard mitigation plan; therefore, there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. Furthermore, this annex documents the selected mitigation actions for Hilton Creek CSD.

Hilton Creek Community Services District Participation

This plan was developed through a collaborative planning process that included Mono County, the Town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update was documenting the planning process itself, including who represented which plan participant. The Hilton Creek CSD was represented during the plan update process by the individuals listed in Table 166.

Table 166: Representatives of the Hilton Creek Community Services District in the Planning Process

Name	Title	Organization/Department
Lorinda Beatty	Board Secretary /Finance Officer	Hilton Creek Community Services District (CSD)
William Czeschin	Plant Operator II	Hilton Creek CSD
Keith Hafner	Chief Plant Operator	Hilton Creek CSD

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 167 lists at least one stakeholder per required stakeholder type that works in or has knowledge of the Hilton Creek CSD. Stakeholders were invited by email to participate by attending two meetings on the Risk

Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 167: Local Stakeholders

Name	Description	Stakeholder Type
Mono County Public Works	The Department of Public Works is involved in the planning, design, and construction of infrastructure projects within the unincorporated areas of Mono County.	Local and regional agency involved in hazard mitigation activities, agency that has the authority to regulate development
Long Valley Fire Protection District	The Long Valley Fire Department (LVFD) serves the Crowley Lake area, which is known for its rural and mountainous landscapes. This fire department is responsible for providing fire suppression, rescue, and emergency medical services in the surrounding communities of Crowley Lake and other parts of the Mono Basin.	Local and regional agency involved in hazard mitigation activities, neighboring community
Mono County Board of Supervisors	The Board of Supervisors provides overall direction to the county. The Board acts as a forum for identifying the needs and desires of citizens, determining community consensus, and actively matching those needs with available county resources. The Board sets policies, exercises administrative control over county activities, and acts as an Appeals Board with regard to decisions of the Planning Commission.	Neighboring community
Southern California Edison	This is the primary electric utility company for Southern California.	Representatives of businesses, academia, and other private organizations
Eastern Sierra Avalanche Center	The Center provides information and education on avalanche conditions for Eastern Sierra Region.	Representatives of nonprofit organizations, including community-based organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. The District posted flyers at the local community center and sent out emails to be shared with

other districts and populations on January 21, 2025, to encourage public engagement in the hazard mitigation planning process. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex. Table 168 provides an overview of hazards that have been omitted from the risk assessment due to their irrelevance or lack of impact on the planning area.

Table 168: Hazard Omissions

Hazard	Statement of Omission
Avalanche	Not applicable, district water infrastructure is not in an avalanche zone.
Dam Failure	Not applicable, no dam facilities uphill of water systems.
Disease and Pest Management	Not applicable, no risk to water system infrastructure.
Drought	Not applicable, no impact/risk to water systems, highly unlikely. No historical impacts on drought on district critical infrastructure.
Epidemic/Pandemic	Not applicable, no impact/risk to water systems. No historical impacts of epidemic/pandemic on district critical infrastructure.
Extreme Heat	Not applicable, no impact/risk to water systems. No history of extreme impacts on district-critical infrastructure. In addition, infrastructure is located above typical impacts of extreme heat.
Flood	Not applicable, district facilities are not in any FEMA mapped 1% or 0.2% annual chance flood zones. No historical impacts.
Landslide	Not applicable. No historical impacts of landslides on district-critical infrastructure, which is predominantly underground.
Hazardous Materials	Not applicable, water systems are in residential communities with no hazardous materials impact/risk.
Severe Wind	Not applicable, district-critical infrastructure is mostly located underground with little to no risk of impact from severe wind.
Volcanoes	Not applicable, highly unlikely volcanic issues will affect the district's water systems.
Wildfire	Not applicable, wildfires have had no impact on the district's water infrastructure.
Wildlife Collisions	Not applicable, incidents will have no impact/risk to water systems. No historical impacts on wildlife collisions on district-critical infrastructure.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities using the Calculated Priority Risk Index in Table 169 and the equation below it. The results are shown in Table 170.

Table 169: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time (***Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration (***The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for Hilton Creek CSD is presented in Table 170.

Table 170: Calculated Priority Risk Index for the Hilton Creek Community Services District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Earthquake and Seismic Hazards	3	4	4	1	4	3.4
Energy Shortages and Energy Resiliency	4	4	2	1	1	2.8
Severe Winter Weather and Snow	4	4	2	1	4	3.1

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides descriptions of general hazard occurrences identified by the state and/or the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 171 lists these hazard events of local significance.

Table 171: Previous Disaster Impacts for Hilton Creek Community Services District

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Earthquake and Seismic Hazards	None	May 1980	Sewer pipe damage & sewer spill	Two large earthquakes in the area damaged a sewer pipe and caused raw sewage to spill into meadow area.
Energy Shortages and Energy Resiliency	None	Annually	Caused disruption at the sewer plant.	Long term power outages cause a disruption to the bio balance of the sewer plant.

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Severe Winter Weather and Snow	None	N/A	N/A	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each hazard that affects the overall planning area. Assets were determined by the plan participants. Asset types may differ among plan participants, including the following:

- **People:** Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, and lower-income individuals
- **Structures:** Residential, commercial, industrial, government-owned, planned capital improvement, etc.
- **Economic Assets:** Major employers, primary economic sectors, key infrastructure like telecommunications networks
- **Natural, Historic, and Cultural Resources:** Areas of conservation, parks, critical habitats, community centers, historic places, etc.
- **Critical Facilities and Infrastructure:** Hospitals; law enforcement; water, power, transportation systems; etc.
- **Community Activities:** Major local events, such as festivals, or economic events, like farming or fishing

The following problem statements describe the district-specific vulnerabilities of Hilton Creek CSD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to Hilton Creek CSD.

Earthquake and Seismic Hazards

- **Location:** Hilton Creek CSD's entire district is susceptible to earthquakes and seismic hazards.
- **Extent:** If an earthquake occurs along the Hilton Creek Fault it could impact the Hilton Creek CSD at a level VIII on the Modified Mercalli Intensity scale which may result in slight damage in specially designed structures, considerable damage in ordinary substantial buildings with partial collapse, and great damage in poorly built structures.
- **Impacts**: Major earthquakes could damage buildings, disrupt essential utilities, create public health concerns, and isolate communities by damaging key roadways such as US 395.
- **District-Specific Vulnerabilities**:
  - Damage to stormwater infrastructure, such as pipes and critical facilities.

- Service disruptions due to impacts on the wastewater and water treatment facilities.
- The population the district serves may experience transportation and water service disruptions, resulting in public health concerns depending on the extent and impact of the earthquake event.

Energy Shortages and Energy Resiliency

- **Location:** Hilton Creek CSD's entire district is susceptible to energy shortages and energy resilience.
- **Extent:** All four district indices for planned and unplanned outages (dSAIDI, dSAIFI, dMAIFI, and dCAIDI) have been consistently rising since 2014.
- **Impacts**: Energy outages disrupt the operation of critical infrastructure reliant on power.
- **District-Specific Vulnerabilities**:
  - There is a concern that a power outage will impact the operation of sewer plant facilities, reducing their ability to process waste.
  - Long-term outages can disrupt the bio balance of the sewer plant.
  - The population the district serves may experience disruptions in services which over an extended period of time could cause public health concerns.

Severe Winter Weather and Snow

- **Location:** Hilton Creek CSD's entire district is vulnerable to severe winter weather and snow.
- **Extent:** Nearby communities have experienced winter storms rated as extreme on the Winter Storm Severity Index.
- **Impacts**: These storms, which can lead to road closures, power outages, and avalanche risks, may involve heavy snow, whiteout conditions, and ice storms. Developed areas may face hazards from snow and ice shedding. Snow sliding toward pedestrian areas, parking lots, or other structures poses significant risks. Excessive snowfall and significant snow accumulation can obstruct and stress propane lines and roof vents, potentially leading to dangerous carbon monoxide buildup.
- **District-Specific Vulnerabilities**:
  - Large amounts of snow could obstruct access to Hilton Creek CSD facilities, causing a disruption of service.
  - Hilton Creek CSD facilities could be damaged due to large amounts of snow and ice buildup.
  - Power outages may result in impacts to operations, including to the sewer plant.
  - Due to the impacts on Hilton Creek facilities, the population the district serves may experience disruptions in services which over an extended period of time could cause public health concerns.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district), conditions that may affect the risks and vulnerabilities of the districts (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 172 lists the changes in development for Hilton Creek CSD.

Table 172: Changes in Development for Hilton Creek Community Services District[260]

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Earthquake and Seismic Hazards	Yes (increased structures in service area; proposed increase to residential parcel density)	Yes (Increased – estimated ~1% per year, additional tourists)	No	Increased
Energy Shortages and Energy Resiliency	Yes (increased structures in service area; proposed increase to residential parcel density)	Yes (Increased – estimated ~1% per year, additional tourists)	Long-term power outages, Public Safety Power Shutoffs, and Maintenance	Increased
Severe Winter Weather and Snow	Yes (increased structures in service area; proposed increase to residential parcel density)	Yes (Increased – estimated ~1% per year, additional tourists)	Snow Removal and power outages impact district facilities	Increased

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and

[260] Mono County Local Agency Formation Commission. (2024, October 10). *Hilton Creek Community Services District Municipal Service Review & Sphere of Influence Report.* Mono County Local Agency Formation Commission. Hilton Creek Community Services District.

opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. The Hilton Creek CSD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 173: Plans of the Hilton Creek Community Services District

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	No	N/A	N/A
Capital Improvement Plan	Yes	Long term financial planning can help to integrate mitigation actions into other projects for the CSD	Last updated: 2024–2025 Next updated: 2025–2026
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Other? (Describe.)	No	N/A	N/A

Table 174: Regulations and Ordinances of the Hilton Creek Community Services District

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	The district has not adopted a building code, but all new facilities and repairs comply with the latest building code Mono County has adopted, the 2022 California Building Code.	N/A – the district does not administer and enforce the code, but Mono County effectively does so.	N/A – the district will not adopt the next building code, but Mono County will every four years as required by the State.
Flood Insurance Rate Maps	Yes	Yes – by Mono County	December 2012
Floodplain Ordinance	No	N/A	N/A
Subdivision Ordinance	No	N/A	N/A
Zoning Ordinance	No	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A
Other? (Describe.)	No	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They include tools that can help you carry out mitigation actions. Table 175 provides a list of the district's administrative capabilities, while Table 176 lists the district's technical capabilities.

Table 175: Administrative Capabilities of the Hilton Creek Community Services District

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOAD (Voluntary Organizations Active in Disasters)	No	N/A	N/A	N/A
Other? (Please describe.)	No	N/A	N/A	N/A

Table 176: Technical Capabilities of the Hilton Creek Community Services District

Technical Capability	In place? (Y/N)	How has the capability been used to assess/ mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	Yes	No	Improve communication with the public through mapping
Mutual Aid Agreements	Yes	Yes	Improve collaboration with neighboring communities
Other? (Please describe.)	No	N/A	N/A

Financial

Financial capabilities are the resources available to fund mitigation actions. Table 177 outlines the district's financial capabilities.

Table 177: Financial Capabilities of the Hilton Creek Community Services District

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Yes Maintenance and infrastructure replacement	Yes	Yes
General Funds	Yes	Yes	Yes Maintenance and infrastructure replacement	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure & Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
US Army Corps (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income, or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas, or Electric Services	Yes	Sewer fees	Yes	Yes

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federally Funded Programs (Please describe)	No	N/A	N/A	N/A
State-Funded Programs (Please describe)	Yes	Energy Efficiency 0% loan	No	No
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A
Other?	No	N/A	N/A	N/A

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction. Table 178 summarizes the district's education and outreach capabilities.

Table 178: Education and Outreach Capabilities of the Hilton Creek Community Services District

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	Yes	No	Occasional
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events (Please describe.)	Yes	Monthly Public Meetings	N/A
Emergency Management Listserv	No	N/A	N/A
Local News	Yes	No	Public Notices
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	Yes	No	Meeting Notices Informational flyers

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Insurance Disclosures/Outreach	No	N/A	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	No	No	Previously involved with low-income payments for utilities but local agency heading it up discontinued participation
Social Media (Please describe.)	Yes	No	Website, occasional Facebook
Other? (Please describe.)	No	N/A	N/A

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 179.

Table 179: Opportunities to Expand or Improve Capabilities of the Hilton Creek Community Services District

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Hilton Creek Community Services District (CSD) is a struggling special district that includes sewer service for the area. The costs to maintain the aging infrastructure are very challenging to residents and the district, which has little resources. Improving the sewer services district would be beneficial to all in the area. Hilton Creek CSD could be assigned to take over other infrastructure that is also aging or failing administratively if new regulations were implemented, potentially reducing risks by pooling resources.
Administrative and Technical	This is a small sewer district. Administrative and operations staff are limited to one full-time operations staff and one part-time secretary to manage the district. More staffing could help manage the district more effectively. Partnering with Mono County or other planning partners or receiving direct technical assistance could help the district with mitigation project development, implementation, and management.
Financial	Financial assistance to improve capital projects and aging infrastructure would alleviate some concerns. However, the staff have little time to complete grant requirements and require additional support to complete this. Simplifying the process or having an advocate to assist could be helpful. Direct technical assistance could help the district with mitigation grant writing.

Capability Type	Opportunity to Expand and/or Improve
Education and Outreach	The district does a good job of holding public meetings and informing the public about sewer concerns with flyers and posts to Facebook, which has a common group posting for this area. A staff member focused on education and outreach would help to improve capacity and expand mitigation educational activities.

National Flood Insurance Program Capability Assessment

The Hilton Creek CSD does not participate and is not eligible to participate in the National Flood Insurance Program (NFIP), a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 180 includes a high-level overview of what, if anything, the district does to support floodplain management for known risks.

Table 180: NFIP Capabilities of the Hilton Creek Community Services District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Hilton Creek CSD operates in Crowley Lake and Mono County. There have not been significant historical flood events in the district's service area.
Which of your assets are at-risk from flooding?	None known
Is your organization involved in floodplain management? If so, how?	No

Hilton Creek Community Services District 2026–2031 Mitigation Strategy

The mitigation strategy is often seen as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities is an ongoing process to identify, analyze, and address hazards of concern. The strategy comprises goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- **Goal 1:** Avoid the exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- **Goal 2:** Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks of natural hazards through planning for safe development, increasing public

awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.

- **Goal 3:** Prepare for changing climate conditions in Mono County.
- **Goal 4:** Maintain adequate emergency response capabilities.
- **Goal 5:** Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- **Goal 6:** Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- **Goal 7:** Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- **Goal 8:** Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The Hilton Creek CSD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risk and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may include additional response, preparedness, or prevention focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

Table 181: Considered Mitigation Actions of the Hilton Creek Community Services District

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Sewer Lines	Infrastructure – Replace or Rehabilitate Sewer Lines	No	Insufficient staff/funds
Meadowlands	Natural Systems Protection Infrastructure – Replace or Rehabilitate Sewer Lines	No	Insufficient staff/funds
Waterways	Natural Systems Protection Infrastructure – Replace or Rehabilitate Sewer Lines	No	Insufficient staff/funds
Sewer Systems (Pipe and Basin Liners)	Infrastructure	Yes	Selected – Mitigation Action #2
Power Outages	Infrastructure – Generators Alternative Power Sources	Yes	Selected – Mitigation Action #1

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures Hilton Creek CSD has identified. Actions might not be completed in five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, Hilton Creek CSD will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Severe Winter Weather and Snow

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[261]

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, and Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

[261] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

Priorities

Priorities are defined by the plan participant. After considering the following evaluation criteria and the definitions, the district assigned a prioritization category of low, medium, or high to each natural hazard action item. The criteria to calculate the following priority categories (STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental) are listed in Table 183:

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the district but has multiple potential challenges. The action should be implemented as funding becomes available.
- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the district, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the district with minimal to no concerns. It is essential for the district to implement and may be prioritized in the short term.

Table 182 shows the mitigation actions the Hilton Creek CSD has selected for this planning cycle.

Table 182: Hilton Creek Community Services District 2026–2031 Mitigation Actions

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Time-frame	Community Lifeline/s	Priority
1	Power Generator	Energy Shortages and Energy Resiliency, Severe Winter Weather and Snow	Purchase/provide building/ foundation and install power generator for Sewer Plant	Hilton Creek Community Services District (CSD)	Southern California Edison (SCE), Southern California Regional Energy Network (SCREN), Mono County	SCE, SCREN, Mono County General Fund, Hazard Mitigation Grant Program (HMGP)	$300,000	1 year	Energy	High
2	Pipe and Basin Liners	Earthquake/ Seismic Hazards	Retrofit existing pipes and basins with a liner to enhance seismic resilience and prevent earthquake damage	Hilton Creek CSD	Mono County Public Works	HMGP	$7-10 million	1–3 years	Health and Medical, Water Systems	High
3	Snow Removal Equipment	Severe Winter Weather and Snow	Purchase equipment to safely remove snow on Hilton Creek CSD facilities. Equipment includes backhoe, skid steer, and loader with a blower, blade, bucket, and snow chains.	Hilton Creek CSD	Mono County Public Works	HMGP	$700,000	1 year	Water Systems	High

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Mitigation Action Prioritization

Hilton Creek CSD considered the STAPLEE criteria when prioritizing their actions. Table 183 documents how each action was prioritized.

Table 183: STAPLEE Prioritization for the Hilton Creek Community Services District

Action	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	4	4	4	4	4	4	4	High
2	4	4	3	4	4	2	4	High
3	4	4	3	4	4	3	4	High

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards to which the plan participant is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to be carried out in the future

Past Integration Efforts

The Hilton Creek CSD did not meaningfully integrate the prior plan anywhere, as the district was not a plan participant in the prior plan.

Future Integration Opportunities

Hilton Creek CSD identified future plan integration opportunities, as described in Table 184.

Table 184: Future Plan Integration by the Hilton Creek Community Services District

Plan Name	Description	Process for Integration
Capital Improvement Plan	The district could incorporate mitigation action #1 from this plan into an action of the Capital Improvement Plan for the purchase, foundation and installation of a sewer plant generator.	The district updates the plan on an annual basis. To craft the project specifics, an engineer is needed to evaluate plant electrical requirements, provide generator considerations, file building code plans, and complete a foundation for the generator.

Conclusion

The Hilton Creek Community Service district was an active participant in the hazard mitigation planning process for this update. It participated in the planning team, attended a stakeholder meeting in November 2024, and had individual discussions with planning partners and the planning consultant, IEM. Hilton Creek CSD will be using the updated hazard mitigation plan to guide hazard mitigation work over the next five years, including applying for grants like those in the Hazard Mitigation Grant Program to pay for generators at the sewer plant. Hilton Creek CSD looks forward to continuing its work on hazard mitigation to support the health and safety of its community.

June Lake Public Utility District Special District Annex

2026



MONO COUNTY CALIFORNIA

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June Lake Public Utility District

The June Lake Public Utility District (PUD) has demonstrated its commitment to a comprehensive mitigation program by developing a district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and location, can be found. This is the first time the special district is participating in a hazard mitigation plan; therefore, there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. Furthermore, this annex documents the selected mitigation actions for the June Lake PUD.

June Lake Public Utility District Participation

This plan was developed through a collaborative planning process that included Mono County, the town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update was documenting the planning process itself, including who represented which plan participant. The June Lake PUD was represented during the plan update process by the individual listed in Table 185.

Table 185: Representatives of the June Lake Public Utility District in the Planning Process

Name	Title	Organization/Department
Todd Kidwell	General Manager	June Lake Public Utility District

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 186 lists at least one stakeholder per required stakeholder type that works in or has knowledge of the June Lake PUD. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 186: Local Stakeholders

Name	Description	Stakeholder Type
June Lake Fire Protection District	Volunteer Fire Services	Local and regional agencies involved in hazard mitigation activities
US Forest Service	United State Department of Agriculture Forest Service Division	Agencies that have the authority to regulate development
United States Marine Corps Mountain Warfare Training Center	Military Training Center	Neighboring community
Eastern Sierra Avalanche Center (ESAC)	Provides information and education on avalanche conditions for Eastern Sierra Region	Representatives of nonprofit organizations, including community-based organizations
Southern California Edison	Utility Company	Representatives of businesses, academia, and other private organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. The June Lake PUD posted a flyer on its website and in public locations in June Lake to advertise opportunities for public engagement in the Hazard Mitigation Plan (see Figure 112). This particularly involved customers of the June Lake PUD, ensuring the people most vulnerable to the impacts of hazards on the district had the opportunity to participate in the plan. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities identified and mitigation action recommendations.



Figure 112: June Lake Public Utility District Website Post of Survey

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities using the Calculated Priority Risk Index in Table 187 and the equation below it.

Table 187: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
			critical facilities for more than one month.	
Warning Time (*Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)*	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration (*The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)*	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for June Lake PUD is presented in Table 188.

Table 188: Calculated Priority Risk Index for the June Lake Public Utility District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	2	2	3	2	4	2.7

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Dam Failure	4	2	2	2	4	2.8
Disease and Pest Management	3	2	2	1	3	2.3
Drought	2	2	2	2	4	2.2
Earthquake and Seismic Hazards	2	2	2	3	4	2.3
Energy Shortages and Energy Resiliency	3	3	2	3	1	2.5
Epidemic/Pandemic	2	2	2	1	2	1.9
Extreme Heat	1	1	1	1	1	1.1
Flood	2	2	2	2	3	2.1
Landslide	2	2	2	1	3	2
Hazardous Materials	2	2	2	1	1	1.8
Severe Wind	3	3	2	3	3	2.7
Severe Winter Weather and Snow	4	4	4	2	3	3.7
Volcanoes	1	1	1	1	4	1.4
Wildfire	4	4	4	4	3	3.9
Wildlife Collisions	1	1	1	1	4	1.4

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides descriptions of general hazard occurrences identified by the state and/or the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 189 lists these hazard events of local significance.

Table 189: Previous Disaster Impacts on the June Lake Public Utility District

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	N/A	Winter 2023	Melting snow caused an avalanche area runoff. Water flowed under the highway	Winter snow weather event and snow melt that followed

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			and undermined the water main system.	weakened the soil, causing an avalanche.
Dam Failure	N/A	N/A	N/A	N/A
Disease and Pest Management	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Earthquake and Seismic Hazards	N/A	N/A	N/A	N/A
Energy Shortages and Energy Resiliency	N/A	N/A	N/A	N/A
Epidemic/Pandemic	N/A	N/A	N/A	N/A
Extreme Heat	N/A	N/A	N/A	N/A
Flood	N/A	N/A	N/A	N/A
Landslide	N/A	N/A	N/A	N/A
Hazardous Materials	N/A	Summer of 2024 April 2025	Hazardous materials spill from local contractor error into Fern Creek. Sewer spill into Reversed Creek.	N/A
Severe Wind	N/A	N/A	N/A	N/A
Severe Winter Weather and Snow	N/A	December 2023	Water main pipes froze and burst, damaging pipes.	N/A
Volcanoes	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Wildlife Collisions	N/A	N/A	N/A	N/A



Figure 113: Broken Water Main Pipe at a Depth of 21 ft in a Congested Area of June Lake[262]

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each hazard that affects the overall planning area. Assets were determined by the plan participant. Asset types may differ among plan participants, including the following:

- **People:** Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, and lower-income individuals
- **Structures:** Residential, commercial, industrial, government-owned, planned capital improvement, etc.
- **Economic Assets:** Major employers, primary economic sectors, key infrastructure like telecommunications networks
- **Natural, Historic, and Cultural Resources:** Areas of conservation, parks, critical habitats, community centers, historic places, etc.
- **Critical Facilities and Infrastructure:** Hospitals; law enforcement; water, power, transportation systems; etc.
- **Community Activities:** Major local events, such as festivals, or economic events, like farming or fishing.

The following problem statements describe the district-specific vulnerabilities of the June Lake PUD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to the June Lake PUD.

[262] June Lake Public Utility District, 2025, "News Board-October 14, 2024 Picture of Water Main Line Damage", https://www.junelakepud.com/welcome-to-our-news-board.

Avalanche

- **Location:** The June Mountain Ski area is located in the June Lake Public Utility District, and surrounding mountain areas where avalanches can and do occur.
- **Extent:** Based on historical occurrences, the planning area can expect to experience D2 avalanche sizes as a worst-case scenario.
- **Impacts**: Four water treatment plants that service a population of up to 2,600 could be impacted by avalanche, as the system's ability to operate would be compromised by power outages. In previous avalanche events in which systems failed, potable water had to be supplied to customers at the cost of the district. A 125-kilowatt portable backup power generation system would be used to support generation of power at one location at a time to operate the system, also requiring diesel fuel to power the generator at the financial expense to the district.
- **District-Specific Vulnerabilities**:
  - Aging water and wastewater treatment facilities operated by the district are vulnerable to avalanche hazard events, causing disruptions in services to customers/people from downed power lines near the avalanche. For example, the original construction of the Village water system was in the 1940's, including the Snow Creek diversion facility.
  - Customers/people could experience service disruptions. In particular, the aging customer population, population with disabilities, and individuals with medical equipment needs could be without water and wastewater services during prolonged power outages.

Dam Failure

- **Location:** The district operates three water collection diversion dams in June Lake, or "The Village," and the diversion dam at Snow Creek.
- **Extent:** Low-hazard dam failure could inundate the district's water and wastewater facilities and areas of June Lake near the dam.
- **Impacts**: Of the three water collection diversion dams operated by the district, two dams are over 50 years old and failing. Failure of the dams would stop the flow of water to the water system, affecting the entire district, and lead to water distribution disruption for several weeks or months, depending on the time of the year, until the system is repaired. In addition, the district's 24 lift stations would be impacted by flood inundation in the event of dam failure, rendered inoperable and requiring extensive repairs.
- **District-Specific Vulnerabilities**:
  - Aging water and wastewater treatment facilities operated by the district are vulnerable to secondary hazards, such as flooding and power outages, causing disruptions in services from flooded facilities and inoperable lift stations in the dam failure inundation area.

- Populations such as seniors, people with disabilities, and people who rely on medical equipment are especially vulnerable to water and wastewater service disruptions due to prolonged power outages.
- Many customers of the district lack the assistance and resources to evacuate or shelter in place during hazard events. Impacts on district services directly impact their ability to shelter in place.

Disease and Pest Management

- **Location:** Disease and pest management hazards are anticipated to affect all of unincorporated Mono County, which includes the June Lake Public Utility District.
- **Extent:** The district measures extent using the Disease Severity Scale, which indicates a moderate susceptible/disease score of 5, as a worst-case scenario.
- **Impacts**: Any detection of disease or pest infestation in the district's aquifers, four water treatment plants, or wastewater treatment plants could impact the entire system. For example, nearby communities/people have recently detected avian influenza in their water systems. If this were to impact the district's water supply, not only would it raise public health concerns, but it would also require extensive water testing and district resources to remediate.
- **District-Specific Vulnerabilities**:
  - The District's aging water and wastewater treatment facilities were constructed in the 1940s, including the Snow Creek diversion facility. The aging water system is vulnerable to disease and pest infestation, which may result in disruptions to services during remediation measures.
  - People may face public health concerns depending on the severity of the incident.

Drought

- **Location:** Certain areas in the June Lake PUD, such as the Village, West Village, and Down Canyon, may be more severely impacted by drought due to geographic location.
- **Extent:** Based on historical data, the district can expect to experience Exceptional Drought (D4) as a worst-case scenario.
- **Impacts**: Drought impacts on the district are in the area of reduction in the available water supply to service the customers of the district in the service area.
- **District-Specific Vulnerabilities**:
  - June Lake is the only water source for most the district. The district water and wastewater systems are vulnerable to drought events that would reduce the availability of water, greatly reducing the ability to provide water service to customers/people.
  - Financial impacts due to water supply disruption and inability to charge customers/people.
  - People may be impacted by service disruptions as well as voluntary water conservation measures.

Earthquake and Seismic Hazards

- **Location:** Earthquakes and seismic shaking can occur anywhere in the June Lake service area and the district. The community of June Lake, where the district provides services, has 3,477 acres in the Silver Lake fault zone.
- **Extent:** Based on historical occurrences, the planning area can expect to experience moderate intensity shaking levels, and past events suggest that the June Lake area is at an elevated risk of liquefaction, particularly areas around the dry lakebed.
- **Impacts**: Damage to the district water and wastewater treatment plants from earthquake shaking damage would impact water service to customers, and loss of revenue for the district in the case of prolonged service disruptions.
- **District-Specific Vulnerabilities**:
  - Wells and water distribution systems are vulnerable to earthquake shaking, as the aquifer and wells are vulnerable to debris entering the systems, and liquefaction.
  - Disruption to water supply through impacts on the aquifer or water distribution lines being severed during quakes.
  - People may experience disruption of services, including water and wastewater services which could result in public health concerns and delays in recovery efforts.

Energy Shortages and Energy Resiliency

- **Location:** PSPS service outages occur throughout the Swalls Meadow service area and the district.
- **Extent:** Based on historical occurrences, the planning area can expect to experience regular intervals of power outages that cause service disruptions in the water distribution system.
- **Impacts**: Loss of power to local homes and businesses can impact daily life with persistent service disruptions, as water and wastewater systems depend on electrical power provided by the regional power grid. Utility failures to service areas located on campgrounds and beaches at Oh Ridge Beach, Pine Crest campground, June Lake marina would financially impact the PUD's ability to collect service fees from customers who fund the PUD.
- **District-Specific Vulnerabilities**:
  - The district's water wells and water distribution systems are vulnerable to frequent service disruptions from PSPS service outages on systems requiring electric power to operate.
  - As frequent power outages persist, it can reduce the water available for fire suppression, potentially resulting in cascading impacts from this event if there were a wildfire.
  - All of the district's critical facilities are vulnerable to the effects of frequent and prolonged power outages which could have a direct impact on the local tourism industry if alternative energy sources are not available.

- People throughout the district could experience service disruptions. Prolonged disruptions may raise public health concerns.

Epidemic/Pandemic

- **Location:** There are no unique areas in the district water and wastewater management system that are adversely exposed to this hazard.
- **Extent:** See the base plan.
- **Impacts**: See the base plan.
- **District-Specific Vulnerabilities**:
  - District staff may become sick or die due to epidemic/pandemic events.
  - Services may be interrupted due to limited staff availability during an extreme epidemic/pandemic event.

Extreme Heat

- **Location:** All areas of June Lake may experience extreme heat events.
- **Extent:** The district may receive extreme heat warnings based on the current heat index, also known as the apparent temperature or how temperature feels to the human body when relative humidity is combined with air temperature. (See the Extreme Heat profile in the base plan.)
- **Impacts**: Extreme heat impacts on the district's critical facilities can result from an increase in use of water and reduction in the water supply during prolonged extreme heat events. Underground utilities may be impacted by extreme heat from overheated asphalt surfaces, which can lead to softening or buckling of road pavement and deterioration of concrete structures, compromising roadway integrity during heat waves.
- **District-Specific Vulnerabilities**:
  - The district's vulnerable aging water systems and critical facilities, including pavement, asphalt, and the water supply, are vulnerable to extreme heat events and may require financial resources to improve structures and increase maintenance.
  - Individuals exposed to extreme heat may suffer from heat exhaustion, and other heat-related medical conditions.
  - People could require additional water resources during extreme heat events.

Flood

- **Location:** The community areas most likely to be impacted by a 100-year flood include properties along the June Lake Loop, Grant Lake, and June Lake and the creeks that connect them.
- **Extent:** 2,039 properties around the June Lake Loop are in the 100-year flood zone.

- **Impacts**: District water and wastewater treatment facilities in the 100-year flood zone will be at least moderately damaged by flooding.
- **District-Specific Vulnerabilities**:
  - Flooding of the water and wastewater system can make the system vulnerable to service disruptions. Also, the District is vulnerable to a loss of revenue during prolonged service disruptions.
  - Customers/people of the District water and wastewater services are vulnerable to service disruptions during flood events that could impact daily life.

Landslide

- **Location:** All deep-seated landslide susceptibly classes are in various sections of the district.
- **Extent:** All mass-wasting movement types can be found in the district, predominantly linked to seismic activity and heavy rainfall that can produce landslide events. Steep and hilly terrains in the district are susceptible to landslides triggered by ground shaking, intense rainfall, and human activities, such as road construction and vegetation removal, in a worst-case scenario.
- **Impacts**: The district's diverse climate, location, and susceptibility to ground shaking from fault lines which can trigger landslides expose its water systems and critical infrastructure to landslide damage.
- **District-Specific Vulnerabilities**:
  - Critical facilities and infrastructure and the water treatment and wastewater treatment plants are vulnerable to landslide damage from proximity to susceptibility zones.
  - Landslide-prone areas can cause substantial financial losses to the district due to service disruptions and revenue loss.
  - People can be impacted directly by landslides as well as through disruption of services caused by landslides.

Hazardous Materials

- **Location:** District aquifers and water treatment plants could experience hazardous materials exposure.
- **Extent:** Based on historical occurrences, the district would utilize the Hazmat Warning System to identify specific Hazmat incident levels.
- **Impacts**: The district's only source of water supply is drawn from the lake, which is used for a major part of the PUD service area. A hazardous material spill in or around any water tributaries to June Lake would impact the district's water supply, and water distribution system, which would lead to water testing, remediation measures, service disruption, and loss of revenue.
- **District-Specific Vulnerabilities**:

- Exposure of June Lake and all of its tributaries to hazardous materials events create vulnerable conditions for this critical district asset.
- Depending upon the extent of the incident, there could be risks to public health.
- People may experience service disruptions or be exposed to hazardous materials.

Severe Wind

- **Location:** Severe wind events can impact any part of the June Lake PUD service area or the District.
- **Extent:** Based on historical occurrences, the planning area can expect to experience levels 6 and 7 strong breeze and gale winds as classified using the Beaufort Wind Scale.
- **Impacts**: Prolonged power outages from downed power lines due to severe winds, or from wildfire ignition caused by downed power lines can impact customers serviced by the district watery systems dependent on electricity to power water and wastewater systems. In addition, aquifers may be impacted by windborne debris during severe wind events.
- **District-Specific Vulnerabilities**:
  - Residents/people and businesses dependent on electricity to power water wells are vulnerable to service disruption when severe winds cause prolonged power shortages from downed power lines.
  - Critical infrastructure quality significantly influences vulnerability to severe wind damage. Structures built before the adoption of modern building codes may not be designed to withstand severe wind conditions, increasing the potential for service disruption. This wastewater treatment system was constructed in 1970. The June Lake treatment facilities, including a filtration plant, lake intake, and storage tank, were constructed in 1972.

Severe Winter Weather and Snow

- **Location:** All critical facilities in the June Lake PUD can be impacted by severe winter weather and snow.
- **Extent:** Based on historical occurrences, the planning area can expect to experience multiple winter storm warnings and winter advisories issued annually by the National Weather Service that meet the Winter Storm Severity Index (WSSI) and the Wind Chill Temperature Index, both used to indicate severity levels for winter weather and snow.
- **Impacts**: Prolonged service disruption of water and wastewater systems caused by infrastructure integrity failures due to compromised structures from snow and ice damage, necessitating costly repairs and preservation efforts. Services disruptions will impact the district in lost revenues as service shut-offs persist while the water system is repaired or replaced.

- **District-Specific Vulnerabilities**:
  - Significant disruptions due to power outages caused by severe winter weather can increase vulnerability to the water and wastewater system lifeline.
  - People may be impacted by service disruptions. Individuals with preexisting health conditions or who lack the ability to shelter in place temporarily relocate during periods of prolonged service disruptions are particularly vulnerable to this hazard.

Volcanoes

- **Location:** Volcanic hazards associated with the Long Valley Caldera and Mono-Inyo volcanic chain have the potential to affect the entire June Lake Public Utility District service area, including all water and wastewater infrastructure, operational facilities, and supporting utility systems.
- **Extent:** Potential volcanic hazards in the planning area include ashfall, volcanic gases, seismic unrest, ground deformation, and related impacts to transportation, utility service, and critical infrastructure systems. Even relatively minor ashfall events could affect utility operations throughout the district service area.
- **Impacts:** Volcanic hazards could damage or disrupt district infrastructure, including June Lake PUD water transmission and distribution lines, wastewater collection systems, pump stations, storage tanks, treatment facilities, communications infrastructure, and backup power systems. Ashfall may clog pumps, motors, filters, ventilation systems, and mechanical equipment, while volcanic-related seismic activity or ground deformation could damage buried utility infrastructure. Road closures, electrical outages, and regional emergency conditions could also limit operator access to facilities and interrupt utility service throughout the June Lake community.
- **District-Specific Vulnerabilities**:
  - The district's critical facilities are vulnerable to volcanic hazards, including water transmission lines, wastewater collection infrastructure, pump stations, storage tanks, treatment and operational facilities, backup generators, telemetry systems, and communications infrastructure necessary to maintain daily utility operations.
  - The district is vulnerable to ashfall impacts that could contaminate exposed water and wastewater infrastructure, reduce operational efficiency, damage pumps and motors, clog filters and ventilation systems, and increase maintenance and operational costs associated with debris removal and infrastructure cleaning.
  - The district's buried water and wastewater infrastructure may be vulnerable to volcanic-related seismic activity, ground deformation, settlement, or associated geologic hazards that could damage pipelines, interrupt service, and require emergency repairs.
  - The district is vulnerable to prolonged power outages and transportation disruptions associated with volcanic unrest or ashfall events, which could interrupt water distribution, wastewater operations, communications systems, and operator access to facilities. Service interruptions could

affect potable water availability, fire flow capacity, wastewater collection operations, and overall public health and emergency response capabilities within the June Lake community.

Wildfire

- **Location:** Wildfire is a concern for the entire district and all of the June Lake PUD service area.
- **Extent:** CAL FIRE has mapped all of Mono County, including 12,613 acres in June Lake and the district in the Wildland Urban Interface, and in the high and very high wildfire severity zone.
- **Impacts**: Wildfire can damage or destroy power lines, critical facilities, and other district assets, as the very high fire hazard severity level Fire hazard severity has been mapped by CAL FIRE to impact all June Lake PUD assets.
- **District-Specific Vulnerabilities**:
  - The district's critical facilities are vulnerable, including treatment facilities, such as a filtration plant, lake intake and storage tank, and a water distribution system that supports the lots in the distribution system and serves as a water source for the June Lake Fire Protection District, which services all of June Lake.
  - The district's vulnerability to wildfire from prolonged power outages caused by downed power line or infrastructure could disrupt customer access to water distribution systems. Service disruptions may be a concern to public health depending on the extent of the damages.
  - A reduction in water levels from increased water use for fire suppression measures increases the district's vulnerability to wildfire.

Wildlife Collisions

- **Location:** There are no unique areas in the district water and wastewater management system that are adversely exposed to this hazard.
- **Extent:** See the base plan.
- **Impacts**: See the base plan.
- **District-Specific Vulnerabilities**:
  - Staff members may be affected by wildlife collisions while on the way to work or during work hours, impacting staffing.
  - Critical facilities are unlikely to be impacted by wildlife collisions beyond functionality due to staffing.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district), conditions that may affect the risks and vulnerabilities of the districts (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 190 lists the changes in development for the June Lake PUD.

Table 190: Changes in Development for the June Lake Public Utility District

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Avalanche	N/A	Aging population with limited mitigation resources	N/A	Stayed the same
Dam Failure	N/A	Aging population with limited mitigation resources	Aging conditions of dam diversions and entire water system that was built in 1940 and is in need of upgrade and replacement.	Increased
Disease and Pest Management	N/A	Aging population with limited mitigation resources	N/A	Stayed the same
Drought	N/A	Aging population with limited mitigation resources	Aging conditions of water treatment systems	Increased
Earthquake and Seismic Hazards	N/A	Aging population with limited mitigation resources	N/A	Stayed the same
Energy Shortages and Energy Resiliency	N/A	Aging population with limited mitigation resources	Increase in power outages	Increased
Epidemic/Pandemic	N/A	Aging population, with preexisting health conditions that increase vulnerability to exposure.	Increase in cases of hantavirus	Increased
Extreme Heat	N/A	N/A	N/A	Stayed the same
Flood	N/A	Aging population with limited mitigation resources	N/A	Stayed the same

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Landslide	N/A	Aging population with limited mitigation resources	N/A	Stayed the same
Hazardous Materials	N/A	N/A	N/A	Stayed the same
Severe Wind	N/A	Aging population with limited mitigation resources	N/A	Stayed the same
Severe Winter Weather and Snow	N/A	Aging population with limited mitigation resources	N/A	Stayed the same
Volcanoes	N/A	N/A	N/A	Stayed the same
Wildfire	N/A	Aging population with limited mitigation resources	Impacts from Wildfire risk reduction on water supply	Increased
Wildlife Collisions	N/A	N/A	N/A	Stayed the same

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. The June Lake PUD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 191: Plans of the June Lake Public Utility District

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	Yes	The plan can help identify and develop	Last Updated: Unknown

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		mitigation actions and projects for the PUD	Next Update: March 2026
Capital Improvement Plan	Yes	The plan can help identify and develop funding options for mitigation actions and projects for the PUD	Last Updated: March 2025 Next Update: March 2026
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	Yes	The plan can help identify and develop mitigation actions and projects for the PUD	Last Updated: March 2025 Next Update: March 2026
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A

Table 192: Regulations and Ordinances of the June Lake Public Utility District

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – June Lake PUD follows the Mono County building code. The County has adopted the 2022 California Building Code.	Yes – Mono County administers.	2022 – Every 4 years as required by the State.
Flood Insurance Rate Maps	No	N/A	N/A
Floodplain Ordinance	Yes	Yes– Mono County administers.	The Floodplain ordinance is contained in the Mono County General Plan, Land Use

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
			Element. The Land Use Element is updated annually as needed.
Subdivision Ordinance	Yes	Yes– Mono County administers.	1995 – Updated as needed.
Zoning Ordinance	Yes	Yes– Mono County administers.	Integrated into the Land Use Element in 2023 – updated as needed.
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes – Mono County administers.	The Mono County General Plan, Land Use Element contains Chapters on Floodplain Management (Chapter 21) as well as Fire Safe Regulations (Chapter 22). The Safety Element contains regulations and policies regarding natural hazards. The Safety Element is updated in connection with MJHMP update and the Land Use Element is updated annually as necessary.
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They include tools that can help you carry out mitigation actions. Table 193 provides a list of the district's administrative capabilities, while lists the district's technical capabilities.

Table 193: Administrative Capabilities of the June Lake Public Utility District

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Yes	Yes	Yes
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Yes	Yes	Yes	Yes
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOAD (Voluntary Organizations Active in Disasters)	No	N/A	N/A	N/A

Table 194: Technical Capabilities of the June Lake Public Utility District

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	Yes	GIS is used in mapping and establishing boundaries for the district service area	GIS is used in mapping hazard areas impacting the district service areas.
Mutual Aid Agreements	No	N/A	N/A

Financial

Financial capabilities are the resources available to fund mitigation actions. Table 195 outlines the district's financial capabilities.

Table 195: Financial Capabilities of the June Lake Public Utility District

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Providing financial resources to fund capital improvement projects for water system upgrades and repairs	Yes	Yes
General Funds	Yes	Providing financial resources to fund capital improvement projects for water system upgrades and repairs	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
US Army Corps (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income, or Special Purpose Taxes	Yes	Funds have been used towards funding the annual Mosquito Abatement program	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas, or Electric Services	Yes	No. Fees are used for operational purposes only.	Unlikely, only for operational needs	No

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Impact Fees from New Development and Redevelopment	Yes	Fees have been used for capital improvement projects.	Yes	Yes
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federally Funded Programs (Please describe)	No	N/A	N/A	N/A
State-Funded Programs (Please describe)	Yes	State funds have been used to upgrade they PUDs water treatment plant.	A system upgrade project is currently in the planning stages, awaiting final funding approval	No
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A
General Property Tax	Yes	Property tax revenue have been used for capital improvement projects.	Yes	Yes

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction. Table 196 summarizes the district's education and outreach capabilities.

Table 196: Education and Outreach Capabilities of the June Lake Public Utility District

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	Yes	Yes	ENews on PUD website
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	Post on website, water conservation, severe winter weather preparedness information
Public Meetings/Events (Please describe.)	No	N/A	N/A
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	Yes	Yes	Annual severe winter weather preparedness, and door hangers of for prolonged outages
Insurance Disclosures/Outreach	No	N/A	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	No	N/A	N/A
Social Media (Please describe.)	No	N/A	N/A

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 197.

Table 197: Opportunities to Expand or Improve Capabilities of the June Lake Public Utility District

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The June Lake Public Utility District can develop planning and regulatory mechanisms to better utilize hazard mitigation planning and implement mitigation actions to improve capabilities to sustain water and wastewater system lifelines in all hazards events. Specifically, June Lake PUD can integrate the mitigation actions from this plan update into their yearly Capital Improvement Planning process.

Capability Type	Opportunity to Expand and/or Improve
Administrative and Technical	The June Lake Public Utility District can acquire a broad range of administrative and technical resources to assist its Board of Directors to complete its mission by developing hazard mitigation projects to sustain the water and wastewater system in all hazards events. Hiring an additional staff member to support the current four-person team would allow more time for hazard mitigation planning and financial planning to pay for upgrades.
Financial	The June Lake Public Utility District could expand grant writing capabilities to apply for eligible hazard mitigation grant funding such as the Hazard Mitigation Grant Program or other available grant funding to assist the district in meeting its mission .
Education and Outreach	The June Lake Public Utility District can improve on its current public outreach and education programs to increase awareness of hazard mitigation measures that can reduce risk. For example, the district could engage in an annual public awareness campaign focused on its current population's needs and specific hazard mitigation measures to reduce risk by sending out hazard information with regular bills.

National Flood Insurance Program Capability Assessment

The June Lake PUD does not participate and is not eligible to participate in the National Flood Insurance Program (NFIP), a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 198 includes a high-level overview of what, if anything, the district does to support floodplain management for known risks.

Table 198: NFIP Capabilities of the June Lake Public Utility District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	June Lake. Not aware of any flood concerns for the community.
Which of your assets are at-risk from flooding?	The June Lake water and wastewater treatment facilities, including a filtration plant.
Is your organization involved in floodplain management? If so, how?	The June Lake PUD has no involvement in floodplain management.

June Lake Public Utility District 2026–2031 Mitigation Strategy

The mitigation strategy is often seen as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities is an ongoing process to identify, analyze, and address hazards of concern. The strategy comprises goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- **Goal 1:** Avoid the exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- **Goal 2:** Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks of natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- **Goal 3:** Prepare for changing climate conditions in Mono County.
- **Goal 4:** Maintain adequate emergency response capabilities.
- **Goal 5:** Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- **Goal 6:** Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- **Goal 7:** Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- **Goal 8:** Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The June Lake PUD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risk and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may also include additional response, preparedness, or prevention focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures the June Lake PUD has identified. Actions might not be completed in five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, the June Lake PUD will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Landslides
- Hazardous Materials
- Severe Wind
- Severe Winter Weather and Snow
- Volcanoes

- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[263]

- **Safety and Security:** Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, and Community Safety
- **Food, Hydration, Shelter:** Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy:** Power Grid, Fuel

[263] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

- **Communications:** Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation:** Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials:** Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems:** Potable Water Infrastructure, Wastewater Management

Priorities

Priorities are defined by the plan participant. After considering the following evaluation criteria and the definitions, the district assigned a prioritization category of low, medium, or high to each natural hazard action item. The criteria to calculate the following priority categories (STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental) are listed in Table 200:

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the district but has multiple potential challenges. The action should be implemented as funding becomes available.
- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the district, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the district with minimal to no concerns. It is essential for the district to implement and may be prioritized in the short term.

Table 199 shows the mitigation actions the June Lake PUD has selected for this planning cycle.

Table 199: June Lake Public Utility District 2026–2031 Mitigation Actions[264]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifeline	Priority
1	Small Dam Diversion Project	Dam Failure, Drought, Flood	Upgrade aging diversion dams to prevent loss of water source and prevent flooding events	June Lake PUD General Manager		HMGP, FMA	$200,000	1 year	Water Systems	High
2	Lift Stations Project	Hazardous Materials	Upgrade aging lift stations to reduce risk of hazardous sewage spills into the water systems	June Lake PUD General Manager		HMGP, FMA	$1.8 million	1–2 years	Water Systems	High
3	Wastewater Treatment Plant Repair Project	Hazardous Materials, Severe Winter Weather, Disease and Pest Management	Upgrade 50-year-old aeration pool to reduce risk of sewage seepage into ground water, and catastrophic failure of the system	June Lake PUD General Manager		HMGP, FMA	$16 million	3–5 years	Water Systems	High
4	Water Plant Rehabilitation and Upgrade Project	Severe Winter Weather, Wildfire, Volcanoes, Avalanche, Earthquake and Seismic Hazards, Energy Shortage and Energy Resiliency, Landslide, Epidemic and Pandemic, Wildlife Collision	Replace 50-year-old infrastructure and water treatment equipment to provide safe and adequate supply of drinking water during hazard events	June Lake PUD General Manager		HMGP, FMA	$18 million	3–5 years	Water Systems	High
5	Force Main Sewer Line to Treatment Plant Project	Severe Winter Weather, Wildfire, Avalanche, Earthquake and Seismic Hazards, Energy Shortage and Energy Resiliency	Reduce risk of 8 miles of sewer main failure that could impact Rush Creek and other water ways that feed into Grant Lake reservoir to supply water for Los Angeles Department of Water and Power (LADWP). Mitigate the risk to the main sewer line to treatment plant	June Lake PUD General Manager	Los Angeles Department of Water and Power (LADWP)	HMGP, FMA, LADWP	$10 million	3–5 years	Water Systems	High

[264] FMA = Flood Mitigation Assistance, HMGP = Hazard Mitigation Grant Program, PUD = Public Utility District.

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifeline	Priority
			project including through utilizing upgraded building materials							
6	Solar Energy for Wastewater Treatment Plant	Severe Winter Weather, Severe Wind, Wildfire, Avalanche, Earthquake and Seismic Hazards, Energy Shortage and Energy Resiliency	Install solar panels and battery storage capabilities to provide alternate power sources to reduce the risk from prolonged power outages	June Lake PUD General Manager		HMGP, FMA	$780,000	1–2 years	Water Systems	High
7	Clark Well Project	Drought, Wildfire, Avalanche, Earthquake and Seismic Hazards, Hazardous Materials, Disease and Pest Management	To maintain water supply levels by bringing existing Clark Well into production to connect to existing water plants, to be utilized as an alternate water source in the event of service failures due to diversions collapse or seismic activity, avalanche events, surface water contamination, water borne disease, or wildfire events to maintain water supply levels during emergency events	June Lake PUD General Manager	US Forest Service, June Lake Fire Protection District	HMGP, FMA	$250,000	1–2 years	Water Systems	Medium

Mitigation Action Prioritization

The June Lake PUD considered the STAPLEE criteria when prioritizing their actions. Table 200 documents how each action was prioritized.

Table 200: STAPLEE Prioritization for the June Lake Public Utility District

Action #	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	4	4	3	4	4	4	4	High
2	4	4	3	4	4	4	4	High
3	4	4	3	4	4	4	4	High
4	4	4	3	4	4	4	4	High
5	4	4	3	4	4	4	4	High
6	4	4	2	4	4	4	4	High
7	4	4	2	4	2	4	1	Medium

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards to which the community is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to be carried out in the future

Past Integration Efforts

The June Lake PUD did not meaningfully integrate the prior plan anywhere, as the district was not a plan participant in the prior plan.

Future Integration Opportunities

The June Lake PUD identified future plan integration opportunities as described in Table 201.

Table 201: Future Plan Integration by the June Lake Public Utility District

Plan	Description	Process for Integration
General Plan	Provides goals and objects for PUD to accomplish priorities.	The PUD can integrate risk assessment and mitigation actions from the Hazard Mitigation Plan into the 2026 update to support plan priorities and future strategic planning.

Conclusion

The June Lakes Public Utility District is looking forward to utilizing this hazard mitigation plan update to support its implementation of many changes and updates currently underway in the district systems. The district has upcoming projects focused on addressing its aging infrastructure, which has been impacted by multiple hazard events over the years. The district hopes to utilize the hazard risk assessment data to identify additional hazard mitigation actions during this planning cycle and in the future. By implementing hazard mitigation measures, the June Lake PUD will be able to continue to effectively provide services to its service area before, during, and after hazard events.

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Mammoth Community Water District Special District Annex

2026



MONO COUNTY CALIFORNIA

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Mammoth Community Water District

The Mammoth Community Water District has demonstrated its commitment to a comprehensive mitigation program by developing a separate district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and locations, can be found. This is the first time the special district is participating in a hazard mitigation plan, therefore there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences there are between the plan participants hazards and mitigation capabilities. Further, this annex documents the selected mitigation actions for Mammoth Community Water District.

Mammoth Community Water District Participation

This plan was developed through a collaborative planning process including Mono County, the Town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update is documenting the planning process itself, including who represented which plan participant. The Mammoth Community Water District was represented during the plan update process by the individuals listed in Table 202.

Table 202: Mammoth Community Water District Representatives in the Planning Process

Name	Title	Organization/Department
Clay Murray	Water & Wastewater Operations Superintendent	Mammoth Community Water District
Michael Draper	Principal Administrative Analyst	Mammoth Community Water District
Nick Holt	Associate Engineer	Mammoth Community Water District
David Carlson	Senior Engineer	Mammoth Community Water District

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 203

lists at least one stakeholder per required stakeholder type that work in or have knowledge of the Mammoth Community Water District. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 203: Local Stakeholders

Name	Description	Stakeholder Type
Lahontan Regional Water Quality Control Board (SWRCB)	Preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations.	Regulatory agency
California Broadband Cooperative	California Broadband Cooperative (CBC) : • Is a middle-mile provider of broadband service • Is facilities-based; it serves locations where it has fiber connectivity • Provides only "last mile" access services to government, educational, medical institutions and points of interconnection (service providers) • A cooperative that only government, educational, medical and carriers can join	Private Organization
Hilton Creek Community Services District	The Hilton Creek Community Services District (HCCSD) is a local government agency that provides essential public services to the residents of the Hilton Creek area, located in Mono County, California. The District is primarily focused on providing water and sewer services, maintaining infrastructure, and ensuring the health and safety of its community.	Neighboring Community
Blue Forest	Non-profit bringing communities, financing, and science together to restore and protect forests and watersheds.	Non-profit
US Forest Service	Agency responsible for managing the nation’s forests, including collaborating with MCWD to reduce risks to Lake Mary, the District’s water supply.	Regional agency involved in hazard mitigation.

Name	Description	Stakeholder Type
Inyo National Forest	Inyo National Forest is a United States National Forest covering parts of the eastern Sierra Nevada Mountains of California and the White Mountains of California and Nevada.	Local agency involved in hazard mitigation.
Southern California Edison	Primary electric utility company for Southern California.	Private Organization

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. The public was invited to participate in the plan update through bilingual flyers which were posted in public areas around the Town of Mammoth Lakes (MCWD's service area) in public spaces. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities identified and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

Table 204: Hazard Omissions

Hazard	Statement of Omission
Avalanche	Not applicable, infrastructure is not located in avalanche terrain.
Landslides	Not applicable, facilities have minimal risk to landslides.
Extreme Heat	Not applicable, no impact/risk to water systems or operations.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compare to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities utilizing the following Calculated Priority Risk Index (see Table 205).

Table 205: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time ***(Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration ***(The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards identified as having as risk factor value greater than or equal to 2.5 are considered high risk. Risk factors ranging from 2.0 to 2.4 are considered moderate risk hazards. Hazards with a risk factor value less than 2.0 are considered low risk. The highest possible risk factor value is 4. The calculated priority risk index for Mammoth Community Water District is presented in Table 206.

Table 206: Calculated Priority Risk Index for Mammoth Community Water District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Dam Failure	1	2	4	4	4	2.7
Disease and Pest Management	1	1	1	1	1	1
Drought	3	4	1	1	4	2.5
Earthquake and Seismic Hazards	2	4	4	4	4	3.4
Energy Shortages and Energy Resiliency	2	4	2	2	4	2.6
Epidemic/Pandemic	1	4	4	1	4	2.8
Flood	1	2	1	1	1	1.2
Hazardous Materials	1	1	1	4	1	1.3
Severe Wind	4	4	2	4	3	3.4
Severe Winter Weather and Snow	4	4	2	1	1	2.8
Volcanoes	1	4	4	4	4	3.1
Wildfire	3	3	4	4	4	3.5

Past Hazard Events

The plan must present the history of hazards events. While the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides a description of general state and Federal Emergency Management Agency (FEMA) previous hazard occurrences. The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 207 lists these hazard events of local significance.

Table 207: Previous Disaster Impacts for Mammoth Community Water District

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Dam Failure	N/A	N/A	N/A	N/A
Disease and Pest Management	N/A	N/A	N/A	N/A
Drought	N/A	April 2012–April 2017	Drought conditions required limitations of potable water use	Due to drought conditions, the MCWD Board set the

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
		April 2020–April 2023	due to limited surface water availability.	Water Conservation Level to level 3 (of 5). In Conservation Level 3, the use of potable water for purposes other than domestic, in-home usage (drinking, washing, toilets), is significantly lowered. Uses primarily impacted include landscape irrigation.
Earthquake and Seismic Hazards	N/A	May 1980–January 1983	Short term loss of water service to some residences and neighborhoods.	M5-M6 earthquakes along the Hilton Creek fault system caused breaks of steel water mains and plumbing separations at some residences.
Energy Shortages and Energy Resiliency	N/A	Annually	Energy outages have the impact to significantly disrupt water production.	MCWD constructed a solar facility on its property for on-site energy production. This improves the District's ability to operate the wastewater treatment plant. Diesel generators and a Tesla PowerPack battery are used for backup energy at select locations.
Epidemic/Pandemic	DR-4482	April 2020–May 2022	Limited staff availability to provide services, and productivity was limited based on staff availability.	COVID pandemic.
Flood	N/A	January 1997	Increase runoff into the sewage collection system	Rain on snow event generated significant runoff.

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			caused temporary high flows, forcing utilization emergency storage facility.	
Hazardous Materials	N/A	N/A	N/A	N/A
Severe Wind	N/A	N/A	N/A	N/A
Severe Winter Weather and Snow	DR-4699	March 2023–December 2023	Potable water storage tank collapse and partial roof collapse at wastewater treatment plant.	A potable water storage tank collapsed under severe snow accumulation. The roof of an essential process building at the wastewater treatment plant partially collapsed and had to be replaced.
Volcanoes	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each of the hazards affecting the overall planning area. Assets were determined by the community. Asset types may differ between plan participants, including the following:

- People (residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, lower-income individuals, etc.)
- Structures (residential, commercial, industrial, government-owned, planned capital improvement, etc.)
- Economic assets (major employers, primary economic sectors, key infrastructure like telecommunications networks, etc.)
- Natural, historic, and cultural resources (areas of conservation, parks, critical habitats, community centers, historic places, etc.)
  - Lake Mary – Surface water supply
  - Groundwater Basin (Mammoth) - Groundwater supply

  - Laurel Pond – Surface wastewater discharge site
- Critical facilities and infrastructure (hospitals, law enforcement, water, power, transportation systems, etc.)
  - Water and Wastewater Treatment Plant Campus (1315 Meridian Blvd.)
  - Water treatment plants (3)
  - Water storage tanks (8)
  - Water distribution system (80 miles) and pump stations (4)
  - Wastewater collection system (75 miles) and lift stations (12)
- Community activities (major local events, such as festivals, or economic events, like farming or fishing)
  - Tourism causes major increases in visitor population.

The following problem statements describe the unique district-specific vulnerabilities of Mammoth Community Water District. Where no unique considerations are noted, it can be assumed the information included in the base plan also applies to Mammoth Community Water District.

Dam Failure

- **Location:** Mammoth Creek, which drains the Mammoth Lakes Basin containing over a dozen lakes, including the three dammed lakes, collects water from the Sierra crest and flows downstream through Lake Mary, Lake Mamie, and into Twin Lakes. The creek exits the Mammoth Lakes Basin at the outlet of Twin Lakes and continues along the southern edge of the Town of Mammoth Lakes. Inyo National Forest owns all of the lakes listed above. MCWD operates the gate controlling a portion of the water in Lake Mary.
- **Extent:** None of the dammed lakes in Mammoth Lakes Basin are considered high or significant risk dams, however urbanized flooding from any level of dam failure could occur.
- **Impacts**: A failure of any of these dams could lead to flood inundation within the urban area of Mammoth Lakes, potentially impacting numerous structures along the creek.
- **District-Specific Vulnerabilities**:
  - MCWD distribution and collection infrastructure could be damaged by the flooding following a dam failure.
  - Water distribution and collection operations could be impacted by the drastic changes in water levels and flow due to a dam failure.
  - Data limitations exist as to the magnitude of a realistic flood event that would overload MWCD capacities. Additional studies could help clarify this vulnerability.

Disease and Pest Management

- **Location:** The entire MCWD jurisdiction is impacted by disease and pests.

- **Extent:** Based on historical occurrences, the Disease Severity Scale for Town of Mammoth Lakes indicates a moderate susceptible/disease score of 5.
- **Impacts**: Pine mortality caused by the mountain pine beetle (*Dendroctonus ponderosae*) remains high and affects the local ecosystem as well as water quality.
- **District-Specific Vulnerabilities**:
  - Continued impacts on local forests from pests can reduce water quality and raise costs for MCWD.

Drought

- **Location:** The entire MCWD jurisdiction is impacted by drought.
- **Extent:** Based on historical data, the Town of Mammoth Lakes can expect to experience Exceptional Drought (D4) as a worst-case scenario.
- **Impacts**: Extended drought can have serious impacts on the operations, costs, and ability of MCWD to provide Mammoth Lakes with clean water.
- **District-Specific Vulnerabilities**:
  - Drought can reduce water supply, including from annual snowpack, and require water restrictions be imposed for the community in order for MCWD to maintain water supply levels.
  - Normally, MCWD obtains 40–60% of its annual water supply from surface water. However, during periods of drought, the District may have to rely more heavily on groundwater supplies.[265]
  - Without aquifer recharge at the District's production wells or increased water storage at Lake Mary, changing hydrologic patterns in the Mammoth Basin puts water supply at risk.[266]
  - Low water levels from drought can increase the concentration of pollutants, increasing water treatment challenges.
  - Drought conservation efforts reduce the availability of potable water for purposes other than domestic, in-home usage (drinking, washing, toilets).
  - Decreased water usage from conservation efforts affects the District's finances as each 10% reduction in water sold results in approximately a 1.2% or $170,000 loss in revenue.[267] Additional economic losses are also incurred by the District due to the additional costs associated with pumping and treating groundwater.

[265] Mammoth Community Water District. (2021, May). *Watershed Sanitary Survey May 2021*. Mammoth Community Water District. Watershed+Sanitary+Survey+2021.pdf
[266] Mammoth Community Water District. (2021, May). *2020 Urban Water Management Plan*. Mammoth Community Water District. Final-2020-UWMP.pdf
[267] Mammoth Community Water District. (2021, May). *2020 Urban Water Management Plan*. Mammoth Community Water District. Final-2020-UWMP.pdf

Earthquake and Seismic Hazards

- **Location:** The entire town can experience intense ground shaking from earthquake and seismic activity, as it is within the Hartley Springs and Hilton Creek fault shake scenarios.
- **Extent:** Based on the town's location, it is in the very strong to severe shaking intensity level zone.
- **Impacts**: Damage to buildings, critical facilities, and transportation infrastructure is possible. The damage can cause significant disruptions throughout the MCWD service area.
- **District-Specific Vulnerabilities**:
  - MCWD water and wastewater infrastructure can suffer damage from an earthquake, including treatment facilities, water storage tanks, and underground pipes.
  - Damage to MCWD facilities can cause a delay in services.
  - Disruption to transportation infrastructure, especially US 395, can impede MCWD personnel from reporting to work, and delivery of materials necessary for ongoing water treatment operations.

Energy Shortages and Energy Resiliency

- **Location:** Energy emergencies can affect any part of the planning area.
- **Extent:** Based on historical occurrences, the planning area can expect to experience regular intervals of power outages that cause service disruptions in the water distribution system.
- **Impacts**: Energy outages can have widespread impacts on critical services including water systems. Disruption to essential services like water systems can impact daily life including public health.
- **District-Specific Vulnerabilities**:
  - Loss of power can disrupt MCWD's ability to collect and distribute potable water, and maintain water quality in the District's system. Vulnerable facilities include Old Mammoth area assets (GWTP No. 1, GWTP No. 2, 1 sewer lift station).[268] Backup power projects are ongoing at 4 production wells in the Old Mammoth area, but have not been completed.

Epidemic/Pandemic

- **Location:** Densely populated areas like the Town of Mammoth Lakes would foster the spread of diseases faster than less densely populated areas of the county.
- **Extent:** Defined by geographic spread, epidemic disease is spread on the local and community level, while a pandemic is national or global, both of which can occur quickly in isolated communities, such as in the planning area.

[268] Mammoth Community Water District. (2021, May). *2020 Urban Water Management Plan*. Mammoth Community Water District. Final-2020-UWMP.pdf

- **Impacts**: Epidemics and pandemics can disrupt all aspects of functioning for the local communities as individuals get sick and are forced to stay distant.
- **District-Specific Vulnerabilities**:
  - MCWD personnel can get sick from an epidemic/pandemic, diminishing capacity to run the water utility.
  - It is unlikely that harmful bacteria will contaminate the District's water system because of regular actions the District takes to reduce its vulnerability to this hazard. MCWD tests water multiple times each month—including source water—maintains required chlorine residuals, and operates an ongoing backflow prevention program.

Flood

- **Location:** Generally low flood hazards with the exception of Mammoth Creek, which can carry significant volumes during peak 100-year flood conditions. FEMA flood maps likewise show areas adjacent to Mammoth Creek in the Old Mammoth area as within the 100-year flood zone. Over 444 acres of the town are located in the 100-year flood hazard zone.
- **Extent:** Flooding issues in Mammoth Lakes have been the result of shallow, overbank flooding, within the 100-year flood zone.
- **Impacts**: Moderate impacts from flooding on local infrastructure, private property, transportation systems, and utility systems.
- **District-Specific Vulnerabilities**:
  - Floods can damage wastewater collection infrastructure, allowing runoff and groundwater to infiltrate the system, increasing flows and the quantity of water treated at the MCWD Wastewater Treatment facility.
  - Both surface water supply (Lake Mary) and groundwater supply (Groundwater Basin (Mammoth)) can be flooded, altering water quality and erosion.
  - As floods wash debris downstream, cleanup efforts can be expensive and time consuming for MCWD personnel.

Hazardous Materials

- **Location:** The Town is not located in close proximity to the interstate highway corridor where the likelihood of a Hazmat incident occurring is higher. However, a Hazmat release along US 395 could affect the Town if the wind carried gases or odors; if the release triggered other hazards, such as fire; or if it blocked key access into the Town. Propane is also a concern.
- **Extent:** According to the Hazmat Warning System, level 1 minor – level 5 catastrophic possible.

- **Impacts**: Transportation in and out of Mammoth Lakes can be restricted due to a hazardous materials spill. Air and water quality may be impacted. Long-term environmental impacts may be experienced. Transportation routes may be disrupted.
- **District-Specific Vulnerabilities**:
  - MCWD personnel's access to critical facilities could be restricted due to a hazardous material spill, particularly along US 395 as some MCWD employees reside in surrounding communities.
  - Water treatment or wastewater plant could experience chlorine gas leak which would require an immediate risk assessment and emergency repairs or evacuation.
  - Chemicals used for snowmaking or salting the snowpack for skiing can enter the groundwater, potentially contaminating it.[269]
  - If hazardous material enters the local water system, it can put significant stress on MCWD's infrastructure.

Severe Wind

- **Location:** Severe wind events can occur anywhere in the MCWD jurisdiction.
- **Extent:** The extent of severe wind can be classified using the Beaufort Wind Scale. The worst-case scenario for severe winds is wind speeds of more than 100 mph.
- **Impacts**: Downed trees can damage above-ground radio antennae and water tanks owned by MCWD. Downed trees can also damage electrical infrastructure that MCWD relies on.
- **District-Specific Vulnerabilities**:
  - MCWD owns structures and instruments that are located near forested areas. If these are damaged by trees downed by severe winds, then communications and water service could be interrupted.
  - Loss of power from downed trees can disrupt MCWD's ability to collect, distribute, and maintain potable water in the District's system. Vulnerable facilities include Old Mammoth area assets (GWTP No. 1, GWTP No. 2, and one sewer lift station).[270]
  - Staff can be injured during response to severe wind events including by falling debris.

Severe Winter Weather and Snow

- **Location:** The entire MCWD jurisdiction is impacted by severe winter weather and snow.

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[269] Mammoth Community Water District. (2005, July). *Groundwater Management Plan for the Mammoth Basin Watershed*. Mammoth Community Water District. Mammoth Community Water District

[270] Mammoth Community Water District. (2021, May). *2020 Urban Water Management Plan*. Mammoth Community Water District. https://www.mcwd.dst.ca.us/files/f400b1f3d/Final-2020-UWMP.pdf

- **Extent:** The National Weather Service Winter Storm Severity Index (WSSI) and the Wind Chill Temperature Index are both used to indicate severity levels for winter weather and snow.
- **Impacts**: Disruption of transportation and damage to the structural integrity of facilities. Impacts to transportation can restrict personnel from accessing critical facilities.
- **District-Specific Vulnerabilities**:
  - MCWD must clear snow from facilities, which can cause delays in service for customers.
  - Some MCWD employees reside in communities out of town and are vulnerable to road closures, particularly US 395.

Volcanoes

- **Location:** The Town of Mammoth Lakes is near the southwest edge of the Long Valley Caldera. Mammoth Mountain and basaltic volcanic vents have been historically active within the town boundaries. In addition, an area of potential future volcanic vents, inferred based on seismic activity, extends into the town's east side. The entire town is within hazard areas for pyroclastic flows and tephra falls.
- **Extent:** The Long Valley Volcanic Center, which is considered in the impact proximity to the planning area, is one of 18 "very high threat" volcanoes listed in a 2005 ranking developed as part of the National Volcano Early Warning System (NVEWS).
- **Impacts**: Volcanic eruptions can destroy property and injure or kill people. Ash accumulations from volcanic eruption can collapse building roofs, close roads, and seriously disrupt utilities and communications.
- **District-Specific Vulnerabilities**:
  - Volcanic impacts, including pyroclastic flow and vent eruptions, can directly damage MCWD facilities and infrastructure, including treatment facilities, water storage tanks, and underground pipes.
  - Ash accumulation can worsen water quality, putting increased stress on water treatment facilities.
  - Power outages can occur due to volcanoes, disrupting electricity-dependent facilities or straining generator capacities over prolonged outages.
  - Impact on transportation can restrict personnel from accessing critical facilities. Vehicles and other motorized equipment may be disabled by volcanic ash.

Wildfire

- **Location:** Wildfire is a concern for the entire Town of Mammoth Lakes; historically, wildfires have occurred on all sides of the town. However, certain portions of Mammoth Lakes have higher hazard exposure, including areas close to the Valentine Reserve Ecological Study Area and neighborhoods

south of Old Mammoth Road (typically referred to as Old Mammoth and Lake Mary). Additional assets are located in the Inyo National Forest.

- **Extent:** CAL FIRE has mapped the entire Town of Mammoth Lakes and it is considered to be in the Wildland Urban Interface, and in the high and very high wildfire severity zone.
- **Impacts**: Wildfire can damage or destroy structures, including homes, businesses, critical facilities, and other community assets within the Town. A very high fire hazard severity level has been mapped by CAL FIRE for most of the privately owned lands.
- **District-Specific Vulnerabilities**:
  - Wildfire can add ash and debris to the water system, increasing cost of water treatment and potential for damage to sewer infrastructure.
  - MCWD facilities can be impacted by wildfire, impairing the ability to provide water service to customers. Critical potable water and wastewater collection infrastructure including piping, pumps, storage tanks, and wells are located throughout Town and in the Inyo National Forest.
  - Damaged water mains, from any source including other natural hazards, could limit crucial fire-fighting water supply (up to 2,000 gallons/minute).[271]

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development means recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the District), conditions that may affect the risks and vulnerabilities of the District's (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 208 lists the changes in development for the Mammoth Community Water District.

[271] Mammoth Community Water District. (2021, May). *2020 Urban Water Management Plan*. Mammoth Community Water District. Final-2020-UWMP.pdf

Table 208: Mammoth Community Water District Changes in Development

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
Dam Failure	Hotel expansions, residential developments, infrastructure improvements	No changes	Climate Change	Increased
Disease and Pest Management	Hotel expansions, residential developments, infrastructure improvements	No changes	Climate Change	Increased
Drought	More landscape irrigation, new development including proposed 580-unit, low-income housing project	No changes	Climate Change	Increased
Earthquake and Seismic Hazards	Hotel expansions, residential developments, infrastructure improvements	No changes	None	Stayed the Same
Energy Shortages and Energy Resiliency	Hotel expansions, residential developments, infrastructure improvements	No changes	Climate Change	Increased
Epidemic/Pandemic	Hotel expansions, residential developments, infrastructure improvements	No changes	None	Stayed the Same
Flood	Hotel expansions, residential developments, infrastructure improvements	No changes	Climate Change	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability (Increased, Decreased, Stayed the Same)
Hazardous Materials	Hotel expansions, residential developments, infrastructure improvements	No changes	None	Stayed the Same
Severe Wind	Hotel expansions, residential developments, infrastructure improvements	No changes	None	Stayed the Same
Severe Winter Weather and Snow	Hotel expansions, residential developments, infrastructure improvements	No changes	Climate Change	Increased
Volcanoes	Hotel expansions, residential developments, infrastructure improvements	No changes	None	Stayed the Same
Wildfire	Hotel expansions, residential developments, infrastructure improvements	No changes	Climate Change	Increased

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help to carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision-makers determine feasible mitigation actions. The Mammoth Community Water District assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 209: Mammoth Community Water District Plans

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	N/A	N/A	N/A
Capital Improvement Plan	Y	The Plan identifies capital improvements necessary to prevent impacts and improve resilience of facilities and the distribution and collection systems.	Annually
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
MCWD Emergency Response Plan	Yes	The Plan provides guidance for response to incidents.	2024, updated annually.
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Other? (Describe.)	No	N/A	N/A

Table 210: Mammoth Community Water District Regulations and Ordinances

Plans	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – Town of Mammoth Lakes has adopted the 2022 California Building Code.	Yes – Town of Mammoth Lakes administers.	Last updated: 12/7/2022 Next updated: 01/01/2026
Flood Insurance Rate Maps	MCWD does not have a Flood Insurance Rate Map	N/A	N/A
Floodplain Ordinance	MCWD does not have a Floodplain Ordinance	N/A	N/A
Subdivision Ordinance	MCWD does not have any Subdivision Specific Ordinances	N/A	N/A
Zoning Ordinance	Yes	Yes – Town of Mammoth Lakes administers.	Last updated: 03/19/2014 Next updated: As needed
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes – Town of Mammoth Lakes administers.	Last updated: 03/19/2014 Next updated: As needed
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A
Other? (Describe.)	N/A	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They also include tools that can help you carry out mitigation actions.

Table 211: Mammoth Community Water District Administrative Capabilities

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	Yes	Yes	No	Yes
Civil Engineer	Yes	Yes	Yes	Yes
Community Planner	Yes	Yes	Yes	Yes
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	Unsure	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Yes	Yes	Yes	Yes
Planning Commission	Yes	Yes	Yes	Yes
Fire Safe Council	Yes	Yes	Yes	Yes
CERT (Community Emergency Response Team)	Unsure	N/A	N/A	N/A
Active VOADs (Voluntary Organizations Active in Disasters)	Unsure	N/A	N/A	N/A
Other? (Please describe.)	No	N/A	N/A	N/A

Table 212: Mammoth Community Water District Technical Capabilities

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	Yes	Recently an assessment was completed by the District identifying risk of severe winter weather	Hazard data will continue to inform hazard mitigation projects going forward.

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
		and seismic risk to guide structural retrofits.	
GIS	Yes	Identify risk areas for the purpose of locating facilities	Identify risk areas for the purpose of locating facilities.
Mutual Aid Agreements	Yes	MCWD assists adjacent community water suppliers to mitigate risk when there are equipment failures/needs.	By identifying the instances when mutual aid is needed, other community water suppliers can work towards improvements specific to their needs to mutual aid.
Other? (Please describe.)	No	N/A	N/A

Financial

Financial capabilities are the resources to fund mitigation actions.

Table 213: Mammoth Community Water District Financial Capabilities

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	No	Unsure	Unsure
General Funds	Yes	Yes, system improvements	Unsure	Unsure
Hazard Mitigation Grant Program (HMGP/404)	Unsure	N/A	N/A	N/A
Building Resilient Infrastructure & Communities (BRIC)	Unsure	N/A	N/A	N/A

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Flood Mitigation Assistance (FMA)	Unsure	N/A	N/A	N/A
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	Unsure	No	Yes	Unsure
US Army Corps (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income, or Special Purpose Taxes	Yes	Yes, system improvements	No	No
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas, or Electric Services	Yes	Yes, system improvements	No	No
Impact Fees from New Development and Redevelopment	Yes	Yes, system improvements	No	No
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federally Funded Programs (Please describe)	No	N/A	N/A	N/A
State-Funded Programs (Please describe)	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A
Other?	No	N/A	N/A	N/A

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction.

Table 214: Mammoth Community Water District Education and Outreach Capabilities

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	MCWD does campaigns via the newspaper, radio, and social media to communicate tips to customers for winterizing their water system updating their contact information on file with the District, and utilizing the MCWD Customer Portal to set up alerts.
Public Meetings/Events (Please describe.)	Yes	Yes	MCWD Board meetings are open to the public.
Emergency Management Listserv	No	N/A	N/A
Local News	Yes	Unsure	N/A
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	No	N/A	N/A
Insurance Disclosures/Outreach	Yes	No	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	No	N/A	N/A
Social Media (Please describe.)	Yes	Yes	N/A
Other? (Please describe.)	No	N/A	N/A

Ability to Expand and Improve Existing Capabilities

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	MCWD would like to be able to monitor all landscape irrigation water usage, however many multi-family residential complexes do not have dedicated irrigation meters and the cost to install the meter is prohibiting them from doing so. MCWD will advocate for the inclusion of meters in future regulations in order to be able to monitor and reduce water usage during drought conditions
Administrative and Technical	The District has many staff that are trained and familiar with hazard mitigation principles. The District is pursuing training for staff on hazard mitigation grant writing, including how to apply for HMGP grants. Additionally, training on hazards and mitigation for the Chief Building Official.
Financial	The District could pursue new grants for mitigation activities, such as HMGP or PA Mitigation (406) post-disaster.
Education and Outreach	MCWD has difficulty communicating with second homeowners. Often, second homeowners do not return emails or phone calls, or they do not provide up to date contact information. There are few means to conduct public outreach. There is one newspaper in town and one local radio station. While MCWD does have a social media presence, not all customers utilize social media. The District could work with the Town to publicize hazard mitigation information and obtain contact information for second homeowners. Further, the District could link to the online hazard mitigation plan and ReadyMono to promote understanding of local risks and what to do about them.

National Flood Insurance Program Capability Assessment

Mammoth Community Water District does not participate in, nor is it eligible for, the National Flood Insurance Program (NFIP). The National Flood Insurance Program (NFIP) is a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still require information on how each plan participant supports or implements floodplain management regulations. Table 215 includes a high-level overview of what, if anything, the District does to support floodplain management for known risks.

Table 215: Mammoth Community Water District NFIP Capabilities

NFIP Capabilities Assessment	
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Town of Mammoth Lakes; No
Which of your assets are at-risk from flooding?	Nothing specifically in the Special Flood Hazard Area.
Is your organization involved in floodplain management? If so, how?	No

Mammoth Community Water District 2026–2031 Mitigation Strategy

The mitigation strategy is often known as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities reflects an ongoing process to identify, analyze, and address hazards of concern. The strategy is comprised of goals (included in the base plan), actions, and the mitigation action plan. The goals for this plan are as follows:

- GOAL 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- GOAL 2. Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- GOAL 3. Prepare for changing climate conditions in Mono County.
- GOAL 4. Maintain adequate emergency response capabilities.
- GOAL 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole community approach to response, recovery, and mitigation.
- GOAL 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- GOAL 7. Study and implement mitigation actions to address potential impacts of compounding hazards such as flood following wildfire.
- GOAL 8. Utilize the mitigation planning process as a call to action demonstrating plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The Mammoth Community Water District did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures Mammoth Community Water District has identified. Actions may not be completed within five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Further, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, the Mammoth Community Water District will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Flood
- Hazardous Materials
- Severe Winter Weather and Snow
- Volcanoes
- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department or agency responsible for implementing/administrating the identified mitigation action.

Potential Funding

- Grants or local funding sources relevant to implementing the associated action.

Cost Estimate

- A rough estimate of the project's cost which may help determine which projects to pursue and when.

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

The link below will provide more information on community lifelines.[272] Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA Community Lifelines are as follows:

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

[272] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit

Priorities

Priorities are defined by the community. After considering the following evaluation criteria and the definitions, assign a prioritization category of low, medium, or high to each natural hazard action item being retained or created. The criteria to calculate the following priority categories (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) is included in Table 217:

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the District but has multiple potential challenges. The action should be implemented as funding becomes available.
- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the District, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the District, with minimal to no concerns. It is essential for the District to implement and may be prioritized in the short term.

Table 216 shows the mitigation actions Mammoth Community Water District has selected for this planning cycle.

Table 216: Mammoth Community Water District 2026–2031 Mitigation Actions

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Monitoring landscape irrigation with DIMs.	Drought	The lack of dedicated landscape irrigation meters at properties with existing landscaping limits our ability to track irrigation usage during times of restriction. MCWD would like to be able to provide the meters, rebates, or financial-assistance to incentivize installation of dedicated irrigation meters.	MCWD	TOML	MCWD General Fund	$252–$1,000/meter. ~$50,000	Long-term	Water Systems	High
2	Acquire potable water trucks	Energy Shortages and Energy Resilience	Provide mobile sources of potable water in the event of an energy shortage impacting the District's ability to	MCWD	TOML	MCWD General Fund	$500,000	Medium-term	Water Systems	Low

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			distribute potable water.							
3	Implement structural mitigation measures	Earthquake, Severe Wind, Severe Winter Weather	Use structural mitigation measures to reduce damage from future seismic, wind, and winter weather events, such as: Strengthening and retrofitting non-reinforced masonry buildings, non-ductile concrete facilities, and above-ground water storage tanks that are particularly vulnerable to ground shaking. Retrofitting building veneers to prevent failure. Building a safe room to provide protection during an earthquake. Installing window film to prevent	MCWD		MCWD General Fund	$5,000,000	Short-term	Water Systems	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			injuries from shattered glass. ▪ Anchoring rooftop-mounted equipment (HVAC units, satellite dishes, etc.).							
4	Conduct Winter Weather Educational Campaign	Severe Winter Weather and Snow	Educate property owners about freezing pipes and how to protect pipes to prevent bursting.	MCWD	TOML	MCWD General Fund	$5,000	Medium-term	Water Systems, Hydration	Low
5	Implement Defensible Space Program Around District Assets	Wildfire, Wildlife Collisions	On a 1–5-year basis, assess and complete defensible space around critical facilities.	MCWD	INF, TOML	MCWD General Fund	$50,000	Long-term	Water Systems, hydration	High
6	Source Water Protection	Disease/Pest Management, Wildfire	Support watershed-scale forest management to reduce disaster impacts on source water.	MCWD	INF, TOML, MLFPD	MCWD General Fund, Blue Forest Partnership	$100,000	Medium-term	Water Systems	Medium
7	Backup Tesla battery	Energy Shortages and Energy Resiliency	Purchase and install a backup Telsa battery to support existing	MCWD		MCWD General Fund	$2,300,000.	Long-term	Water Systems	Low

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			onsite renewal energy production							
8	Generator/ Power Supply backup	Dam Failure, Drought, Earthquake/ Seismic Hazards, Energy Shortages and Energy Resiliency, Flood, Severe Wind, Severe Winter Weather and Snow, Volcanoes, Wildfire	Purchase and install backup energy supplies at critical facilities to maintain water service.	MCWD	SCE	MCWD General Fund, CA Public Utilities Commission	$25,000/ generator x 10 = $250,000	Short-term	Water Systems	Medium
9	Fire retardance for faculties	Wildfire	Purchase and install fire retardance	MCWD	TOML	MCWD General Fund	$10,000	Medium-term	Water Systems	Medium
10	Purchase snow removal equipment	Severe Winter Weather and Snow	Purchase and maintain snow removal equipment used at critical faculties necessary to continue operation of the water and wastewater system	MCWD	TOML	MCWD General Fund	$500,000	Long-term	Water Systems	Low

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
11	Construction of replacement Administration Building	Earthquake/ Seismic Hazard	The existing Administration Building currently does not meet structural seismic standards in the event of catastrophic earthquake. The building needs to be replaced with a new facility that meets current codes.	MCWD	TOML	MCWD General Fund	$6,000,000	Long-term	Water Systems	Medium
12	Facility air purification system	Wildfire, Hazardous Materials, Epidemic/ Pandemic, Volcanoes	MCWD Campus facilities lack an air purification system. In order to protect the health and safety of employees, necessary to maintain daily operations of the water and wastewater system, air purification is necessary.	MCWD		MCWD General Fund	$500,000	Long-term	Water Systems	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
13	Seismic/Snow Structural Risk Assessment	Earthquake, Severe Winter Weather and Snow	Analysis and mitigation plan for all water and wastewater infrastructure. Identify at-risk assets to structural collapse or failure in the event of a seismic or snow event.	MCWD	TOML	MCWD General Fund	$300,000	Complete in 2025	Water Systems	High
14	Update Groundwater Management Plan	Drought, Wildfire	Update the current Groundwater Management Plan with current data and information. Plan for long-term drought conditions. Identify opportunities to reduce long-term risk through the monitoring, operating, and administering groundwater in a sustainable manner.	MCWD	TOML	MCWD General Funding	$25,000	Short-Term	Water Systems, Hydration	Medium
15	Building Partnerships	Dam Failure, Flood	Coordinate with Inyo National	MCWD	Inyo National Forest, US	MCWD General Fund	$10,000	First meeting in 2026, and	Water Systems, Safety and Security	Low

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	for Federal Dam Coordination		Forest and US Bureau of Reclamation on federally owned structures in Mammoth Lakes Basin including mitigation measures as appropriate.		Bureau of Reclamation			continue to meet yearly going forward		
16	PPE Planning	Epidemic/ Pandemic	Provide and enforce workforce PPE and adaptation planning.	MCWD	Mono County Public Health	MCWD General Fund	$10,000	Short-term	Health and Medical	Low

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Mitigation Action Prioritization

Mammoth Community Water District considered the STAPLEE criteria when prioritizing their actions. Table 217 documents how each action was prioritized.

Table 217: STAPLEE Prioritization for Mammoth Community Water District

Action #	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	2	4	4	2	2	2	4	High
2	4	4	4	4	4	3	4	Medium
3	2	2	4	3	3	3	4	Medium
4	3	3	3	3	3	3	3	Medium
5	4	4	4	4	4	4	4	High
6	3	3	4	4	2	2	4	Medium
7	3	3	4	4	2	2	4	Medium
8	3	3	4	4	2	2	4	Medium
9	3	3	4	3	2	2	3	Low
10	3	3	3	3	3	2	3	Low
11	2	3	3	2	2	2	3	Medium
12	2	3	3	3	3	3	3	Medium
13	4	3	4	4	4	4	4	High
14	3	4	4	4	4	4	4	Medium
15	4	4	2	2	2	2	3	Low
16	3	4	2	2	4	3	3	Low

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of the hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards the community is vulnerable to
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to carry out in the future

Past Integration Efforts

The Mammoth Community Water District did not meaningfully integrate the prior plan anywhere as the District was not a plan participant in the prior plan.

Future Integration Opportunities

Mammoth Community Water District identified future plan integration opportunities as described in Table 218.

Table 218: Mammoth Community Water District Future Plan Integration

Plan Name	Description	Process for Integration
MCWD Strategic Plan	A yearly planning document that outlines yearly strategic objectives and metrics for measuring progress.	The MJLHMP will be consulted on an annual basis to add mitigation actions into the Strategic Plan.

Conclusion

The Mammoth Community Water District is committed to carefully and effectively managing and maintaining local water resources. This includes planning and implementing hazard mitigation projects that increase community resilience. Mammoth Community Water District has taken multiple recent measures to reduce hazard risk, including the following:

- **Drought**: MCWD has developed a Water Shortage Contingency Plan with updates and refinement of proposed water conservation measures.
- **Energy Shortages and Energy Resiliency**: MCWD has developed energy system redundancy through the purchase and installation of backup power supplies at multiple facilities.
- **Epidemic/Pandemic**: MCWD updated its human resource operation in response to the COVID-19 pandemic.
- **Wildfire**: MCWD has expanded partnerships for community wildfire protection to protect the surface watershed and surface water treatment facilities.

- **Multi-Hazard**: Cyber security threats are an ongoing hazard which may be increased post-disaster when systems are more vulnerable. The District has increased cyber security posture and network resilience.
- **Earthquake and Severe Winter Weather and Snow:** The District has upgraded equipment to withstand earthquake shaking and improved planning for snow and ice removal during severe winter weather.

The District provides water and wastewater services to meet the health and safety needs of the community. The District's commitment to its customers and the environment is demonstrated through its active participation in this hazard mitigation plan. Participating in the mitigation plan not only provides the opportunity to evaluate risk and build partnerships for mitigation, but positions MCWD to be eligible for additional hazard mitigation grants. Implementing future mitigation measures will help the District continue to provide water and wastewater services to meet the health and safety needs of the community.

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Mammoth Lakes Fire Protection District Special District Annex

2026



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Mammoth Lakes Fire Protection District

The Mammoth Lakes Fire Protection District (MLFPD) has demonstrated its commitment to a comprehensive mitigation program by developing a separate district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and location, can be found. This is the first time the special district is participating in a hazard mitigation plan, so there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. Furthermore, this annex documents the selected mitigation actions for the MLFPD.

Mammoth Lakes Fire Protection District Participation

This plan was developed through a collaborative planning process that included Mono County, the Town of Mammoth Lakes (TOML), the participating special districts, many stakeholders, and the public. An important part of the plan update is documenting the planning process itself, including who represented which plan participant. Table 219 lists the individuals who represented the MLFPD during the plan update process.

Table 219: Representatives of the Mammoth Lakes Fire Protection District in the Planning Process

Name	Title	Organization/Department
Ales Tomaier	Fire Chief	Mammoth Lakes Fire Protection District (MLFPD)
Mike McCarthy	Division Chief	MLFPD
Janet Hatfield	Forest Health Program Director	Whitebark Institute
Laura Beardsley	Executive Director	Whitebark Institute

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 220 lists at least one stakeholder per required stakeholder type that works in or has knowledge of the MLFPD. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 220: Local Stakeholders

Organization	Description	Stakeholder Type
Mammoth Community Water District	Local water district	Local and regional agencies involved in hazard mitigation activities
Mammoth Hospital	Regional hospital	Local and regional agencies involved in hazard mitigation activities
US Forest Service	US Department of Agriculture Forest Service Division	Agencies that have the authority to regulate development
Mono County	County where the Town of Mammoth Lakes is located	Neighboring community
Southern Californian Edison	Utility Company	Representatives of businesses, academia, and other private organizations
Whitebark Institute	Nonprofit organization dedicated to reducing wildfire risk and enhancing sustainability in Eastern Sierra Forests	Representatives of nonprofit organizations, including community-based organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. On May 8, 2025, the MLFPD posted a social media spotlight on Facebook and Instagram with resources on how to engage in the hazard mitigation planning process. The post was specifically to involve those with access and functional needs, the elderly, low-income individuals, non-English-speaking people, and youth. It also posted flyers around town on May 8, 2025. On June 24, 2025, the MLFPD announced avenues to participate in the hazard mitigation planning process at its public board meeting. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities identified and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

Risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities utilizing the Calculated Priority Risk Index in Table 221 and the equation below it. The results are shown in Table 222.

Table 221: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
			damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time (***Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration (***The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for the MLFPD is presented in Table 222.

Table 222: Calculated Priority Risk Index for Mammoth Lakes Fire Protection District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	4	2	2	4	3	2.9
Dam Failure	1	2	2	1	4	1.8
Disease and Pest Management	2	2	1	1	4	1.8
Drought	2	2	1	1	4	1.8
Earthquake and Seismic Hazards	2	4	3	4	4	3.1
Energy Shortages and Energy Resiliency	3	3	3	3	3	3
Epidemic/Pandemic	2	3	4	1	4	2.9
Extreme Heat	1	3	1	2	3	1.7
Flood	1	2	2	1	3	1.7
Landslide	2	1	1	4	3	1.8
Hazardous Materials	2	2	2	3	3	2.2
Severe Wind	3	4	2	2	2	2.7
Severe Winter Weather and Snow	4	4	4	3	4	3.6
Volcanoes	1	4	4	4	4	3.1
Wildfire	4	4	4	4	4	4
Wildlife Collisions	1	1	1	4	2	1.4

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan discusses hazards that have been recognized by the state and the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 223 lists these hazard events of local significance.

Table 223: Previous Disaster Impacts for Mammoth Lakes Fire Protection District[273]

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	N/A	Numerous	Multiple fatalities and injuries	Avalanches at MMSA, the Sherwins, and in town, often including "roof avalanches."
Dam Failure	N/A	N/A	N/A	Not in this district, but within MLFPD's immediate response area.
Disease and Pest Management	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Earthquake and Seismic Hazards				Mammoth Lakes has a significant earthquake history, particularly the 1980 sequence and subsequent activity. In May 1980, a series of earthquakes, including a magnitude 6.0, caused extensive damage. Additional moderate quakes occurred in 1983 in the same general area. Recent activity, like the 2014 swarm in Long Valley Caldera, 7 miles east of Mammoth Lakes, demonstrated continued seismic activity in the region.
Energy Shortages and Energy Resiliency	N/A	N/A	PSPS can have impacts on populations with access and functional needs. There have also been periods of severe winter storms when fuel essential for heating (propane) and automotive	In Mammoth Lakes, the history of PSPS outages is tied to the broader context of wildfire prevention efforts by Southern California Edison and other utilities. PSPS are implemented to proactively de-energize electrical infrastructure in areas experiencing

[273] MLFPD = Mammoth Lakes Fire Protection District, MMSA = Mammoth Mountain Ski Area, PSPS = Public Safety Power Shutoffs,

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			fuels (gas & diesel) could not be brought into the community, putting the general population at risk.	high-risk weather conditions, such as strong winds and low humidity.
Epidemic/ Pandemic	DR-4482-CA		Influx of individuals from southern California overwhelmed local resources	COVID 19 Pandemic
Extreme Heat	N/A	N/A	N/A	N/A
Flood	N/A	N/A	N/A	Have had minor flooding in portions of the community, especially in spring runoff following large winter snows
Landslide	N/A	N/A	N/A	N/A
Hazardous Materials	N/A	N/A	N/A	Mammoth Lakes has some hazardous materials risks, particularly related to its volcanic environment and geothermal activities. Specifically, the risks are associated with pyroclastic flows and carbon dioxide emissions from Mammoth Mountain, a young and active volcano. In addition, geothermal facilities in the area, such as those owned by Mammoth Pacific, L.P., are subject to regulations for the storage of hazardous substances. In addition, the Water District works with chlorine, for which there is little response capacity.
Severe Wind	N/A	N/A	Severe winds have damaged trees, some of which fell on structures. In addition, severe	Mammoth Lakes can experience severe winds, particularly at higher elevations like the peak of Mammoth Mountain where winds can exceed 100 mph. Winds at the base of the mountain are often 25–30 mph, with stronger

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			winds impact travel, and they are a risk for spreading fires.	gusts. During winter storms, strong winds can produce blizzard conditions, making travel difficult.
Severe Winter Weather and Snow	EM-3591-CA, EM-3592-CA	Winter 2022/2023	Structure collapse/ compromise (yellow/red tag), propane infrastructure damage including multiple dwellings destroyed by explosions of undetected propane leaks, 100+ other propane leaks or fires causing life safety hazards. Fatigue of first responders to continue to respond, avalanche road closure north of town splitting the county in two with inability to move resources from one side to the other.	Record sustained snowfall overwhelmed the resources of the Town and the MLFPD. Extreme snow load on structures and infrastructure caused many collapses, compromised structural integrity, and caused many fires, explosions, propane leaks, etc.
Volcanoes	N/A	Mammoth Mountain is a geologically young volcano with a history of eruptions from approximately 100,000–50,000 years ago. Basalts have erupted in the area for at least 235,000 years, with at least one eruption every 10,000 years or so during the	A volcanic eruption near Mammoth Lakes could lead to ashfall, potentially impacting the town and surrounding areas, and could also damage infrastructure and vegetation. Depending on the type and size of the eruption, other hazards, such as lava flows and volcanic gases, could also be present.	Mammoth Mountain is a volcano near Mammoth Lakes. It is considered a dormant volcano, but it has a history of eruptions. The area also includes the Long Valley Caldera, a supervolcano that is considered to be a very high threat. Mammoth Mountain is located on the southwest rim of the Long Valley Caldera.

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
		past 250,000 years. The last eruption was 8,000 years ago. Mammoth Mountain is surrounded by many mafic vents, including Red Cones, which were radiocarbon dated about 8,000 years ago. Recent volcanic unrest includes seismicity, gas emissions, and tree kill, possibly related to a dike intrusion beneath the mountain in 1989.		
Wildfire	N/A	Mammoth Lakes is in the Eastern Sierra, which—like other parts of the Sierra Nevada—has experienced a rise in wildfire frequency and intensity in recent decades. Several large wildfires have occurred in the Eastern Sierra in recent years, including the Dixie Fire in 2021 and the Creek Fire in 2020.	Wildfires in the Eastern Sierra can cause widespread damage and impacts, including loss of life, damage to structures, and significant environmental consequences. These fires can lead to poor air quality, reduced tourism, and economic losses. The last two fires in the county with significant structure loss are the Round Fire and Mountainview Fire. Links to information are in the section below.	There are 10,216 properties in Mammoth Lakes that have some risk of being affected by wildfire over the next 30 years. This represents 99% of all properties in Mammoth Lakes. Besides damaging properties, wildfire can also cut off access to utilities and emergency services, impact evacuation routes, and may impact the overall economic well-being of an area. Overall, Mammoth Lakes has a major risk of wildfire over the next 30 years.

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Wildlife Collisions	N/A	N/A	N/A	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each of the hazards affecting the overall planning area. Assets were determined by the community. Asset types may differ between plan participants, including the following:

- People (residents, workers, visiting populations, and socially vulnerable populations such as seniors, individuals with disabilities, lower-income individuals, etc.)
- Structures (residential, commercial, industrial, government-owned, planned capital improvement, etc.)
- Economic assets (major employers, primary economic sectors, key infrastructure like telecommunications networks, etc.)
- Natural, historic, and cultural resources (areas of conservation, parks, critical habitats, community centers, historic places, etc.)
- Critical facilities and infrastructure (hospitals, law enforcement, water, power, transportation systems, etc.)
- Community activities (major local events, such as festivals, or economic events, such as farming or fishing)

The following problem statements describe the district-specific vulnerabilities of the MLFPD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to the MLFPD.

Avalanche

- **Location:** Mammoth Mountain Ski Area, the Sherwins, and in TOML, particularly the southwestern part of the town.
- **Extent:** The worst-case scenario for avalanches is D2 avalanche slides.
- **Impacts**: Avalanches can block or damage critical access routes, isolate communities, and pose direct threats to homes and people in high-risk zones.
- **District-Specific Vulnerabilities**:
  - Roof avalanches could damage structures.
  - Services might be disrupted by blocked facilities or vehicles.
  - Communities or visitors, particularly on ski slopes, could be isolated, preventing emergency services from reaching them.

Dam Failure

- **Location:** There are no dams in the district, but they are in the immediate response area. Street flooding could occur in TOML.

- **Extent:** Several dams in the immediate response area are rated high hazard potential dams.
- **Impacts**: Catastrophic flooding could isolate communities and disrupt emergency services. Vehicles and other critical infrastructure could incur damage.
- **District-Specific Vulnerabilities**:
  - Inundation of major highways, such as US 395, could impede response from the MLFPD. These service interruptions could impact people's life and safety in Mammoth Lakes.
  - First responders could be overcome by flood waters during rescue operations, placing their lives in danger.
  - Data limitations exist regarding the potential extent of flooding due to dam failure in the TOML itself, so there may be an unknown level of risk.

Disease and Pest Management

- **Location:** The entire planning area is vulnerable to diseases and pests.
- **Extent:** The Disease Severity Scale indicates a moderately susceptible/disease score of five as the worst-case scenario. Pine mortality caused by the mountain pine beetle (*Dendroctonus ponderosae*) has remained high.
- **Impacts**: Diseases and pests can impact local water systems and natural resources like forests.
- **District-Specific Vulnerabilities**:
  - Staff can be impacted by various pest diseases, such as the Hantavirus, which can affect their continuity of operations.
  - Infestations can kill vast amounts of forested land, exacerbating fire risk in the community and putting more people in harm's way.
  - MLFPD facilities themselves are not vulnerable to disease and pests.

Drought

- **Location:** Drought conditions affect the entire Mammoth Lakes Fire Protection District (MLFPD) service area and surrounding wildland areas throughout the Town of Mammoth Lakes and the Wildland Urban Interface.
- **Extent:** The district has experienced prolonged drought conditions, reduced snowpack, and increased vegetation stress that contribute to elevated wildfire conditions and strain on water resources used for fire suppression operations.
- **Impacts**: Drought conditions can increase wildfire frequency and intensity, reduce fuel moisture, increase emergency service demand, and strain water resources relied upon for structure protection and firefighting activities. Drought-related conditions may also increase emergency medical calls associated with heat, smoke exposure, and wildfire activity.

- **District-Specific Vulnerabilities**:
  - The district relies on adequate water supply availability, hydrant functionality, and sustained water pressure to support fire suppression and emergency response activities throughout the community. Reduced water availability during prolonged drought conditions may affect suppression capabilities during large wildfire incidents.
  - Low fuel moisture and drought-stressed vegetation throughout the district and surrounding public lands increase wildfire susceptibility and create conditions for rapid fire spread that could threaten structures, critical facilities, evacuation routes, and district infrastructure.
  - The district's emergency response capabilities may be strained during prolonged drought periods because of increased wildfire activity, mutual aid demand, extended operational periods, and elevated emergency medical service calls associated with severe heat and smoke impacts.
  - Vulnerability to cascading hazards, such as flooding and landslide, that require response from MLFPD reduces the capacity to respond to other disasters and jeopardizes the life and safety of residents.

Earthquake and Seismic Hazards

- **Location:** Earthquake and seismic hazards have the potential to affect the entire MLFPD service area because the Town of Mammoth Lakes is located within a seismically active region near the Long Valley Caldera and multiple regional fault systems.
- **Extent:** The planning area is vulnerable to earthquake ground shaking, fault activity, and related infrastructure damage that could impact emergency services, transportation networks, utilities, and communications systems.
- **Impacts**: Earthquakes could damage district facilities, interrupt emergency communications, block transportation routes, damage public infrastructure, and increase demand for firefighting, rescue, and emergency medical services. Extended utility outages and structural damage may also complicate emergency response operations.
- **District-Specific Vulnerabilities**:
  - The district's critical facilities, including fire stations, apparatus bays, emergency generators, fuel systems, communications equipment, and emergency response vehicles, are vulnerable to structural damage and operational disruption resulting from seismic activity.
  - Earthquake-related damage to communications systems and dispatch interoperability infrastructure could interrupt coordination with local, regional, and mutual aid partners during emergency operations.
  - Response routes and transportation corridors may become blocked or damaged by debris, roadway failure, or damaged infrastructure, increasing response times and limiting emergency access to impacted areas of the Town.

- Large seismic events could significantly increase demand for fire suppression, rescue operations, and emergency medical response throughout the district service area.
- A large-scale event could put a strain on local housing and medical capacities, requiring district response. The time of the year may influence the vulnerability of the community. For instance, during peak tourism season, many visitors who might have intended to stay only for the day could be trapped without adequate food, water, and shelter.

Energy Shortages and Energy Resiliency

- **Location:** The entire planning area is susceptible to energy emergencies.
- **Extent:** The planning area can expect to experience regular intervals of power outages.
- **Impacts**: Energy shortages can disrupt the operation of critical infrastructure that relies on power. Prolonged power outages could lead to loss of life and deterioration of health conditions for individuals who depend on life-sustaining medical equipment that uses electrical power.
- **District-Specific Vulnerabilities**:
  - Electricity, fuel, and propane could be inaccessible if power outages impact the continuity of operations.
  - Vulnerability increases depending on the weather. As a worst-case scenario, if a significant winter storm closed evacuation routes and caused power outages, people could be trapped in their homes without sufficient heating.
  - Propane can cause explosions and spark fires. Data limitations exist, as some lines are unmapped across town.

Epidemic/Pandemic

- **Location:** The entire planning area is susceptible to pandemics and epidemics. More densely populated areas such as TOML would foster the spread of diseases such as the flu, COVID-19, and RSV, faster than less densely populated areas of the county.
- **Extent:** The planning area can expect global pandemics as the worst-case scenario.
- **Impacts**: Epidemic/pandemic can impact human health, causing everything from days off work to death. Widespread pandemics can impact worker productivity, potentially disrupting critical services such as medical care. The local tourism sector, a crucial economic pillar, may experience declines as potential visitors are dissuaded by health risks.
- **District-Specific Vulnerabilities**:
  - Policies designed to reduce the spread of illness could limit fire services' ability to work with the community on fuels mitigation.
  - High infection rates among staff could impede the continuity of operations. These service interruptions could impact people's life and safety in Mammoth Lakes.

- MLFPD facilities themselves are not vulnerable to epidemic and pandemic.

Extreme Heat

- **Location:** The entire planning area is susceptible to extreme heat.
- **Extent:** The worst-case scenario for extreme heat is the category of danger, with temperatures ranging from 103°F to 124°F.
- **Impacts**: Prolonged exposure to extreme heat can lead to heat exhaustion, heat stroke, and even death. Extreme heat can degrade road infrastructure, reduce water availability, stress local power grids, and increase wildfire risk.
- **District-Specific Vulnerabilities**:
  - For MLFPD staff and people in the district that work outside, there is an increased risk of heat exhaustion or stroke.
  - MLFPD facilities can withstand extreme heat, but it adds more strain on the electrical system, potentially causing power outages that incapacitate fire stations.

Flood

- **Location:** Flood hazard have the potential to affect portions of the MLFPD service area near creeks, drainage areas, low-lying roadways, and other areas susceptible to stormwater runoff and localized flooding. This includes areas along Mammoth Creek which are located in SFHA. Over 444 acres are located in the SFHA. Rain, including rain on snow events, can impact the entire district service area.
- **Extent:** Flooding in the district's service area may result from heavy rainfall, rapid snowmelt, stormwater overflow, debris blockage, or post-wildfire runoff conditions that overwhelm local drainage systems and transportation infrastructure. Mintor flooding in portions of the community has occurred historically, especially in the spring when runoff occurs after large winter storms.
- **Impacts:** Flood conditions can damage roads and infrastructure, delay emergency response operations, restrict mutual aid access, and create hazardous conditions for emergency personnel and the public. Flooding may also interrupt utility service and isolate portions of the community.
- **District-Specific Vulnerabilities**:
  - The district relies on a limited transportation network and critical emergency access routes that may become restricted, damaged, or impassable because of localized flooding, debris flows, or drainage failures. This can impact life and safety in the district's service area.
  - Fire stations, emergency vehicles, and supporting infrastructure located near drainage areas or stormwater conveyance systems may be vulnerable to inundation, water intrusion, or operational disruption.
  - Flooded roadways and damaged infrastructure may delay emergency response operations, impact apparatus deployment, and limit the ability of mutual aid resources to access impacted

areas of the Town. Major roads, including Old Mammoth Road, along Mammoth Creek and its tributaries are vulnerable.

- Flood operations and rescues place staff at risk of injury and/or death.

Landslide

- **Location:** Landslide hazards are most likely to affect steep hillside areas, mountain road corridors, and areas adjacent to unstable slopes throughout the district service area and surrounding transportation network.
- **Extent:** Landslides may occur as a result of heavy precipitation, rapid snowmelt, wildfire-related slope instability, erosion, or seismic activity that destabilizes steep terrain and roadway corridors.
- **Impacts:** Landslides may block roadways, damage infrastructure, isolate portions of the community, interrupt communications systems, and delay emergency response and evacuation operations.
- **District-Specific Vulnerabilities:**
  - The district relies on hillside roads, mountain transportation corridors, and limited access routes that may become blocked or damaged by slope failure, debris, or erosion associated with landslide events.
  - Communications infrastructure and utility systems supporting emergency response operations may be disrupted or damaged by slope instability or associated infrastructure failure.
  - Landslide activity could isolate neighborhoods, delay emergency access to remote response areas, increase response times, and complicate evacuation or rescue operations during concurrent hazard events.

Hazardous Materials

- **Location:** The entire planning area is susceptible to hazardous materials.
- **Extent:** The worst-case scenario for a Hazmat incident is Level 5 (Catastrophic).
- **Impacts**: Hazmat events can post immediate health threats to the public, including toxic exposure and respiratory issues. They may also contaminate water sources. Geothermal activities, such as volcanoes, can also release toxic gases into the atmosphere.
- **District-Specific Vulnerabilities**:
  - Limited access roads and a lack of alternative routes may impede response to those affected. These service interruptions could impact people's life and safety in Mammoth Lakes.
  - Hazmat releases can pose significant health risks for responders and those in the immediate area.
  - Hazmat spills on State Route 203 could directly impact MLFPD facilities.

Severe Wind

- **Location:** The entire planning area is susceptible to severe wind hazards, especially high elevations like the peak of Mammoth Mountain.
- **Extent:** The extent of severe wind can be classified using the Beaufort Wind Scale. The worst-case scenario for severe winds involves speeds more than 100 mph.
- **Impacts**: Severe winds can cause trees to fall onto structures, impact travel, and increase the spread of wildfires.
- **District-Specific Vulnerabilities**:
  - MLFPD vehicles are at risk of being overturned by severe winds, placing assets and staff at risk of injury and/or death.
  - Severe wind can cause trees to fall on roads or power lines, impeding travel and increasing the risk of fire. Service interruptions could impact the life and safety of people in Mammoth Lakes.
  - Individuals with pre-existing medical conditions dependent on electricity to power life-sustaining medical equipment can be put at risk when severe winds cause prolonged power shortages from downed power lines.

Severe Winter Weather and Snow

- **Location:** Severe winter weather and heavy snow affect the entire MLFPD service area and surrounding transportation corridors throughout the Town of Mammoth Lakes and adjacent mountain areas.
- **Extent:** Severe winter storms in the planning area can produce significant snowfall, extreme cold, high winds, ice accumulation, avalanche conditions, and prolonged transportation and utility disruptions. The Town routinely experiences some of the most severe winter weather conditions in Mono County.
- **Impacts**: Severe winter weather may damage structures and infrastructure, restrict emergency response access, delay staffing and mutual aid arrival, interrupt utility service, and increase demand for emergency response and rescue operations.
- **District-Specific Vulnerabilities**:
  - The district's fire stations, emergency response vehicles, snow access routes, communications systems, and backup power infrastructure are vulnerable to prolonged snow accumulation, ice, extreme cold, and utility outages.
  - Heavy snowfall and ice accumulation may limit apparatus access, slow emergency response times, and restrict movement throughout the Town and surrounding communities.
  - Severe winter storms may contribute to roof loading concerns, fallen trees, roadway closures, power outages, and hazardous travel conditions that affect district operations and increase emergency medical and rescue incidents.

- Propane can leak when severe snow loads damage the propane system of a structure. These leaks can lead to inhalation and fire or explosions if ignited, placing residents and district staff at risk of injury or death. There were 138 propane related incidents during the 2022–2023 winter storms in the Town of Mammoth Lakes.[274]
- The district may experience staffing limitations and operational strain during prolonged winter storms because of hazardous travel conditions, community isolation, and increased demand for emergency response services.



Figure 114: Snow on Houses during a Winter Storm, 2023

[274] Town of Mammoth Lakes. "22/23 Winter Storms After-Action Reports," April 2024. https://www.townofmammothlakes.ca.gov/DocumentCenter/View/14208/MammothLakes_WinterStorms-AAR_FinalDraft_052624.



Figure 115: Collapsed Structure during a Winter Storm, 2023

Volcanoes

- **Location:** Long Valley Caldera region with elevated exposure in Mammoth Lakes.
- **Extent:** The Long Valley Volcanic Center is one of 18 "very high threat" volcanoes listed in a 2005 ranking developed as part of the National Volcano Early Warning System (NVEWS).
- **Impacts:** Ashfall can contaminate air and water supplies and pose respiratory health risks; pyroclastic flows can devastate infrastructure and threaten lives; and lahars, or volcanic mudflows, can occur when volcanic debris mixes with water, posing a severe threat to communities located near rivers and streams. In addition, the potential for secondary hazards, such as landslides, wildfires ignited by lava, and disruptions to transportation and communication systems, must be considered. An eruption during winter could melt heavy snowpacks, generating mudflows and cause local destructive flooding.
- **District-Specific Vulnerabilities**:
  - All assets—including people, structures, and infrastructure—are at-risk of disruption, damage, or destruction from this hazard.
  - Ash can pose a threat to air and water quality.

Wildfire

- **Location:** The entire planning area is susceptible to wildfires.
- **Extent:** Most of the planning area is in the High and Very High wildfire severity zone
- **Impacts**: Wildfires can lead to widespread evacuations, structural losses, health impacts due to smoke and ash, utility outages, road closures, and economic disruptions.
- **District-Specific Vulnerabilities**:
  - Wildfire can damage structures and community lifelines and cut off power, communications, and internet infrastructure in Mammoth Lakes.
  - Wildfires can block access to transportation routes, isolating communities and preventing emergency services. These service interruptions could impact the life and safety of people in Mammoth Lakes.
  - Residential portions of the Lakes Basin, which sits southwest of Mammoth Lakes, are particularly vulnerable to wildfire. Most homes are old and constructed with heavy timber, flammable siding, and a mix of roofs. Some structures have flammable decks or projections, and most have native vegetation too close to the structure. There is little or no defensible space around the structures in this zone. Natural fuel loads are heavy throughout this zone. Power lines and propane tanks are above ground. There are no hydrants, and the nearest fire station is almost five miles away.[275]

Wildlife Collisions

- **Location:** Transportation corridors, such as US 395.
- **Extent:** Although there is no universal scale for wildlife collisions, a hot spot analysis of vehicle collisions with mule deer ranked very high along the southern portions of US 395.
- **Impacts**: Impacts include injury or loss of human life, damage to vehicles and infrastructure, disruption of traffic flow on key routes, and harm to local wildlife populations.
- **District-Specific Vulnerabilities**:
  - MLFPD vehicles are at risk of wildlife collisions, damaging MLFPD assets and potentially injuring staff.
  - These collisions can also delay service to areas in Mammoth Lakes by blocking roads. Service interruptions could impact the life and safety of people.

[275] Mammoth Lake Fire Protection District. "Community Wildfire Protection Plan Update," 2019. https://mlfd.ca.gov/wildland-urban-interface/community-wildfire-protection-plan/.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district), conditions that may affect the risks and vulnerabilities of the districts (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 224 lists the changes in development for the MLFPD.

Table 224: Changes in Development at the Mammoth Lakes Fire Protection District

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Avalanche	Increased development has led to more incidents.	Increased development has led to more incidents.	Winter weather variability impacting snow layering, increasing avalanche risk	Increased
Dam Failure	None	None	Increased winter snow loading has placed pressure on dams with increased runoff.	Increased
Disease and Pest Management	None	None	Bark beetle impact is increasing. The cause is unknown, but rising temperatures could impact it.	Increased
Drought	None	None	None	Stayed the same
Earthquake and Seismic Hazards	None	Increase in tourism puts more population in the area if a seismic event did occur. Most concerned in the winter when additional snow	None	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
		loading can create unbalanced loads on structures.		
Energy Shortages and Energy Resiliency	None	Increases in Public Safety Power Shutoffs raise the probability of periods without energy. Avalanches have blocked portions of town for multiple weeks, compromising energy grids.	None	Increased
Epidemic/ Pandemic	None	The risk of pandemics appears to be increasing because of several factors, including increased globalization and travel and urbanization. The tourist nature of the area exaggerates these movements of people and increases the risk for the area.	None	Increased
Extreme Heat	None	None	None	Stayed the Same
Flood	None	None	None	Stayed the Same
Landslide	None	None	None	Stayed the Same
Hazardous Materials	None	None	None	Stayed the Same
Severe Wind	None	None	None	Stayed the Same
Severe Winter Weather and Snow	Recent development has included taller, multi-story super-sized complexes. New and existing buildings are leading to the expansion of the underground	Increased use of dwellings as short-term rentals leads to less upkeep/maintenance by homeowners and or long-term tenants (e.g., shoveling out the propane service connection on the side of the dwelling,	Trend in more extremes for winter weather causing bigger big years and smaller small years, increasing the frequency and risk of severe winter weather storms.	Vulnerability has increased because of higher risk of severe winters; more homes connected to underground piping system.

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
	propane distribution system.	shoveling the tank to keep fill/shut-off valves accessible).		
Volcano	None	None	None	Stayed the Same
Wildfire	Portions of the ski area were changed from federal land to local, developable land. The Mammoth Mountain Main Lodge Redevelopment, also known as "Evolving Main," is a comprehensive project to redevelop the Main Lodge area of the Mammoth Mountain Ski Area. It involves improvements on both privately owned land and land managed by the Inyo National Forest. This significant project is in a remote portion of the district, which will create service challenges.	Snowcreek Phase VIII is an approved large-scale real estate development in Mammoth Lakes, on a 222-acre site. The project is governed by the Snowcreek Master Plan Update of 2007 and allows for the development of residential units, a resort hotel, private residential club units, and nonresidential uses. This project will bring up to 1000 new structures to town, adding to service needs.	None	Increase
Wildlife Collisions	None	None	None	Stayed the Same

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. The MLFPD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 225: Plans of the Mammoth Lakes Fire Protection District[276]

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	MLFPD participates in TOML's general plan adoption process.	It can be used by incorporating mitigation measures into its goals, policies, and implementation programs. The plan can then utilize various implementation tools, such as zoning ordinances, impact fees, and development regulations, to achieve the mitigation goals.	TOML's General Plan was last updated in 2007. Since then, various General Plan Amendments have been adopted, including the Housing Element in 2019 and the Mobility Element in 2016. Do not know the next planned update.
Capital Improvement Plan	MLFPD does not have a capital improvement plan.	A plan would be a significant tool to help MLFPD efficiently plan and finance major infrastructure projects like building new stations, upgrading existing ones, or acquiring essential equipment. The plan would allow the district to prioritize needs, identify funding sources, and align capital expenditures with long-term goals.	MLFPD does not have a capital improvement plan.
Climate Change Adaptation Plan	MLFPD does not have a climate change adaption plan.	N/A	TOML conducted a Climate Change Vulnerability Assessment.

[276] CEDD = Community and Economic Development Department, CWPP = Community Wildfire Protection Plan, EOP = Emergency Operations Plan, MLFPD = Mammoth Lakes Fire Protection District, TOML = Town of Mammoth Lakes.

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
Community Wildfire Protection Plan	MLFPD adopted a CWPP in 2019. The county adopted a separate CWPP in 2019 as well.	CWPPs are valuable for reducing wildfire risk to communities, enhancing safety, and mobilizing community action. They provide a framework for identifying hazards, prioritizing fuel reduction efforts, and implementing mitigation strategies. CWPPs also facilitate grant access for wildfire risk-reduction projects and foster community capacity building. MLFPD adopted its own CWPP beyond the county one to look more deeply at specific hazards in the district.	The CWPP needs to be updated. There have been discussions with stakeholders to conduct a dynamic CWPP that is a living document that uses current fire risk modeling and capturing mitigations. This is an immediate need that is being discussed by parties, and MLFPD is in those conversations. The update is to ensure that the CWPP remains effective and up to date in addressing the evolving wildfire risks and community needs.
Economic Development Plan	MLFPD participates in TOML's economic development planning process.	The process is managed by CEDD and works with residents and other town departments to guide development and conservation.	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	MLFPD participates in TOML's EOP.	TOML's EOP was adopted in 2017 and is available on the TOML website. The EOP outlines how TOML will organize to protect lives and property and ensure continuity of government during an emergency	2017 last update
Stormwater Management Plan	MLFPD does not have a Stormwater Management Plan.	N/A	N/A
Transportation Plan	MLFPD does not have a Transportation Plan	N/A	N/A

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
Substantial Damage Plan	MLFPD does not have a Substantial Damage Plan	N/A	N/A
Other? (Describe.)	Eastern Sierra Climate & Communities Resilience Project – Needs Assessment[277]	A plan to overhaul forest operations, community partnerships, and wildfire education around TOML to prevent large-scale wildfire events.	Written in 2022, plan update timeline unknown

[277] Hatfield, Janet, Rick Kattelmann Ph.D., Kelsey Glastetter, Taro Pusina, and Holly Alpert Ph.D. "Eastern Sierra Climate & Communities Resilience Project – Needs Assessment," October 2022. https://www.fs.usda.gov/r05/inyo/projects/61827.

Table 226: Regulations and Ordinances of the Mammoth Lakes Fire Protection District[278]

Regulation/ Ordinance	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – Town of Mammoth Lakes has adopted the 2022 California Building Code.	Yes – Town of Mammoth Lakes administers.	Last updated: 12/7/2022 Next updated: 01/01/2026
Flood Insurance Rate Maps	MLFPD does not have a Flood Insurance Rate Map	N/A	N/A
Floodplain Ordinance	MLFPD does not have a Floodplain Ordinance	N/A	N/A
Subdivision Ordinance	MLFPD does not have any Subdivision Specific Ordinances	N/A	N/A
Zoning Ordinance	TOML has specific zoning ordinances and plans and MLFPD adheres to those and provides input on them.	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	MLFPD regularly adopts the California Fire Code as adopted by the California State Fire Marshal. In addition, MLFPD enforces a more stringent local code to tailor regulations to specific geographic and demographic circumstances, ensuring that these laws are effective and relevant to the community.[279]	MLFPD has limited staff to administer and enforce the codes.	Last updated 2022 and updated every three years, with additional updates occurring as needed to address specific issues.
Acquisition of Land for Open Space and Public Recreation Use	MLFPD does not have an acquisition of land for open space plan	N/A	N/A
Prohibition of Building in At-Risk Areas	MLFPD does not have an expressed prohibition of building in at-risk areas, but building code is adjusted for addressing risk increases	N/A	N/A
Other? (Describe.)	None	N/A	N/A

[278] MLFPD = Mammoth Lakes Fire Protection District, TOML = Town of Mammoth Lakes.
[279] Mammoth Lake Fire Department. 2022. "An Ordinance Adopting The 2022 California Fire Code." MLFPD-Ordinance-2022-01-Adopting-the-CA-Fire-Code-Building-Code-and-Residential-Code.pdf

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They also include tools that can help you carry out mitigation actions.

Table 227: Administrative Capabilities of the Mammoth Lakes Fire Protection District[280]

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	TOML has a Building Official; MLFPD does not, but it has a Prevention Program managed by a Chief Officer and hey work in conjunction with the Building Department.	Staffing is relatively adequate compared with other district challenges but is stretched during periods of community growth.	Yes	Generally, yes, has been a strategic priority with a discussion on process & data sharing and potentially shared platforms.
Civil Engineer	TOML has a Civil Engineer; MLFPD does not,	N/A	N/A	MLFPD works well with Public Works and the Civil Engineering Team
Community Planner	TOML has a planning team; MLFPD does not.	N/A	N/A	MLFPD works well with the Planning and Economic Development Team
Emergency Manager	The County has an Emergency Manager; MLFPD does not.	No	Yes	Coordination with the County Emergency Manager is adequate, but the position has limited capacity due to staff and budget limitations.
Floodplain Administrator	Unknown, MLFPD does not have a Floodplain Administrator.	N/A	N/A	N/A
Geographic Information	No. MLFPD works with County GIS, but that department is	No.	N/A	No, there is not enough external capacity to support

[280] CEDD = Community and Economic Development Department, MLFPD = Mammoth Lakes Fire Protection District, PEDC =Planning and Economic Development Commission, TOML = Town of Mammoth Lakes.

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
System (GIS) Coordinator	stretched on capacity. MLFPD has a strategic priority to increase internal GIS capability.			MLFPD, which must increase internal capacity.
Planning Commission	As noted above, TOML has a PEDC in which MLFPD participates.	N/A	Unknown	Yes
Fire Safe Council	No, the Fire Safe Council disbanded several years ago due to capacity issues.	No	Not currently functioning	A new Fire Safe Council needs to be stood up in the local community.
CERT (Community Emergency Response Team)	No, the CERT team disbanded several years ago due to capacity issues.	No	Not currently functioning	Does not currently exist
Active VOAD (Voluntary Organizations Active in Disasters)	The Mono County American Red Cross offers a range of services, including disaster relief, emergency preparedness, and community adaptation programs. It also provides home fire safety education.	Unknown	Yes	Yes, regular attendance and updates at Unified Command Meetings.
Other? (Please describe.)	None	N/A	N/A	N/A

Table 228: Technical Capabilities of the Mammoth Lakes Fire Protection District[281]

Technical Capability	In place? (Y/N)	How has the capability been used to assess/ mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/ mitigate risk in the future?
Mitigation Grant Writing	MLFPD applies for mitigation/prevention grants but has a small staff with limited capacity.	MLFPD has been awarded many federal, state, and local grants, but has limited capacity due to other job responsibilities. One successful implementation is the standing up of the Wildland Program for Fuels Mitigation. It was initiated with a grant from CAL FIRE and turned over to long-term financial funding through a ballot measure.	Grants can be used to assess and mitigate future risks by funding projects that address vulnerabilities and enhance resilience. This includes funding risk assessments, developing mitigation plans, and implementing preventative measures.
Hazard Data and Information	Limited. MLFPD recently had to move from a long-standing records management database that incorporated all services in the district. A well-functioning replacement has not been identified, and this has had a negative impact on MLFPD operations and planning.	In the past the database aligned incidents, inspections, preplans, etc. for better situational awareness and decision-making.	MLFPD needs a new records management system to replace the prior one.
GIS	MLFPD does not have sufficient GIS capabilities.	GIS can be highly beneficial for fire districts as it provides tools for mapping, analysis, and situational awareness, ultimately enhancing response times, safety, and decision-making during emergencies.	MLFPD is actively pursuing opportunities to increase GIS capability. By integrating various datasets and utilizing spatial analysis, GIS would allow MLFPD to identify hazards, optimize resource deployment, and improve communication.

[281] CAL FIRE = California Department of Forestry and Fire Protection, MLFPD = Mammoth Lakes Fire Protection District.

Technical Capability	In place? (Y/N)	How has the capability been used to assess/ mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/ mitigate risk in the future?
Mutual Aid Agreements	MLFPD has multiple Mutual Aid Agreements with Federal, State, and Local cooperators.	Mutual aid agreements increase MLFPD's capability by enabling it to share resources, like personnel, equipment, and expertise, that it does not have readily available. This sharing expands response capabilities during emergencies and prevents duplication of effort across different areas.	Mutual aid agreements build stronger networks of support, making communities more resilient and better prepared to face future challenges. This proactive approach can help mitigate the impact of future emergencies.
Other? (Please describe.)	None	N/A	N/A

Financial

Financial capabilities are the resources to fund mitigation actions.

Table 229: Financial Capabilities of the Mammoth Lakes Fire Protection District[282]

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	MLFPD has two Capital Expenditure funds for purchases of apparatus and facilities.	The funds can be used for purchase of capital expenditure items. An example is the fuels chipper.	Yes
General Fund	Yes	MLFPD utilizes this fund for operations related to activities in its service areas.	Yes, all service areas utilize this fund.	Yes
Hazard Mitigation	No	No	Yes, if successfully awarded.	Unknown.

[282] CAL OES = California Governor's Office of Emergency Services, MLFPD = Mammoth Lakes Fire Protection District, NGO = nongovernmental organization, TOML = Town of Mammoth Lakes.

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Grant Program (HMGP/404)				
Building Resilient Infrastructure & Communities (BRIC)	No	No	Yes, if successfully awarded, but not sure if a fire district is eligible.	Unknown.
Flood Mitigation Assistance (FMA)	No	No	Yes, if successfully awarded, but not sure if a fire district is eligible.	Unknown.
Public Assistance Mitigation (PA Mitigation/406)	No	No	Yes, if successfully awarded.	Unknown.
Community Development Block Grant (CDBG)	No	No	Yes, if successfully awarded, but not sure if a fire district is eligible.	Unknown.
Natural Resources Conservation Services (NRCS) Programs	No	No	Yes, if successfully awarded, but not sure if a fire district is eligible.	Unknown.
US Army Corps (USACE) Programs	No	No	Yes, if successfully awarded, but not sure if a fire district is eligible.	Unknown.
Property, Sales, Income, or Special Purpose Taxes	Yes,	MLFPD passed a parcel tax in 2024 to fund emergency fire and medical services.	Yes	Yes
Stormwater Utility Fee	No	No	Yes, if successfully awarded, but not sure if a fire district is eligible.	Unknown.
Fees for Water, Sewer, Gas, or Electric Services	No	No	Not sure if a fire district is eligible.	Unknown.

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Impact Fees from New Development and Redevelopment	Yes	Yes, development impact fees are collected and utilized for capital expenditures to offset the impacts of new developments	Yes	Unknown.
General Obligation or Special Purpose Bonds	No	No	Yes, if successfully passed in the community.	Unknown.
Federally Funded Programs (Please describe)	Various Grants	MLFPD participates in grants such as Assistance to Firefighters Grants to support equipment for operations.	MLFPD has been awarded grants in the operations side but could seek future grants in the prevention side.	No
State-Funded Programs (Please describe)	CAL OES Type 6 apparatus	MLFPD has an agreement to host a state CAL OES Type 6 Fire Apparatus. Cal OES fire engines, part of the California Fire and Rescue Mutual Aid System, are primarily used to respond to all-risk emergency incidents, including wildfires, earthquakes, and other disasters. They augment local government fire agencies by providing surge capacity and mutual aid support. These engines are also used for training and replacing out-of-service engines.	The program allows for supporting operations both in MLFPD and across the state of California and across state lines as needed and approved by CAL OES.	Unlikely
Private Sector or Nonprofit Programs	MLFPD has worked with Grants from NGOs	MLFPD works on programs to support risk mitigation in the community. As an example, MLFPD was awarded funds from an	Yes	Potentially

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
		NGO, the Whitebark Institute, in conjunction with Southern California Edison to support homeowners in wildfire mitigations.		
Other?	None	N/A	N/A	N/A

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction.

Table 230: Education and Outreach Capabilities of the Mammoth Lakes Fire Protection District[283]

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	MLFPD supports various campaigns including internal social media campaigns, town information outreach campaigns, and press releases.	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	MLFPD works with Firewise groups on various programs, the local school district on fire prevention week, and with local NGOs on outreach campaigns and events.	Yes	N/A
Public Meetings/ Events (Please describe.)	MLFPD is a member of the Mammoth Lakes Wildfire Taskforce, which helps community	Yes	Recently the Wildfire Taskforce has procured the Fire Aside platform that helps communities

[283] MLFPD = Mammoth Lakes Fire Protection District, NGO = nongovernmental organization.

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
	members take mitigation actions on their properties at the parcel level through assistance and grass roots level community events.		and homeowners reduce their risk of wildfires by providing tools for inspecting properties, managing wildfire grants, and tracking progress toward wildfire resilience. It allows fire agencies to conduct property inspections and provides homeowners with customized reports and action plans to improve their property's defensible space and home hardening.
Emergency Management Listserv	Not Utilized	N/A	N/A
Local News	MLFPD works with the local paper on press releases and letters to the editor on hazard mitigation items.	N/A	N/A
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	The Wildfire Taskforce is considering utilizing door tags with its Fire Aside campaign, and the program is authorized to provide mailers for community outreach.	N/A	N/A
Insurance Disclosures/ Outreach	Not Utilized	N/A	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	Not Utilized	N/A	N/A
Social Media (Please describe.)	MLFPD has a Facebook and Instagram social media presence that it	Yes	N/A

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
	utilizes for both emergency outreach and prevention and mitigation messaging.		
Other? (Please describe.)	None	N/A	N/A

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 231.

Table 231: Ability to Expand and Improve Existing Capabilities of the Mammoth Lakes Fire Protection District[284]

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The current CWPP is out of date and lacks capacity as a relevant planning document. MLFPD is working toward a regional update of the CWPP that creates collaborative, community-driven frameworks that outline local priorities for wildfire risk mitigation. Up-to-date CWPPs gather the best available data and conduct a risk assessment for the local planning area. Data and inputs from the community identify and prioritize hazardous fuel reduction treatment for communities. They also recommend measures to reduce structural ignitability and address wildfire response, hazard mitigation, community preparedness, and other wildfire issues.
Administrative and Technical	MLFPD lacks GIS capacity, and partner agencies are low on staff capacity/ability in the area. GIS capability would serve MLFPD by analyzing patterns from past incidents, weather conditions, and building layouts. GIS software can identify risk areas and help fire departments prepare in advance. This predictive capability would allow MLFPD to allocate resources and plan responses proactively.
Financial	MLFPD is a combination Full Time/Part Time/Volunteer District with limited staff capacity. Various financial instruments that increase staffing will also increase the ability to utilize prevention and mitigation grant opportunities. MLFPD is exploring options to increase staffing or work with partners on administrative needs for grant application and administration to improve operations. If staffing

[284] CWPP = Community Wildfire Protection Plan, MLFPD = Mammoth Lakes Fire Protection District,

Capability Type	Opportunity to Expand and/or Improve
	is not financed, MLFPD could benefit from Direct Technical Assistance to be able to apply for additional grants like FEMA's Hazard Mitigation Grant Program.
Education and Outreach	MLFPD's website is built of an older platform and difficult to keep up to date because it does not follow a prebuilt layout and staff have limited abilities in updating for new needs. An updated website would significantly help MLFPD with education and outreach to the public. A website can significantly aid in resolving communication issues by centralizing information, fostering engagement, and facilitating data collection for improvement. It provides a platform for clear and consistent messaging, allows for interactive elements like chatbots and forums, and enables the collection of user feedback. This comprehensive approach can help bridge communication gaps and enhance overall communication effectiveness.

National Flood Insurance Program Capability Assessment

The MLFPD is not eligible to participate in the National Flood Insurance Program (NFIP). This FEMA program provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels. However, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 232 includes an overview of MLFPD's efforts to support floodplain management for known risks.

Table 232: NFIP Capabilities of the Mammoth Lakes Fire Protection District[285]

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	The Mammoth Lakes Fire Protection District, which has boundaries with TOML. Of primary concern is Mammoth Creek as it moves through Old Mammoth. Additional flood zones include areas in the Lakes Basin, along Sherwin Creek, and northwest of the intersection of Route 203 and US 395. Most areas can flood during rain or snow events or in the spring melt-off if culverts are not properly cleared out.
Which of your assets are at-risk from flooding?	MLFPD does not have resources in direct risk of flooding, but MLFPD does rely on the Water District's resources, and some of its equipment can be impacted by flooding. In addition, MLFPD First Responders live in at-risk zones, which could impact their abilities to respond.
Is your organization involved in floodplain management? If so, how?	Involved with planning with TOML's Public Works Department to ensure that MLFPD needs are understood.

[285] MLFPD = Mammoth Lakes Fire Protection District, TOML = Town of Mammoth Lakes.

Mammoth Lakes Fire Protection District 2026–2031 Mitigation Strategy

The mitigation strategy is often known as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities reflects an ongoing process to identify, analyze, and address hazards of concern. The strategy is comprised of goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- Goal 1. Avoid exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- Goal 2. Keep Mono County and TOML a safe place to live, work, and play by reducing the risks from natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- Goal 3. Prepare for changing climate conditions in Mono County.
- Goal 4. Maintain adequate emergency response capabilities.
- Goal 5. Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- Goal 6. Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- Goal 7. Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- Goal 8. Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The MLFPD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risks and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

5. Local Plans and Regulations
6. Structure and Infrastructure Projects
7. Natural Systems Protection
8. Education and Awareness Programs

The Mitigation Action Plan may also include additional response, preparedness, or prevention-focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

Table 233: Considered Mitigation Actions of the Mammoth Lakes Fire Protection District

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Retroactively install an extensive number of isolation/ shut-off valves that are accessible and locatable year-round and shut-off a manageable number of dwellings (e.g., ideal of one per structure) to allow upstream shut-off of gas from a safe environment.	Structure and infrastructure	Yes (Action #1)	N/A
Install an accessible and locatable year-round shut-off valve for any new connections to structures (existing or new) at one valve per structure to allow upstream shut-off of gas from a safe environment.	Structure and infrastructure	Yes (Action #2)	N/A
Conduct accurate (sub-one meter) GPS mapping of underground lines, shut-off valves, and tanks to expedite ability to locate and mitigate leaks.	Structure and infrastructure	Yes (Action #3)	N/A

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures the MLFPD has identified. Actions may not be completed within five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, the MLFPD will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

The key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Dam Failure

- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Landslides
- Hazardous Materials
- Severe Wind
- Severe Winter Weather and Snow
- Volcanoes
- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years
- Community Lifelines

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[286]

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation:** Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials:** Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems:** Potable Water Infrastructure, Wastewater Management

Priorities

Priorities are defined by the district. After considering the following evaluation criteria and definitions, assign a prioritization category of low, medium, or high to each natural hazard action item being retained or created. The criteria to calculate the following priority categories (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) are included in Table 235.

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for MLFPD but has multiple potential challenges. The action should be implemented as funding becomes available.
- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for MLFPD, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for MLFPD, with minimal to no concerns. It is essential for MLFPD to implement and may be prioritized in the short term.

Table 234 shows the mitigation actions that the MLFPD has selected for this planning cycle.

[286] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

Table 234: Mammoth Lakes Fire Protection District 2026–2031 Mitigation Actions[287]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Shut-off valves for all new Liquefied Petroleum Gas (LPG) connections	Hazardous Materials, Severe Winter Weather, Energy Shortages and Energy Resilience	Require all new LPG connections to structures to install underground shut-off valve in street	MLFPD Fire Chief or Designee, TOML Public Works Director or Designee	Amerigas and other LPG providers	LPG providers through rate-based fee structure	~$2,000 per new connection	Short-term	Safety and Security, Food Hydration Shelter, Energy	High
2	Retrofit existing LPG underground lines with shut-off valves	Hazardous Materials, Severe Winter Weather, Energy Shortages and Energy Resilience	Require all existing LPG underground distribution systems to install underground shut-off valve in street to allow shut-off of to up to approximately 5–40 structures at a time.	MLFPD Fire Chief or Designee, TOML Public Works Director or Designee	Amerigas and other LPG providers	LPG providers through rate-based fee structure	~$2,000 per valve, approximately 200–400 valves needed	Medium-term	Safety and Security, Food Hydration Shelter, Energy	High
3	LPG Infrastructure Mapping	Hazardous Materials, Severe Winter Weather,	Require all existing LPG underground distribution lines, shut-off valves, and	MLFPD Fire Chief or Designee, TOML Public	Amerigas and other LPG providers	LPG providers through rate-based fee structure	~30 miles of underground line to be mapped;	Short term	Safety and Security, Food Hydration Shelter, Energy	High

[287] CALDEER = California Deer Association, CAL FIRE = California Department of Forestry and Fire Protection, CALTRANS = California Department of Transportation, CERT = Community Emergency Response Team, CWPP = Community Wildfire Protection Plan, DOE = Department of Energy, ESCOG = Eastern Sierra Council of Governments, FD = Fire Department, GIS = geographic information system, HOA = homeowners association, IIJA = Infrastructure Investment and Jobs Act, LADWP = Los Angeles Department of Water and Power, LPG = Liquified Petroleum Gas, MLFPD = Mammoth Lakes Fire Protection District, MMSA = Mammoth Mountain Ski Area, MCWD = Mammoth Community Water District, NFWF = National Fish and Wildlife Foundation, NGO = nongovernmental organization, OEM = Office of Emergency Management, PEDC = Planning and Economic Development Commission, SAR = Search and Rescue, SCE = Southern California Edison, SNARL = Sierra Nevada Aquatic Research Laboratory, STR = Short-Term Rentals, TOML = Town of Mammoth Lakes, USDA = United States Department of Agriculture, USFS = United States Forest Service.

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Energy Shortages and Energy Resilience	above-ground tanks to be GIS mapped with sub-one meter accuracy and made available to first responders.	Works Director or Designee			~4,000 tanks to be mapped; ~$50,000 estimated			
4	Landscape-scale forest management and fuel reduction treatments	Wildfire	Coordinate multi-jurisdictional and collaborative interagency forest management and fuels treatments on lands managed by local, state, federal, and NGOs using outputs from this CWPP to inform decision-making and priorities. Work to increase collaboration with partner agencies on grant proposals to accomplish this work.	USFS District Ranger or Designee, MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Whitebark	USFS, TOML General Fund, CALDEER, CALTRANS	$50M	Long-term	Safety and Security, Food Hydration Shelter	High
5	Implement community fuel breaks and fuel reduction projects	Wildfire	Use CWPP consensus scenario fuel treatment map to prioritize community fuel breaks and fuel	USFS District Ranger or Designee, MLFPD Fire Chief or Designee, TOML	Private landowners/ HOAs around perimeter of town	CAL FIRE, USFS, TOML General Fund, MLFPD General Fund	$600k/year	Short term	Safety and Security, Food Hydration Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			reduction efforts. Work with partners and the community to gain increased support and capacity to implement these strategic and high-priority projects. Ensure that landowners understand forestry and their requirement/need to maintain desired forest conditions.	Town Manager or Designee						
6	Develop Community Wildfire Prevention Grants	Wildfire	Provide a local community grant program that makes funding available to private landowners, agencies, NGOs, and other land managers for various project types that promote wildfire resilience	MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Whitebark	CAL FIRE, TOML General Fund, MLFPD General Fund	$200k/year	Short term	Safety and Security, Food Hydration Shelter	Medium
7	Provide assistance for	Wildfire	Develop and implement a dead tree removal	MLFPD Fire Chief or Designee, TOML Outdoor	Local tree service contractors	CAL FIRE, TOML General	$200k/year	Short term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	residential dead tree removal		assistance program for elderly, disabled, and low-income residents to achieve defensible space compliance and to mitigate public safety hazards.	Recreation Director or Designee		Fund, MLFPD General Fund				
8	Prescribed burn associations	Wildfire	Establish community- or HOA-level prescribed burn associations to promote fuels reduction and provide education on conducting prescribed burning treatments by private property owners.	MLFPD Fire Chief or Designee, TOML Outdoor Recreation Director or Designee	Resource Conservation Districts/ Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$25k/year	Long-term	Safety and Security, Food Hydration Shelter	Low
9	Fuels treatments technical support	Wildfire	Provide technical information, guidance, and answers to questions on technical forest and fuels treatment topics to better support property	MLFPD Fire Chief or Designee, TOML Outdoor Recreation Director or Designee	Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$25k/year	Long-term	Safety and Security, Food Hydration Shelter	Low

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			owners conducting work on private lands.							
10	Educational programs on fire as an ecosystem process	Wildfire	Information on the threat of fire, forest management, and the use of prescribed fire to educate the public and gain support for this type of work.	MLFPD Fire Chief or Designee, TOML Outdoor Recreation Director or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$25k/year	Short term	Safety and Security, Food Hydration Shelter	Low
11	Establish and maintain a GreenWaste Disposal program	Wildfire	Support residential green waste removal efforts. Allow all residents access to curbside pickup of defensible space-generated waste of small woody material. Consider more solutions for pine needles. Expand/continue chipping program.	MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Mammoth Disposal, Whitebark	TOML General Fund, MLFPD General Fund, Mammoth disposal fee-based service	$400k initial year w/equip; $100k/year ongoing in subsequent years	Short term	Safety and Security, Food Hydration Shelter	High
12	Property owner defensible space	Wildfire	Educate public on importance of defensible space and local ordinances.	MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$75k/year	Short term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			Encourage compliance through enforcement of Short-Term Rentals, new development, property transfer, insurance requirements, and properties with egregious fire hazards.							
13	Firewise and home hardening measures	Wildfire	Educate property owners and renters to get involved in home hardening and Firewise activities.	MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$25k/year	Short, medium, and long-term	Safety and Security, Food Hydration Shelter	Medium
14	Rebate program for home hardening upgrades	Wildfire	Eligible residents may apply for home hardening rebate/assistance. Eligible residents can schedule a defensible space inspection, complete the upgrades, schedule a reinspection or submit photos.	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$200k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			Then they can request a rebate.							
15	Homeowners association (HOA)/ neighborhood communication	Wildfire	Increased communication to HOAs and Firewise neighborhoods to explain available resources and ensure that the community stays informed.	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$25k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
16	Defensible space assistance for elderly, disabled, and low-income residents	Wildfire	Develop and implement an assistance program for elderly, disabled, and low-income residents to achieve defensible space compliance.	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$100k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
17	Community technical assistance	Wildfire	Create a factsheet and flowchart that provide residents with resources for project development and maintenance and tell them what assistance they qualify for and how to apply.	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$5k	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
18	Seasonal workforce capacity	Wildfire	Increase seasonal workforce to facilitate increased education, inspections, and accountability to property owners.	MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund	$200k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	High
19	Create organizational chart	Wildfire	Develop an organizational chart for associations, local government, and other entities to reduce duplication of effort on engagement.	MLFPD Fire Chief or Designee, TOML Town Manager or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$5k	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	High
20	Wildfire preparedness media campaigns	Wildfire	More easily accessible resources to help the public learn how to harden homes and prepare for wildfire. Emergency preparedness, evacuation readiness, and go-bags.	TOML Outdoor Recreation Director or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$45k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
21	Multi-language resources	Wildfire	Produce material in both English and Spanish that can be shared at community events and sent directly to homeowners.	TOML Outdoor Recreation Director or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$10k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
22	Enforcement and support	Wildfire	More stringent code regulations for defensible space in HOAs More funding sources for property owners More funding resources for low-income areas Mechanism for maintenance/ upkeep for storage, defensible space, etc.	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designee	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$25k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
23	Communication and Outreach	Wildfire	Identify evacuation routes; Cohesive digital app that provides information and status update on emergencies, wildfires,	MLFPD Division Chief of Prevention or Designee, TOML Outdoor Recreation Director or Designee, Mono	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$50k	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			evacuations, and prescribed burns; Financial support for Community Organizations Active in Disasters; Determine alternative outlet besides cell service; Identify evacuation plans ahead of time; Wireless Emergency Alert support; Improve awareness of grants, rebates, and insurance discounts both for property owners and HOAs	County OEM Director						
24	CWPP team or charter	Wildfire	Establish a working collaborative group that meets semi-regularly to champion this CWPP and maintain coordinated working efforts and grant applications	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$25k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	High
25	Improve address visibility for	Wildfire	Make street signs and house numbers highly visible to	MLFPD Division Chief of Prevention or	Firewise/Fire Safe Councils, HOAs	TOML General Fund, MLFPD General Fund,	$5k	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	emergency response		ensure that first responders can arrive at the proper address. HOAs, TOML, and MLFPD can require this in code/HOA bylaws.	Designee, TOML PEDC Director or designer		Mono County General Fund				
26	Increase communications and public relations capacity	Wildfire	Expand capacities through positions or consultants for public outreach, communications, public alerts, and collaboration.	TOML Outdoor Recreation Director or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	HMGP, TOML General Fund, MLFPD General Fund, Mono County General Fund	$100k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Low
27	Critical infrastructure defensible space	Wildfire	Using the CWPP consensus scenario map, work with owners of critical infrastructure to prioritize fuels reduction adjacent to critical infrastructure and emergency service areas.	USFS District Ranger or Designee, MLFPD Fire Chief or Designee, TOML Town Manager or Designee, Mono County OEM Director	MCWD, SCE, LPG providers, MMSA, Ormat, Verizon, AT&T	TOML General Fund, MLFPD General Fund, Mono County General Fund	$25k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
28	Fuel treatments along evacuation routes	Wildfire	Design and implement projects that address ingress and egress issues. Remove brush, dead trees,	MLFPD Fire Chief or Designee, TOML Town Manager or Designee, Mono County OEM	MMSA, SCE	CAL FIRE, TOML General Fund, MLFPD General Fund, Mono County General Fund	$150k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			and ladder fuels along critical evacuation routes to keep fire intensity low during an evacuation.	Director, USFS District Ranger or Designee, CALTRANS District 9 Director						
29	Communications tools	Wildfire	Create a cohesive digital app where agencies can put updates of emergencies, wildfires, and evacuations and prescribed burns nearby. Create focused communication for out-of-town residents, visitors, and Spanish-speaking individuals. Implement and routinely test notification systems to alert residents and visitors in case of emergency.	MLFPD Division Chief of Prevention or Designee, TOML Outdoor Recreation Director or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	HMGP, TOML General Fund, MLFPD General Fund, Mono County General Fund	$25k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
30	Expand early fire detection systems	Wildfire	Consider developing and implementing early	MLFPD Fire Chief or Designee, TOML Town	MMSA, SCE, MCWD	TOML General Fund, MLFPD General Fund,	$500k	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			fire detection systems in TOML and communities (e.g., cameras).	Manager or Designee, Mono County OEM Director, USFS District Ranger or Designee, CALTRANS District 9 Director		Mono County General Fund				
31	Non-resident education	Wildfire	Improve awareness and notification of developing emergency situations to area visitors (non-residents).	USFS District Ranger or Designee, MLFPD Fire Chief or Designee, TOML Town Manager or Designee, Mono County OEM Director	Whitebark, Firewise/Fire Safe Councils	TOML General Fund, MLFPD General Fund, Mono County General Fund	$25k	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium
32	Educate citizens about disaster preparedness for hazards that could impact the community. Train citizens in basic disaster response skills.	Wildfire	Citizens are trained in fire safety, light search and rescue, team organizations, and disaster medical operations. This builds a more educated community through outreach and education.	TOML Outdoor Recreation Director or Designee, Mono County OEM Director	Firewise/Fire Safe Councils, Mammoth Hospital, CERT, Mono SAR	TOML General Fund, MLFPD General Fund, Mono County General Fund	$15k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Low
33	Reduce fuel continuity in key	Wildfire	Target fuel reduction, thinning, breaks in ladder	USFS District Ranger or Designee, MLFPD	SNARL, HOAs, Firewise/Fire Safe Councils,	CAL FIRE, TOML General Fund, MLFPD	$200k/year	Short-, medium-, and long-term	Safety and Security, Food Hydration Shelter	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	geographical areas.		fuels in corridors that are most likely to carry fire due to topography and weather (e.g., natural draws like Valentine Reserve through Snowcreek Meadow Preserve)	Fire Chief or Designee, TOML Town Manager or Designee, Mono County OEM Director		General Fund, Mono County General Fund				
34	Eastern Sierra Climate & Communities Resilience Project	Wildfire	58,000 acre forest health addressing both landscape and community resilience at scale. Designed to wholistically address increasingly challenging wildfires that continue to incinerate large-scale landscapes across the Sierra.	USFS District Ranger or Designee, MLFPD Fire Chief or Designee, TOML Town Manager or Designee, Mono County OEM Director	Whitebark Institute, CALDEER	$1,500,000,000 Prop 4 IIJA federal-ESD landscape Already raised $28.1 M (state and federal funds)	$250 M	Long-term	ALL	High
35	Resilient Mono Basin	Wildfire	Large-scale planning effort, size TBD, assessment at watershed scale.	USFS District Ranger or Designee, Mono County OEM Director	INF, BLM, SCE, State Parks, LADWP, Tribes, Whitebark	$1,500,000,000 Prop 4 IIJA Fed-ESD landscape NFWF $2M secured for planning	$100 M	Long-term	ALL	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
36	Mammoth Bioenergy	Wildfire, Transportation	Excessive fuels across all jurisdictions are too great for one off solutions, Mammoth Bioenergy would take wood waste and convert it to electricity at 3 MW scale. Most importantly, all of the planned work to mitigate vegetation cannot move forward at the needed pace or scale without a solution like this in place. With Mono County's lack of landfill and transportation costs/distance to the current site at Pumice Valley, the costs are exacerbated, and work ceases as a result.	USFS District Ranger or Designee, MLFPD Fire Chief or Designee, TOML Town Manager or Designee, Mono County OEM Director	Ormat, ESCOG, Whitebark, Inyo County, all Fire Districts, Mammoth Disposal	DOE, $10 M awarded, but in question due to new Federal Administration, Wood utilization grants (CAL FIRE/USDA)	$30M	Medium-term	Safety and Security, Energy, Transportation, Hazardous Materials	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
37	Community hazard alert system	Avalanche, Dam Failure, Earthquake, Energy Shortage, Pandemic, Flood, Hazmat, Severe Wind, Severe Winter, Volcanoes, Wildfire	Audible sirens or alternative method for notifying residents of imminent threat from various hazards including dam failure and fire.	MLFPD Division Chief of Prevention or Designee, TOML PEDC Director or Designer	Fire districts, MCWD, state and federal agencies	TOML General Fund, MLFPD General Fund, Mono County General Fund	$200K	Medium-term	Safety and Security, Communications	High
38	GIS Program	Avalanche, Dam Failure, Earthquake, Energy Shortage, Pandemic, Flood, Hazmat, Severe Wind, Severe Winter, Volcanoes, Wildfire	MLFPD would build out an in house GIS capacity. A dedicated GIS department offers significant value by providing a centralized platform for managing and analyzing spatial data, leading to improved efficiency, better decision-making, and enhanced collaboration across various	MLFPD Fire Chief or Designee	Whitebark Institute, TOML, Mono County	Staff time	150K per year	Long-term	Safety and Security, Food Hydration Shelter, Energy	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			organizational functions.							
39	Neighborhood Cleanup Wildfire Outreach		Visitor & resident outreach programs, including neighborhood cleanup and work days.	MLFPD Division Chief of Prevention or Designee	Whitebark Institute, TOML, Mono County	TOML General Fund, MLFPD General Fund, Mono County General Fund, Staff Time	$200K	Medium-term	Safety and Security, Food Hydration Shelter, Energy	High
40	Hazard Education Wildfire Outreach	Wildfire	Outreach campaigns to educate visitors and residents about hazards, including fire, and steps they can take to mitigate risk.	MLFPD Division Chief of Prevention or Designee	Whitebark Institute, TOML, Mono County	TOML General Fund, MLFPD General Fund, Mono County General Fund, Staff Time	$200K	Medium-term	Safety and Security, Food Hydration Shelter, Energy	High
41	Home Hardening Outreach	Wildfire	Guidance and incentives for business and property owners to harden structures and replace hazardous, outdated, building components.	MLFPD Division Chief of Prevention or Designee	Whitebark Institute, TOML, Mono County	TOML General Fund, MLFPD General Fund, Mono County General Fund, Staff Time	$200K	Medium-term	Safety and Security, Food Hydration Shelter, Energy	High
42	Support Implementation of CWPP Projects	Wildfire	The district will support the implementation of applicable projects as outlined in the	MLFPD	TOML, Mono County, all Fire Districts, Whitebark Institute, BLM,	CAL FIRE grants, Community Wildfire Defense Grant,	Unknown	Long-Term	Safety and Security, Food, Hydration, Shelter, Energy, Transportation,	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			updated Community Wildfire Protection Plan.		Inyo National Forest, Mammoth Disposal	California Fire Safe Council grants, BLM			Hazardous Materials	

Mitigation Action Prioritization

The MLFPD considered the STAPLEE criteria when prioritizing its actions. Table 235 documents how each action was prioritized.

Table 235: STAPLEE Prioritization for the Mammoth Lakes Fire Protection District

Action	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	4	4	4	4	4	4	4	High
2	4	4	3	4	4	3	4	High
3	4	4	4	4	4	4	4	High
4	4	3	4	4	4	4	4	High
5	4	3	4	4	4	4	4	High
6	4	3	4	4	4	4	4	Medium
7	4	3	4	4	4	2	4	Medium
8	4	3	4	4	4	2	4	Low
9	3	2	3	3	4	3	4	Low
10	4	4	4	4	4	2	4	Low
11	4	4	4	4	4	4	4	High
12	4	3	4	4	4	2	4	Medium
13	4	3	4	4	4	2	4	Medium
14	4	3	4	4	4	2	4	High
15	3	2	3	3	4	3	4	Medium
16	3	2	3	3	4	3	4	Medium
17	3	2	3	3	4	3	4	Medium
18	4	4	4	4	4	4	4	High
19	4	4	4	4	4	4	4	High
20	4	3	4	4	4	2	4	Medium
21	4	3	4	4	4	2	4	Medium
22	3	3	4	3	4	2	4	Medium
23	4	4	3	4	4	4	4	High
24	4	4	4	4	4	4	4	High
25	4	3	4	4	4	4	4	Medium

Action	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
26	4	4	4	4	4	2	4	Low
27	4	3	4	4	4	2	4	Medium
28	4	3	4	4	4	2	4	High
29	4	3	3	4	4	2	4	Medium
30	4	3	4	4	4	2	4	Medium
31	4	3	4	4	4	2	4	Medium
32	2	3	4	4	4	2	4	Low
33	4	3	4	4	4	2	4	Medium
34	4	4	4	4	4	4	4	High
35	4	4	4	4	4	4	4	High
36	4	4	4	4	4	4	4	High
37	4	4	4	4	4	3	4	High
38	4	4	4	4	4	4	4	High
39	4	4	4	4	4	4	4	High
40	4	4	4	4	4	4	4	High
41	4	4	4	4	4	4	4	High
42	4	4	4	4	4	4	4	High

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards to which the community is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan

- Potential projects or actions to be carried out in the future
- Past Integration Efforts

The MLFPD reviewed and referenced the prior hazard mitigation plan as a part of the 2023 Severe Winter Storm After Action Review and the Eastern Sierra Climate and Communities Resilience Program (ESCCRP) Needs documents, which are both incorporated into the current Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) efforts. These documents provide a framework that assesses historic hazards and recommends mitigations to lessen their impact during future events.

Future Integration Opportunities

The MLFPD identified future plan integration opportunities as described in Table 236.

Table 236: Future Plan Integration by the Mammoth Lakes Fire Protection District[288]

Plan Name	Description	Process for Integration
Community Wildfire Protection Plan (CWPP)	The county's CWPP will be updated in the next two years. The local area partners are working to update the CWPP. The long-term strategic intent is that the CWPP is a dynamic plan that takes risk model inputs that incorporate live changes to the environment at both the landscape project and the lot parcel levels. The changing inputs would live on a dashboard that would allow the communities to understand how risk is changing over time. There is a recognition that this will take a longer period, possibly a year or two, with the technical needs and the collaboration requirements. In recognition of this, the stakeholders have decided to take a two-phased approach to the CWPP. The dynamic CWPP would be phase two, and phase one would work on project updates to the existing CWPP, which is housed in the MJHMP. This would allow for a simpler update to project status and not let "perfect be the enemy of	There will be a smaller working group of primary partners working on updating the project list for the current CWPP in the previous MJHMP. The goal would be to complete this project update by Fall and possibly integrate it into the new phase of the MJHMP as it is updated this year. This process has had significant outreach by agencies to promote the collaboration of community members. Later, a second round of outreach for participation will focus primarily on the next phase of the CWPP. The primary contacts on the first phase of update are the Mammoth Lakes Fire Chief, the Mono County Emergency Director, the Town of Mammoth Lakes Public Works Director, and the Executive Director of Whitebark. This group will delegate portions of this process to a more operational/technical working group for the project update work.

[288] CWPP = Community Wildfire Protection Plan, MJHMP = Multi-Jurisdictional Hazard Mitigation Plan, MLFPD = Mammoth Lakes Fire Protection District.

Plan Name	Description	Process for Integration
	good." Minor updates to the MJHMP CWPP will allow the region to keep moving forward with an understanding of project status as we work toward a more elaborate product.	
Fire District Capital Improvement Plan (CIP)	Currently MLFPD does not have a CIP. MLFPD has some cost estimates for potential facility and apparatus cost estimations, but there is not currently a link to district program needs. Subsequently, MLFPD resources are not ideally aligned with district program needs. As an example, MLFPD Fire Engine and Fuels Mitigation Fleet is limited in its ability to both mitigate and respond to wildfire. Previous Excel sheets did not account for equipment, such as chippers or a grapple truck for green waste disposal.	MLFPD will work toward building a CIP. The CIP will be a cooperative process. A Division Chief will take the lead on the project but will start with an assessment of district program leads based on a review of hazards that MLFPD is tasked to mitigate and respond to. This includes looking at MJHMP, CWPP, and the 2023 Severe Winter Storms after action review.

Conclusion

The Mammoth Lakes Fire Protection District has taken a proactive and collaborative approach in its first-time participation in the Mono County MJHMP by preparing a comprehensive annex to address district-specific risks, vulnerabilities, and mitigation strategies. This annex outlines local hazards, such as wildfire, severe winter storms, earthquakes, and hazardous materials, while highlighting unique vulnerabilities stemming from infrastructure limitations, seasonal population fluctuations, and a harsh alpine environment. The MLFPD's planning process involved extensive stakeholder and public engagement, detailed risk assessment, and the identification of targeted mitigation actions, particularly for wildfire resilience and energy infrastructure. The MLFPD also assessed its regulatory, administrative, financial, and outreach capacities, identifying key areas for improvement, such as GIS integration, capital planning, and community education. By participating in this planning process, MLFPD is better positioned to apply for federal hazard mitigation grants. Moving forward, the MLFPD will continue to be a strong partner and advocate for implementing effective mitigation measures, reducing community risk and ultimately saving lives.



Mono City Fire Protection District Special District Annex

2026

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Mono City Fire Protection District

The Mono City Fire Protection District (MCFPD) has demonstrated its commitment to a comprehensive mitigation program by developing a district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information—such as hazard descriptions, extent, and location—can be found. This is the first time the special district is participating in a hazard mitigation plan; therefore, there are no changes in priority since the prior plan update. However, there have been notable advances in MCFPD's standard operating procedures (SOPs) and understanding of risk, including new SOPs for avalanches that both arterial highways linking Mono City to outside resources, electrical outages lasting more than two days, and immediate propane regulator clearance at tanks and house/garage/outbuildings after any snow event. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. It also documents the selected mitigation actions for the MCFPD.

Mono City Fire Protection District Participation

This plan was developed through a collaborative planning process that included Mono County, the town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update was documenting the planning process itself, including who represented which plan participant. The Mono City FPD was represented during the plan update process by the individual listed in Table 237.

Table 237: Representatives of the Mono City Fire Protection District in the Planning Process

Name	Title	Organization/Department
John Warneke	Fire Commissioner; Defensible Space Inspector; Volunteer Firefighter	Mono City Fire Protection District

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 238 lists at least one stakeholder per required stakeholder type that works in or has knowledge of the MCFPD. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and

Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 238: Local Stakeholders

Name	Description	Stakeholder Type
Mono County Wildfire Mitigation	Acting as a liaison between residents, government agencies, and fire safety organizations, Mono County Wildfire Mitigation helps Mono County prepare for and respond to wildfire threats.	Local agency involved in hazard mitigation
Southern California Edison	The primary electric utility for Mono County.	Representatives of businesses, academia, and other private organizations
Bureau of Land Management	An agency in the United States Department of the Interior responsible for administering US federal lands in western states.	Agencies that have the authority to regulate development.
US Forest Service	An agency in the US Department of Agriculture which administers the nation's 154 national forests and 20 national grasslands.	Agencies that have the authority to regulate development.
Mono Lake Kootzaduka'a Tribe	A Native American tribe living in the transition zone of two vast ecoregions: the Sierra Nevada Mountains and the Great Basin. The Kootzaduka'a, the southernmost band of the Numu People, have resided in the Mono Lake–Yosemite region since time immemorial.	Neighboring community
Whitebark Institute	Nonprofit organization dedicated to reducing wildfire risk and improving the resilience of Eastern Sierra forests, landscapes, and communities. It leverages scientific expertise to identify needs, convene partners and experts, and take decisive action to address regional challenges.	Representatives of nonprofit organizations, including community-based organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. On December 13, 2024, Mono County Office of Emergency Services (OES) and MCFPD handed out fliers and announced ways to provide input on the hazard mitigation plan at a community fire safety meeting. Announcements were also made at other county- and community-sponsored meetings. The Mono City Fire Commissioner attended the California Fire Safe Council workshop and regional meeting to

learn methods of presentation and other ways to engage community members. From 2023 to 2025, the Mono City Fire Commissioner and Defensible Space Inspector handed out fliers while conducting defensible space inspections and provided county-sponsored dump waivers for brush removal. The fliers were presented in both English and Spanish. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities identified and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities using the Calculated Priority Risk Index in Table 239 and the equation below it.

Table 239: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an***	1	Limited	Less than 10% of the planning area could be impacted.	20%

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
area could be affected by the specific hazard?	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time (*Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)*	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Duration (*The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)*	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for the MCFPD is presented in Table 240.

Table 240: Calculated Priority Risk Index for the Mono City Fire Protection District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	4	3	4	4	2	3.60
Dam Failure	1	1	2	1	4	1.60
Disease and Pest Management	2	4	2	1	4	2.50
Drought	4	4	4	1	4	3.70
Earthquake and Seismic Hazards	4	4	4	4	1	3.70
Energy Shortages and Energy Resiliency	3	4	4	4	4	3.70
Epidemic/Pandemic	4	4	4	4	4	4.00
Extreme Heat	4	4	4	4	4	4.00
Flood	1	2	2	2	2	1.70
Landslide	4	4	4	4	4	4.00

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Hazardous Materials	4	4	1	0	4	2.70
Severe Wind	4	4	4	3	2	3.70
Severe Winter Weather and Snow	4	4	4	4	4	4.00
Volcanoes	4	4	4	4	4	4.00
Wildfire	4	4	4	4	4	4.00
Wildlife Collisions	4	4	2	4	2	3.20

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides descriptions of general hazard occurrences identified by the state and/or the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 241 lists these hazard events of local significance.

Table 241: Previous Disaster Impacts for the Mono City Fire Protection District[289]

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	None	February 26–28, 2023	US 395 and SR 167 closed (up to 30 feet of snow); Debris on road; Road surface required repair; Guardrails needed replacement; Over $1 million in response and roadway repair; SCE electrical outage of 5+ days negatively impacted residents (especially the elderly) who heat homes with electric/propane furnaces and impacted their ability to reach	Avalanches first closed US 395 along Mono Lake on February 26, covering the highway and running nearly to the lake's edge. On February 28 more avalanches occurred, taking out the power to Mono City and Bridgeport. Continuing blizzards, snowstorms, and atmospheric rivers caused the situation to deteriorate further.

[289] MRE = meal ready to eat, PSPS = Public Safety Power Shutoffs, SCE = Southern California Edison,

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			emergency services via phone or internet; Restricted the community's ability to use well and safely access water storage; School-aged children were organized and taught at residents' homes; National Guard helicopters delivered food, water, firewood, and generators; County Sheriff conducted overland snow evacuation of trapped residents; Fire department evacuated residents trapped in homes; Sheriff/Fire department delivered gasoline and diesel for generators and home heating; Residents faced economic hardships and extended routes (8+ hours through Nevada) to reach work in Mono County (so some lived in motels).	On March 3, the National Guard worked with the Mono County Sheriff's Office and the California Office of Emergency Services to land a helicopter on the closed highway to deliver generators, fuel, water, and MREs to the people of Mono City who had been stranded by road closures on all sides for five days and without power for four days.
Dam Failure	None	N/A	N/A	N/A
Disease and Pest Management	None	Ongoing	Hantavirus is prevalent.	Deer mice rule the land. They conspire to avoid traps and poison, and they leave their droppings to dry out and be inhaled.
Drought	None	Ongoing	Frequent droughts have occurred.	N/A
Earthquake and Seismic Hazards	None	Ongoing	Active fault lines have caused minor earthquakes.	N/A
Energy Shortages	None	Ongoing	PSPS and energy outages routinely occur, impacting	N/A

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
and Energy Resiliency			operations and resident's ability to access electricity.	
Epidemic/ Pandemic	DR-4482	05/15/2020	Global pandemic occurred – precautions were put in place to reduce spread of virus. Flu was common.	Local Emergency related to the COVID-19 pandemic declared by the county health officer on March 15, 2020
Extreme Heat	None	N/A	N/A	N/A
Flood	None	N/A	N/A	N/A
Landslide	None	N/A	N/A	N/A
Hazardous Materials	None	N/A	N/A	N/A
Severe Wind	None	Multiple times per year	Damage to electrical and internet/land line infrastructure	The Mono Basin frequently has severe wind events that impact travel and emergency response. Faulty SCE equipment can cause electrical outages and wildland fires (e.g., the Marina Fire, 2016)
Severe Winter Weather and Snow	None	February 26 and February 28, 2023	SCE electrical outage of 5+ days negatively impacted residents (especially the elderly) who heat homes with electric/propane furnaces and impacted their ability to reach emergency services via phone or internet; Restricted the community's ability to use well and safely access water storage; School-aged children were organized and taught at residents' homes; National Guard helicopters delivered food, water, firewood, and generators; County Sheriff conducted	Between February 22nd and the 26th another 52 inches of snow fell, and the snow depth finally broke the 1952 record, peaking at 67 inches on the ground in Lee Vining on February 26th. These numbers are approximate because the snow overwhelmed weather instruments

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
			overland snow evacuation of trapped residents; Fire department evacuated residents trapped in homes; Sheriff/Fire department delivered gasoline and diesel for generators and home heating.	
Volcano	None	N/A	N/A	N/A
Wildfire		5/22/2025	Mandatory evacuation of Mono City and closure of US 395	A brushfire just south of Mono City along US 395 started on May 22 and grew to over 500 acres on May 23, prompting the closure of US 395 and evacuation of Mono City.
Wildlife Collisions	None	N/A	N/A	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each hazard that affects the overall planning area. Assets were determined by the community. Asset types may differ among plan participants, including the following:

- **People:** Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, and lower-income individuals
- **Structures:** Residential, commercial, industrial, government-owned, planned capital improvement, etc.
- **Economic Assets**: Major employers, primary economic sectors, key infrastructure like telecommunications networks
- **Natural, Historic, and Cultural Resources**: Areas of conservation, parks, critical habitats, community centers, historic places, etc.
- **Critical Facilities and Infrastructure**: Hospitals; law enforcement; water, power, transportation systems; etc.

- **Community Activities**: Major local events, such as festivals, or economic events, like farming or fishing.

The following problem statements describe the district-specific vulnerabilities of the MCFPD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to Mono City FPD.

Avalanche

- **Location:** The western side of Mono City is susceptible to avalanches from the Eastern Sierras.
- **Extent:** The range of extent of avalanches that could be experienced includes D1: Relatively harmless to people; D3: Could bury and destroy a car, truck, or home.
- **Impacts**: Avalanches can block or damage critical access routes, isolate communities, and pose direct threats to homes and people in high-risk zones.
- **District-Specific Vulnerabilities**:
  - Closures of transportation routes— including interstate US 395, SR 120E (connects to US 6), and SR 167 (which connects to a highway in Nevada)—can limit evacuation ability and disrupt emergency response capabilities.
  - Key roads needed to access residents may be blocked.
  - Avalanches may impact MCFPD vehicles or personnel assisting with evacuations of residents.
  - Supply chains, including for critical resources, such as fuel, food, heat, and prescriptions, may be cut off due to transportation route disruptions.
  - SCE lines are on poles in avalanche-prone areas, and primary and secondary lines are strung in the same area.
  - Residents may face economic burdens due to inability to access jobs or long delays (travel required to Nevada and back into California if highway is closed) to access common employment locations, such as the National Park Service, California State Parks, US Forest Service, US Fish and Wildfire, the Bureau of Land Management, Caltrans, Mono County Sheriff, Mono County EMS, Search and Rescue, Volunteer Fire Departments, Eastern Unified School District, US Postal Service. Employees' inability to access their work may impact other community services around Mono County as well.
  - Community lifelines, such as water systems and communications (phone/internet), are vulnerable to disruptions due to avalanches.
  - Vulnerable populations in the district's service area, especially the elderly, who heat homes with electric/propane services are at high risk of impacts from power outages and transportation route closures due to avalanches.



Figure 116: US 395 Closed After an Avalanche, 2023[290]

Dam Failure

- **Location:** MCFPD's entire district is vulnerable to dam failures.
- **Extent:** Several upstream dams are rated as having high downstream hazard potential.
- **Impacts**: A dam failure can cause catastrophic flooding, isolating communities and disrupting essential services. Structures and infrastructure could suffer significant damage or collapse. Critical facilities could be rendered inoperable due to access, power, and supply disruptions.
- **District-Specific Vulnerabilities**:
  - Flooding of major roadways, including US 395, could impact access to Mono City and impede the ability of MCFPD to function at full capacity.
  - Lundy Lake Dam is upstream of Mono City is a high hazard dam. If it were to fail, people in MCFPD's district would be severely impacted.

Disease and Pest Management

- **Location:** MCFPD's entire district is vulnerable to this hazard.

[290] News 4 & Fox 11. (2023, March 3). *Multiple Avalanches Close Portion of U.S. 294 Near Mono Lake*. News 4 & Fox 11. Multiple avalanches close portion of U.S. 395 near Mono Lake.

- **Extent:** The Disease Severity Score ranks severity on a scale from 0 to 9. Each disease receives its own Disease Score based on its specific geography.
- **Impacts**: Disease and pest management hazards arise from undesirable organisms, such as insects, bacteria, and viruses, that can cause serious harm to plants, animals, and humans. These organisms threaten human health by infecting individuals, flora, and fauna with various diseases, some of which can be fatal. Pathogenic organisms can also significantly damage forests, creating safety hazards while causing environmental harm and economic consequences.
- **District-Specific Vulnerabilities**:
  - MCFPD facilities are not vulnerable to diseases and pest but diseases like Hantavirus can impact MCFPD staff, reducing their ability to operate.
  - Fir engraver beetles and Jeffrey Pine beetles can kill vast swaths of trees, exacerbating the fire risk for Mono City.

Drought

- **Location:** Drought conditions affect the entire Mono City Fire Protection District (MCFPD) service area and surrounding wildland areas throughout Mono City and adjacent portions of Mono County.
- **Extent:** Mono County including the MCFPD service area is vulnerable to prolonged drought, below-average snowpack, and extended periods of dry vegetation conditions that increase wildfire potential and strain limited water resources available for emergency response operations.
- **Impacts**: Drought conditions can increase wildfire frequency and intensity, reduce available water supplies for suppression activities, elevate emergency response demand, and create extended operational periods for fire protection personnel and mutual aid agencies.
- **District-Specific Vulnerabilities**:
  - Prolonged drought conditions increase wildfire susceptibility throughout the district by reducing fuel moisture levels and creating conditions for rapid fire growth in areas surrounding Mono City.
  - The district may experience reduced water availability for firefighting and emergency suppression operations during prolonged drought conditions or concurrent wildfire incidents.
  - As a rural fire protection district with limited staffing and volunteer response capacity, extended drought and wildfire conditions could strain operational resources, apparatus availability, and emergency response capabilities.

Earthquake and Seismic Hazards

- **Location:** MCFPD's entire district is vulnerable to earthquakes and seismic hazards.
- **Extent:** A 2014 study by USGS and CGS found that a 6.7 magnitude earthquake was possible along the Mono Lake Fault.

- **Impacts**: Major earthquakes could damage buildings, disrupt essential utilities, and isolate communities by damaging key roadways, such as US 395.
- **District-Specific Vulnerabilities**:
  - Potential for direct damage to MCFPD facilities.
  - Service disruptions due to damaged roads.
  - Disruptions to water distribution lines could affect response and recovery efforts, including the district's ability to respond to other hazards like wildfire.
  - The district may be called upon to support residents during and after earthquake events, including vulnerable populations. Vulnerable residents, including the elderly, may be trapped in damaged structures or unable to evacuate due to road damage.

Energy Shortages and Energy Resiliency

- **Location:** MCFPD's entire district is susceptible to energy shortages and energy resilience.
- **Extent:** All four district indices for planned and unplanned outages (dSAIDI, dSAIFI, dMAIFI, and dCAIDI) have been consistently rising since 2014.
- **Impacts**: Energy outages disrupt the operation of critical infrastructure reliant on power.
- **District-Specific Vulnerabilities**:
  - The operability of MCFPD facilities and its response to emergencies are vulnerable to power outages. Without power MCFPD cannot respond to calls from the public, impacting people's life and safety.
  - Lundy Mutual Water Company has not upgraded its electrical infrastructure to ensure well operation in case of extended electrical outage. This could impact the water supply for fighting wildfire.

Epidemic/Pandemic

- **Location:** MCFPD's entire district is susceptible to epidemics and pandemics.
- **Extent:** Community-wide pandemic (e.g., COVID-19).
- **Impacts**: Pandemics and epidemics can impact public health, overwhelm healthcare capacity, and disrupt public services.
- **District-Specific Vulnerabilities**:
  - Epidemic/pandemics can cause service interruptions due to illness on MCFPD staff. These service interruptions could impact people's life and safety.
  - Rising number of emergency illnesses that MCFPD would need to respond to, straining capacity.
  - MCFPD's facilities are not vulnerable to epidemics or pandemics.

Extreme Heat

- **Location:** MCFPD's entire district is susceptible to extreme heat.
- **Extent:** Summer highs are between 80–90° Fahrenheit in the summer.
- **Impacts**: Extended high temperatures can also dry out plants, potentially leading to more intense and frequent wildfires. Vulnerable populations and those working outside can experience heat stress or heat stroke in extreme heat conditions.
- **District-Specific Vulnerabilities**:
  - For MCFPD staff and people in the district that work outside, there is an increased risk of heat exhaustion or stroke.
  - MCFPD facilities can withstand extreme heat, but such conditions add more strain on the electrical system, potentially causing power outages that incapacitate fire stations.

Flood

- **Location:** The entire service area may be vulnerable to flooding.
- **Extent:** Minor flooding and ponding after significant rain events.
- **Impacts**: Flooding can isolate entire communities by cutting off primary access roads, delay emergency response, damage public infrastructure, and displace residents. Public safety can be impacted by dangerous driving conditions and lack of access.
- **District-Specific Vulnerabilities**:
  - US 395, the major road through Mono City, can flood, delaying emergency response and restricting access to parts of the district. These service interruptions could impact people's life and safety.
  - Data limitations exist, as the fire station is in FEMA Zone D where flood risk is undetermined. Therefore, there may be additional vulnerability to information that is currently unknown.

Landslide

- **Location:** Landslide hazards may affect steep slopes, mountain roadways, and unstable hillside areas throughout the MCFPD service area and along regional transportation corridors serving Mono City.
- **Extent:** Landslides may result from heavy precipitation, rapid snowmelt, erosion, wildfire-related slope instability, or seismic activity affecting steep terrain and roadway embankments.
- **Impacts:** Landslides can damage infrastructure, block transportation routes, restrict emergency access, isolate portions of the community, and delay emergency response and evacuation operations.

- **District-Specific Vulnerabilities:**
  - The district relies on limited roadway access and regional transportation corridors that may become blocked by rockfall, debris, slope failure, or roadway damage associated with landslide events.
  - The district's fire department is located near landslide susceptible areas and could be impacted by a landslide. Access routes along Mono Lake Dr are also susceptiple.
  - Landslide activity could isolate the district and delay emergency response operations, including the movement of firefighting resources, emergency vehicles, and mutual aid support into affected areas.
  - Slope instability and roadway closures may increase response times, reduce access to remote areas within the district, and impact the district's ability to maintain emergency operations during concurrent hazard events.

Hazardous Materials

- **Location:** All of MCFPD is susceptible to hazardous materials with greater risk near major roadways (US 395).
- **Extent:** For MCFPD, the most likely Hazmat Incident Level is 1 – Minor.
- **Impacts:** A Hazmat incident on a major roadway can block access, and Hazmat spills can negatively impact human health.
- **District-Specific Vulnerabilities:**
  - Spills of Hazmat at MCFPD facilities could affect public health.
  - Hazmat spills on a major roadway through Mono City could limit access to MCFPD facilities and disrupt operations. These service interruptions could impact people's life and safety.
  - Electrical vehicle/house battery fires can create Hazmat cleanup issues for MCFPD. Response efforts produce environmental concerns, as water runoff can contaminate groundwater and lakes.

Severe Wind

- **Location:** All of the MCFPD is susceptible to severe wind.
- **Extent:** The extent of severe wind can be classified using the Beaufort Wind Scale. The district can expect to experience force 11 winds as a worst-case scenario.
- **Impacts**: Widespread power outages can occur, along with structural damage, fallen trees, and flying debris.
- **District-Specific Vulnerabilities**:
  - Debris can disrupt travel and emergency response throughout Mono City. These service interruptions could impact people's life and safety.

- Severe wind can disrupt the electrical systems causing outages that take MCFPD facilities offline.

Severe Winter Weather and Snow

- **Location:** Severe winter weather and heavy snow affect the entire MCFPD service area and surrounding transportation routes throughout Mono City and nearby mountain areas.
- **Extent:** Winter storms in the planning area can produce heavy snowfall, high winds, extreme cold, snow drifts, ice accumulation, and prolonged transportation and utility disruptions.
- **Impacts**: Severe winter weather can limit emergency access, interrupt power and communications systems, isolate communities, delay emergency response operations, and increase demand for rescue and emergency medical services.
- **District-Specific Vulnerabilities**:
  - Heavy snowfall and ice accumulation may block roadways, restrict apparatus movement, and delay emergency response operations throughout the district service area.
  - Severe winter storms may isolate the district and surrounding areas by limiting transportation access and restricting the ability of mutual aid resources to reach the community.
  - Power outages, communications disruptions, and hazardous travel conditions during winter storms could affect dispatch coordination, emergency communications, and overall district operational capability.
  - Extended winter weather events may delay emergency response times, increase staffing limitations, and create additional operational demands for emergency rescue and medical response services.

Volcano

- **Location:** Volcanic hazards associated with the Mono-Inyo volcanic chain and Long Valley Caldera have the potential to affect the entire MCFPD service area, including Mono City and surrounding transportation corridors.
- **Extent:** Potential volcanic hazards include ashfall, volcanic gases, seismic unrest, ground deformation, and associated impacts to infrastructure, transportation systems, and emergency operations. Even minor ashfall events could affect district emergency response activities.
- **Impacts:** During a volcanic eruption in Mono County, several cascading hazards could significantly impact the region and its residents. These hazards include ashfall, which can contaminate air and water supplies and pose respiratory health risks; pyroclastic flows that can devastate infrastructure and threaten lives; and lahars, or volcanic mudflows, which can occur when volcanic debris mixes with water, posing a severe threat to communities located near rivers and streams. In addition, the potential for secondary hazards, such as landslides, wildfires ignited by lava, and disruptions to transportation and communications systems, must be considered. An eruption during winter could melt heavy snowpacks, generating mudflows and locally destructive flooding.

- **District-Specific Vulnerabilities:**
  - Ashfall could impair firefighting and emergency response equipment, including breathing apparatus, emergency vehicles, pumps, ventilation systems, and communications infrastructure necessary for district operations.
  - Reduced visibility associated with ashfall and volcanic activity may create hazardous driving conditions for emergency responders and delay apparatus deployment throughout the district service area.
  - Volcanic ash and related infrastructure disruptions could interfere with communications equipment, electrical systems, and emergency coordination capabilities during response operations.
  - Road closures, utility disruptions, and hazardous travel conditions associated with volcanic activity may isolate Mono City and limit emergency movement, evacuation support, and mutual aid access into the district.

Wildfire

- **Location:** All of MCFPD's service area is susceptible to impacts from wildfires.
- **Extent:** Most of Mono City is in a high wildfire severity zone.
- **Impacts**: Wildfires can lead to widespread evacuations, structure losses, health impacts due to smoke and ash, utility outages, road closures, and economic disruptions.
- **District-Specific Vulnerabilities**:
  - Wildfire can damage the critical power and communications infrastructure in Mono City, including internet connections on which the MCFPD relies.
  - Wildfire can damage roads, delaying emergency response and outside support during fire events.
  - The Mono City Fire Station, which is used as a community evacuation center with electricity backup systems, heat, water, and food, is an important community asset. It is also vulnerable to wildfires in a high wildfire severity zone.
  - Vulnerable populations, including elderly residents who live alone, might not have sufficient preparations in place for wildfires.
  - Despite countywide and local meetings, the public is still unprepared with regard to assessing risk and evacuating as needed. Emergency response to evacuate unprepared residents puts both residents and volunteer staff at risk.
  - Additional partnership building with organizations such as the Mono Basin Fire Safe Council is needed to ensure consistency in communication to residents and tourists. Inconsistent language creates vulnerabilities, as messaging may be misunderstood.
  - Several sacred sites to the Mono Lake Kootzaduka'a Tribe are vulnerable.

- Nearby natural resources, which also draw tourists to the area, are vulnerable, including the Mono Basin National Scenic Area, Bodie State Park, and the habitat of the Bi-State Sage Grouse.

Wildlife Collisions

- **Location:** Wildlife vehicle collisions are most common along US 395 near Mono City.
- **Extent:** Due to its remote location, Mono City is highly susceptible to wildlife collisions.
- **Impacts:** Impacts include injury or loss of human life, damage to vehicles and infrastructure, disruption of traffic flow on key routes, and harm to local wildlife populations.
- **District-Specific Vulnerabilities**:
  - MCFPD personnel are vulnerable to injury and loss of life from wildlife collisions.
  - MCFPD vehicles are vulnerable to damage from wildlife collisions.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district), conditions that may affect the risks and vulnerabilities of the districts (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 242 lists the changes in development for the MCFPD.

Table 242: Changes in Development for the Mono City Fire Protection District

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Avalanche	No	Yes (Increased)	Climate change	Stayed the same
Dam Failure	No	Yes (Increased)	No	Stayed the same
Disease and Pest Management	No	Yes (Increased)	Climate change	Increased
Drought	Water use – local water boards suggest less water use.	Yes (Increased)	Climate change; LADWP water exports	Stayed the same
Earthquake and Seismic Hazards	No	Yes (increased)	No	Stayed the same

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Climate Change	Climate change	Climate change	Climate change	Climate change
Epidemic/ Pandemic	No	Yes (increased)	COVID-19 vaccines are available	Stayed the same; County healthcare services increased temporarily during/ after COVID-19 closures
Extreme Heat	No	Yes (increased)	Climate change	Increased
Flood	No	Yes (increased)	Climate change	Increased
Landslide	No	Yes (increased)	Climate change	Stayed the same
Hazardous Materials	No	Yes (increased)	Increased prevalence of battery systems in electric cars and on homes	Increased
Severe Wind	No	Yes (increased)	Climate change	Stayed the same; Implemented mitigation measures include attention to improvement of roof overhangs and removal of dead/ damaged trees
Severe Winter Weather and Snow	No	Yes (increased)	Climate change	Increased
Volcanoes	No	Yes (increased)	None	Stayed the same
Wildfire	No	Yes (increased)	Climate change	Increased; Implemented mitigation measures include attention to community preparedness; Fire department volunteer personnel recruitment, Purchase of needed equipment (e.g., water tenders, water storage, hoses), Applying for more funding (e.g., supplement cost of metal building to protect new equipment)
Wildlife Collisions	No	Yes (increased)	None	Stayed the same

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. the MCFPD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 243: Plans of the Mono City Fire Protection District

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	Yes – County General Plan of 2019 addresses hazards except winter storms and wildfire planning.	County General Plan and Mammoth Lakes Report provide background on hazards and ideas for improved mitigation	2019; 2024
Capital Improvement Plan	No – The reader must make assumptions regarding what projects are listed to understand hazards that may be addressed.	The plan "is intended to be a planning tool to assist in budget projections and decisions and to aid in the allocation of resources needed to meet Mono County's strategic goals" (p. 10). Long term financial planning can help integrate mitigation actions into other projects.	2025 draft; 5-year plan; Draft states annual review and revision as necessary
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	Yes	The 2019 plan relies on 2009 plan data and does not reflect post-2019 county or MCFPD improvements in local preparedness and firefighting capabilities (e.g., Mono City Fire has made huge improvements in firefighting capabilities with	2019 update with use of 2009 US Forest Service fire behavior modeling evaluation (not consistent with changes since 2009 in snow/ rainfall, drought, summer heat index, wind,

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		equipment acquisition and personnel training).	deforestation, drop in ground water, etc.); Update info unknown
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	Yes	"The purpose of the Land Use Element is to correlate all land use issues into a set of coherent development policies for the private lands in the unincorporated area of the county" (p. 1).	2023; Update info unknown
Local Emergency Operations Plan	Yes	Plan "is designed as a reference and guidance document, and is the foundation for response and recovery operations" for Mono County." It "establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of the duties" of the county a lead agency and other organizations involved with response and recovery procedures (p. iii).	2012; Update info unknown
Stormwater Management Plan	Yes	Plan and its implementation framework are "intended to comprehensively and concurrently address challenges of water supply, water quality, flood management, and ecosystem protection" and "implement integrated solutions through a collaborative multi-partner process" (pp. 1–2).	2019; Plan states revisions and updates as needed every two years p. 21
Transportation Plan	Yes	Plan "is a policy document that outlines a 20-year planning horizon based on the unique needs and characteristics" of Mono County and coordinates	2024 draft; Plan states updates every four years p. 10

Plans	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
		with local jurisdictions' land use planning (p. 1).	
Substantial Damage Plan	No	N/A	N/A
Other? (Describe.)	Mammoth Lakes 2022–2023 Winter Storms After-Action Report Mono Basin Community plan	Recent After-Action Report most applicable for winter storms. "Purpose of the plan is to inform decision makers at the community and local government levels, as well as other agencies, businesses and entities operating in the Mono Basin, about the needs and aspirations of the community" (p. 1).	2024; N/A 2012; Unknown

Table 244: Regulations and Ordinances of the Mono City Fire Protection District

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – Mono County effectively uses the 2022 California Building Code	Yes – by Mono County	2022; 2026
Flood Insurance Rate Maps	No – The district is not mapped.	N/A	N/A
Floodplain Ordinance	Yes	Yes	The floodplain ordinance is contained in the Mono County General Plan, Land Use Element. The Land Use Element is updated annually as needed.
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	Yes	Yes	Integrated into the Land Use Element in 2023 and updated as needed.
Natural Hazard Specific Ordinance	Yes	Yes	The Mono County General Plan, Land Use Element contains

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
(Stormwater, Steep Slope, Wildfire)			Chapters on Floodplain Management (Chapter 21) as well as Fire Safe Regulations (Chapter 22). The Safety Element contains regulations and policies regarding natural hazards. The Safety Element is updated in connection with MJHMP update, and the Land Use Element is updated annually as necessary.
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	There is currently no ordinance addressing building in at-risk areas, but it is addressed within the Mono County Safety Element.	Yes	Mono County Safety Element was updated in 2021. It is updated as needed.

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They include tools that can help you carry out mitigation actions. Table 245 provides a list of the district's administrative capabilities, while Table 246 lists the district's technical capabilities.

Table 245: Administrative Capabilities of the Mono City Fire Protection District

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Emergency Manager	Yes	No	Yes	Yes
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	Yes	No	Yes	No
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOAD (Voluntary Organizations Active in Disasters)	Yes	No	No	No

Table 246: Technical Capabilities of the Mono City Fire Protection District

Technical Capability	In place? (Y/N)	How has the capability been used to assess/ mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Been used to apply for state and local hazard mitigation grants.	Continue to track and apply for federal, state, and local grants.
Hazard Data and Information	Yes	Mono County has used this in this hazard mitigation plan, which helps mitigate risk for MCFPD	This hazard mitigation plan will support hazard mitigation planning in MCFPD for the next five years.
GIS	No	No	No
Mutual Aid Agreements	Yes	Informed agencies regarding risk in particular areas of the county and how to prepare for and respond to incidents	Allows for more agencies to be informed regarding risk in particular areas of the county and able to prepare and respond to future incidents (e.g., Mono City Fire Dept. has mutual aid agreements with Lee Vining Fire Dept., Bridgeport Fire Dept., and Hawthorne, NV Fire Dept.)

Financial

Financial capabilities are the resources available to fund mitigation actions. Table 247 outlines the district's financial capabilities.

Table 247: Financial Capabilities of the Mono City Fire Protection District[291]

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	No	No	Yes	Yes
General Funds	Yes	No	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Yes	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	No	No	No	No
Flood Mitigation Assistance (FMA)	No	No	Yes	No
Public Assistance Mitigation (PA Mitigation/406)	No	No	Yes	No
Community Development Block Grant (CDBG)	No	No	Yes	No
Natural Resources Conservation Services (NRCS) Programs	No	No	Yes	No
US Army Corps (USACE) Programs	No	No	Yes	No
Property, Sales, Income, or Special Purpose Taxes	Yes	In Mono City, property taxes fund the fire protection district	Yes	Yes
Stormwater Utility Fee	No	No	No	No

[291] CAL FIRE = California Department of Forestry and Fire Protection, FEMA = Federal Emergency Management Agency, OES = Office of Emergency Services, USDA = United States Department of Agriculture.

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Fees for Water, Sewer, Gas, or Electric Services	No	No	No	No
Impact Fees from New Development and Redevelopment	No	No	No	No
General Obligation or Special Purpose Bonds	No	No	No	No
Federally Funded Programs (Please describe)	Yes	USDA/Forest Service; FEMA staffing, fire prevention/ safety	Yes	Np
State-Funded Programs (Please describe)	Yes	CAL FIRE Rural Fire Capacity Grant; California Fire Safe Council State Fire Capacity Grant; Cal OES Hazard Mitigation Grant Program	Yes	Yes
Private Sector or Nonprofit Programs	Yes	Whitebark Institute offers small grants for wildland firefighting equipment and community-based programs; Firehouse Subs Life-Saving Equipment Grant; California Fire Foundation offers funding for fire departments engaged in wildfire and climate-related preparedness efforts; Brothers Helping Brothers provides small rural fire departments with donated tools and equipment grants	Yes	Unknown (have to look at each grant)

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction. Table 248 summarizes the district's education and outreach capabilities.

Table 248: Education and Outreach Capabilities of the Mono City Fire Protection District

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	Yes	Yes	• Mono City Fire Protection District: Monthly meetings open to public; official meeting minutes; special meetings (e.g., community evacuation drills); safety information and announcements posted on official website, Facebook, Instagram • Fire District Annual Defensible Space Inspections: Property visits and discussion with owner/residents, provide educational literature on the subject and county-sponsored dump waivers for brush removal • Mono City Fire Department: Weekly trainings/meetings open to public; outreach to local schools; annual community barbecue; annual Santa escort with door-to-door visits and gifts for children • Lundy Mutual Water Company: Monthly shareholder meetings; summer newsletter announcing water restrictions
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	No	Lee Vining Fire Dept. and Mono City Fire Dept. bring pumper engines and medical/rescue trucks and show off equipment to children and teachers; putting a community face on firefighters/medics and explaining what we do in emergencies
Public Meetings/Events (Please describe.)	Yes (see comments above)	Yes	Fire District; Fire Department; Water company
Emergency Management Listserv	Yes	Yes	County Office of Emergency Services website
Local News	Yes	No	
Distributing Hard Copies of Notices (e.g., public	No	N/A	

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
libraries, door-to-door outreach)			
Insurance Disclosures/ Outreach	No	N/A	
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	No	N/A	
Social Media (Please describe.)	Yes	Yes	Use of Facebook is most prevalent; some organizations also use X/Twitter and Instagram
Other? (Please describe.)	No	N/A	N/A

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 249.

Table 249: Opportunities to Expand or Improve Capabilities of the Mono City Fire Protection District

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The County's Community Wildfire Protection Plan needs to be updated and include off-grid residents who live outside fire protection districts. The Mono City FPD should be expanded to include nearby housing subdivisions and off-grid residents who benefit from fire department response to fire, rescue, and medical emergencies. An increase in revenue from property taxes would benefit the fire department's response capacity to immediate and mutual aid needs.
Administrative and Technical	The Mono City FPD, like most other fire districts in the county (Mammoth Fire is the exception), operates in a framework of limited funding and volunteer commissioners who work tirelessly while balancing commitments to employers and family. More full-time roles in the MCFPD, such as a grant writer or grant writing training for current staff, would help support new mitigation programs. Although it would be great to offer a paid position like a grant writer, it is not

Capability Type	Opportunity to Expand and/or Improve
	feasible at this time. The fire district and community members benefit from a commissioner with a background in academia and jurisprudence who recognizes the work that needs to be done.
Financial	A more pressing need is a new fire station that can house all the fire engines during the cold winter and spring months; heated bays where medical gear susceptible to freezing can be stored on trucks all the time; and a community meeting room that does not double as a fire department training room/storage/ kitchen. The district is applying for funding and recently met with Congressman Kiley's office. Expanding grant funding capabilities, such as by pursuing grants like Community Development Block Grants will help mitigate future risk and enhance the district's ability to conduct education and outreach, including on mitigation.
Education and Outreach	The district would like to design and implement a Junior Firefighters program to educate youth of ages 10–18 about emergency preparedness and community outreach. Besides providing an experience that can be mentioned on college applications, the district intends that this program will inspire young people to consider careers in social work, emergency preparedness and response, and other avenues beneficial to helping those in need. Teaching Junior Fighters about wildfire mitigation measures, such as defensible space, will help expand mitigation public outreach capabilities.

National Flood Insurance Program Capability Assessment

The MCFPD does not participate and is not eligible to participate in the National Flood Insurance Program (NFIP), a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 250 includes a high-level overview of what, if anything, the district does to support floodplain management for known risks.

Table 250: NFIP Capabilities of the Mono City Fire Protection District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	The Mono City Fire Protection District includes the unincorporated communities of Mono City and Lundy Canyon. Flood concerns exist from water flowing in Mill Creek and significant snowmelt across the landscape that ends up in Mill Creek or collects on SR 167 and in poorly draining residential areas.
Which of your assets are at-risk from flooding?	Interstate 395 is at risk of being undermined should floodwaters overcome under-roadway drainage; SR 167 routinely floods during snowmelt, and vehicles go off the road into waist-deep ponds requiring fire department response.

Question	Response
Is your organization involved in floodplain management? If so, how?	Management, no; Emergency response, yes

Mono City Fire Protection District 2026–2031 Mitigation Strategy

The mitigation strategy is often seen as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities is an ongoing process to identify, analyze, and address hazards of concern. The strategy comprises goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- **Goal 1:** Avoid the exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- **Goal 2:** Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks of natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- **Goal 3:** Prepare for changing climate conditions in Mono County.
- **Goal 4:** Maintain adequate emergency response capabilities.
- **Goal 5:** Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- **Goal 6:** Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- **Goal 7:** Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- **Goal 8:** Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The MCFPD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risk and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may include additional response, preparedness, or prevention focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

Table 251: Considered Mitigation Actions of the Mono City Fire Protection District

Mitigation Action	Type of Action	Selected? (Y/N)	If not selected, why not?
Update the Community Wildfire Protection Plan to include recent efforts and include all areas where residents live	Local Plan	Yes	N/A
Defensible space in Mono City	Regulations: compel property owners to follow County Code 22.150 "Defensible Space and Fire Hazard Reduction"	Yes	N/A
Public events; School outreach; Visitor education	Local Plan and Regulations: training on County codes and regulations	No	Not enough staff to complete
Transition Southern California Edison power poles to underground power supply	Infrastructure: reduce wildfire risk from wind events and downed lines	No	Outside of MCFPD legal control
Improve highway drainage in known flood areas	Infrastructure: improve safety	No	Outside of MCFPD legal control

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures the MCFPD has identified. Actions might not be completed in five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, the MCFPD will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Landslides
- Hazardous Materials
- Severe Wind
- Severe Winter Weather and Snow
- Volcanoes
- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[292]

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, and Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

[292] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

Priorities

Priorities are defined by the district. After considering the following evaluation criteria and the definitions, the district assigned a prioritization category of low, medium, or high to each natural hazard action item. The criteria to calculate the following priority categories (STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental) are listed in Table 253:

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the district but has multiple potential challenges. The action should be implemented as funding becomes available.
- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the district, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the district with minimal to no concerns. It is essential for the district to implement and may be prioritized in the short term.

Table 252 shows the mitigation actions the MCFPD has selected for this planning cycle.

Table 252: Mono City Fire Protection District 2026–2031 Mitigation Actions[293]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Update CWPP	Wildfire	Update current CWPP to reflect recent emergency response and community improvements, inclusion of all areas with County residents (including off-grid homes).	County OES; Local fire protection districts and fire departments	County emergency response and mutual aid agencies	Volunteer fire protection districts provide groundwork and data collection; Local nonprofits like Whitebark Institute create community-based grant program	$1,000	Short-term, 1–2 years	Safety and Security	High
2	Create Defensible Space in Mono City	Wildfire	Through education and threat of fines, compel property owners to implement County Code 22.150 "Defensible Space and Fire Hazard Reduction."	Board of Supervisors; Mono City FPD	Countywide fire departments	Whitebark Institute; California Fire Foundation; California Fire Safe Council State Fire Capacity Grant; CNRA Community Wildfire Prevention and Mitigation	$1,000	Long-term, 5+ years (initial acquisition of funding will cover all years, but project needs to be implemented annually)	Safety and Security, Hazardous Materials	High

[293] CNRA = California Natural Resources Agency, CWPP = Community Wildfire Protection Plan, FPD = Fire Protection District, OES = Office of Emergency Services.

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
3	GIS Program	Avalanche, Dam Failure, Earthquake, Energy Shortage, Pandemic, Flood, Hazmat, Severe Wind, Severe Winter, Volcanoes, Wildfire	MCFPD would build out an in-house GIS capacity. A dedicated GIS department offers significant value by providing a centralized platform for managing and analyzing spatial data, leading to improved efficiency, better decision-making, and enhanced collaboration across various organizational functions.	MCFPD Fire Chief or Designee	Whitebark Institute, Mono County	Staff Time, MCFPD General Fund	$150,000 per year	Long-term	Safety and Security, Food Hydration Shelter, Energy	High
4	Develop Emergency Drought Water Supply Coordination Procedures	Drought	Develop procedures to coordinate emergency water supply availability, drafting locations, and interagency water use priorities during extended drought and	Mono City Fire Protection District	Mono County OES; local water providers; CAL FIRE; neighboring fire districts	FEMA Hazard Mitigation Assistance (HMA); State Fire Assistance; local funding	$5,000	Short-term, 1–2 years	Safety and Security	Medium

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
			wildfire conditions to support fire suppression operations and emergency response capacity.							
5	Enhance Extreme Heat and Wildfire Response Preparedness	Heat	Develop operational procedures and staffing coordination measures to address increased emergency response demand during periods of extreme heat, wildfire activity, and prolonged smoke exposure, including responder rehabilitation and mutual aid coordination.	Mono City Fire Protection District	Mono County Public Health; Mono County OES; neighboring fire districts	FEMA HMA; Assistance to Firefighters Grant (AFG); local funding	$10,000	Short-term, 1–2 years	Safety and Security	Medium
6	Identify and Maintain Critical Emergency Access Routes	Landslide	Coordinate with County departments and partner agencies to identify roadway segments	Mono County Public Works; Mono City Fire Protection District	Mono County OES; Caltrans; neighboring fire districts	FEMA HMA; HMGP; Cal OES Hazard Mitigation Grant funding	$25,000	Medium-term, 3–5 years	Transportation	High

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	Vulnerable to Landslides		vulnerable to landslides, erosion, and slope instability and prioritize maintenance, monitoring, and emergency access planning for critical response routes serving Mono City.							

Mitigation Action Prioritization

The MCFPD considered the STAPLEE criteria when prioritizing their actions. Table 253 documents how each action was prioritized.

Table 253: STAPLEE Prioritization for the Mono City Fire Protection District

Action	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	4	4	4	4	4	4	3	High
2	4	4	4	4	4	4	3	High
3	4	4	4	4	4	4	3	High

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards to which the community is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to be carried out in the future

Past Integration Efforts

The MCFPD did not meaningfully integrate the prior plan anywhere, as the district was not a plan participant in the prior plan.

Future Integration Opportunities

MCFPD identified future plan integration opportunities, as described in Table 254.

Table 254: Future Plan Integration by the Mono City Fire Protection District

Plan	Description	Process for Integration
Community Wildfire Protection Plan (CWPP)	The CWPP provides a comprehensive, scientifically based analysis of wildfire related hazards and risks in the Wildland-Urban Interface (WUI) areas of Mono County. The analysis helps to generate recommendations designed to prevent and/or reduce the damage associated with wildfire to WUI values in Mono County. It creates a document for Mono County which conforms to the standards for CWPPs established by the Healthy Forest Restoration Act (HFRA) and the State of California and the local Fire Safe Council.	This MJLHMP's wildfire hazard data and mitigation actions will be integrated into the next CWPP developed by Mono County and MCFPD.

Conclusion

MCFPD has effectively met all requirements for this hazard mitigation plan update, including engaging stakeholders and the public, evaluating risk and specific vulnerabilities, and identifying applicable mitigation capabilities and actions. Although entirely volunteer supported, the MCFPD actively participated in this plan update and provided feedback was directly incorporated into the plan including through attending meetings and completing plan participant input forms. By participating in this plan, MCFPD is better positioned to apply for mitigation grants as this plan meets the requirements for FEMA's hazard mitigation assistance grant programs. Ultimately, the District intends to implement mitigation measures which reduce risk to the community including vulnerable properties to protect property, livelihoods, and the environment, and ultimately, save lives.

Southern Mono Healthcare District Special District Annex

2026



MONO COUNTY CALIFORNIA

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Southern Mono Healthcare District

The Southern Mono Healthcare District (SMHD) has demonstrated its commitment to a comprehensive mitigation program by developing a district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and location, can be found. This is the first time the special district is participating in a hazard mitigation plan; therefore, there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. Furthermore, this annex documents the selected mitigation actions for the SMHD.

Southern Mono Healthcare District Participation

This plan was developed through a collaborative planning process that included Mono County, the town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update was documenting the planning process itself, including who represented which plan participant. The SMHD was represented during the plan update process by the individuals listed in Table 255.

Table 255: Representatives of the Southern Mono Healthcare District in the Planning Process

Name	Title	Organization/Department
Elizabeth Weeks-Comeau	Emergency Preparedness Coordinator	Mammoth Hospital
Staci Brock	Infection Prevention Coordinator	Mammoth Hospital

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 256 lists at least one stakeholder per required stakeholder type that works in or has knowledge of the SMHD. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 256: Local Stakeholders

Name	Description	Stakeholder Type
Mono County EMS	Mono County EMS is responsible for emergency medical calls and inter-facility ambulance transports within Mono County.	Local and regional agencies involved in hazard mitigation activities
Town of Mammoth Lakes Public Works	The Department of Public Works is involved in the planning, design, and construction of infrastructure projects within the Town of Mammoth Lakes	Agencies that have the authority to regulate development
Mono County Health Department	The Mono County Health Department provides environmental and public health services that support the health and safety of Mono County residents and visitors.	Neighboring community
Mammoth Lakes Chamber of Commerce	The Mammoth Lakes Chamber of Commerce works to foster a business environment that promotes business development, supports established businesses, and encourages new business and investment within the Town of Mammoth Lakes.	Representatives of businesses, academia, and other private organizations
Mammoth Yosemite Airport	Mammoth Yosemite Airport is a town-owned public airport seven miles east of Mammoth Lakes, in Mono County, California, United States.	Representatives of businesses, academia, and other private organizations
Eastern Sierra Area Agency on Aging (ESAAA)	The purpose of the ESAAA Advisory Council is to be a principal advocate body on behalf of older individuals within a planning and service area and provide advice and consultation on issues affecting the provision of services provided locally to older individuals.	Representatives of nonprofit organizations, including community-based organizations

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. Widespread outreach occurred across the district's service area, including through flyers posted across the Town of Mammoth Lakes. In addition, this plan and methods of participation were advertised at The SMHD monthly coalition meeting, attended by healthcare partner agencies. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities identified and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities using the Calculated Priority Risk Index in Table 257 and the equation below it.

Table 257: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) How large of an area could be affected by the specific hazard?	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time (Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration (The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for the SMHD is presented in Table 258.

Table 258: Calculated Priority Risk Index for Southern Mono Healthcare District

Type of Hazard Event	Probability of Future Events	Spatial Event	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	4	1	1	4	1	2.2
Dam Failure	1	1	1	4	4	1.6
Disease and Pest Management	1	1	1	1	3	1.2
Drought	2	2	1	1	4	1.8
Earthquake and Seismic Hazards	4	4	4	4	4	4
Energy Shortages and Energy Resiliency	3	2	2	2	2	2.3
Epidemic/Pandemic	3	4	2	1	1	2.5
Extreme Heat	1	1	1	1	1	1
Flood	2	1	1	1	3	1.5
Landslide	1	1	1	4	3	1.5
Hazardous Materials	3	3	1	4	3	2.5
Severe Wind	4	2	1	1	1	2.1
Severe Winter Weather and Snow	4	2	1	1	4	2.4
Volcanoes	1	4	4	4	4	3.1
Wildfire	4	4	4	1	2	3.5
Wildlife Collisions	1	1	1	4	1	1.3

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides descriptions of general hazard occurrences identified by the state and/or the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 259 lists these hazard events of local significance.

Table 259: Previous Disaster Impacts for the Southern Mono Healthcare District

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	N/A	N/A	N/A	N/A
Dam Failure	N/A	N/A	N/A	N/A
Disease and Pest Management	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Earthquake and Seismic Hazards	N/A	N/A	N/A	N/A
Energy Shortages and Energy Resiliency	N/A	Ongoing	Power failures led to disruptions in clinics.	Planned and unplanned outages happen multiple times per year.
Epidemic/ Pandemic	COVID-19: DR-4482	05/15/2020	Precautions had to be put in place to reduce spread of virus; Capacity of hospital staff was stressed in response to COVID-19.	Local Emergency related to the COVID-19 pandemic declared by the county health officer on March 15, 2020.
Extreme Heat	N/A	N/A	N/A	N/A
Flood	N/A	N/A	N/A	N/A
Landslide	N/A	N/A	N/A	N/A
Hazardous Materials	N/A	2023–2024	Potential health impacts on staff	Two Code Orange events: Sterile processing of chemical leak, staff respiratory impact; chemical spill in warehouse.
Severe Wind	N/A	N/A	N/A	N/A

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Severe Winter Weather and Snow	N/A	February 26 and 28, 2023	Staffing shortage and emergency housing preparations; reduction in services	Between February 22 and 26, another 52 inches of snow fell and peaked at 67 inches, breaking the 1952 record.
Volcanoes	N/A	N/A	N/A	N/A
Wildfire	Creek Fire: FM-5348-CA	September 4, 2020	Smoke Infiltration to internal hospital; Replacement of HEPA filters	One of the most significant fires of California's record-setting 2020 wildfire season, it burned 379,895 acres over several months. It was declared 100% contained on December 24, 2020.
Wildlife Collisions	N/A	N/A	N/A	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each hazard that affects the overall planning area. Assets were determined by the community. Asset types may differ among plan participants, including the following:

- **People:** Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, and lower-income individuals
- **Structures:** Residential, commercial, industrial, government-owned, planned capital improvement, etc.)
- **Economic Assets:** Major employers, primary economic sectors, key infrastructure like telecommunications networks
- **Natural, Historic, and Cultural Resources:** Areas of conservation, parks, critical habitats, community centers, historic places, etc.
- **Critical Facilities and Infrastructure:** Hospitals; law enforcement; water, power, transportation systems; etc.
- **Community Activities:** Major local events, such as festivals, or economic events, like farming or fishing.

The following problem statements describe the district-specific vulnerabilities of the SMHD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to the SMHD.

Avalanche

- **Location:** Avalanche hazards may affect portions of the Southern Mono Healthcare District (SMHD) service area near steep mountain terrain, avalanche paths, and major transportation routes serving Mammoth Lakes and surrounding communities.
- **Extent:** Severe snowpack, rapid snow accumulation, unstable slope conditions, and winter storm activity may contribute to avalanche conditions that affect regional transportation corridors and emergency access routes.
- **Impacts:** Avalanches can block transportation routes, isolate portions of the community, delay emergency medical response, disrupt utility service, and restrict access to healthcare facilities and emergency services.
- **District-Specific Vulnerabilities:**
  - SMHD facilities depend on continuous transportation access for patients, emergency responders, healthcare personnel, and delivery of medical supplies. Avalanche-related roadway closures could delay emergency medical transport and patient transfers.
  - Avalanches affecting regional roadways and transportation corridors may isolate healthcare facilities and delay staff commuting to medical facilities during emergency operations or severe winter events.
  - Utility disruptions associated with avalanche activity could interrupt power, communications, or other critical support systems necessary for healthcare operations and emergency medical services.

Dam Failure

- **Location:** Areas downstream of water storage and dam infrastructure throughout Mono County, particularly rural communities, and the transportation corridor along US 395. The Town of Mammoth Lakes, where Mammoth Hospital is located, may experience street flooding.
- **Extent:** None of the dammed lakes in Mammoth Lakes Basin considered high or significant risk dams; however, urbanized flooding from any level of dam failure could occur in the Town of Mammoth Lakes. Outside of Town, there are several high hazard potential dams.
- **Impacts**: A dam failure can cause flooding, isolating communities and disrupting essential services. Damage to US 395 or other major roadways could severely hinder emergency response and evacuation. Structures could suffer significant damage or collapse. The economic impacts could be widespread, affecting agriculture, tourism, and local government services. Vital facilities, such as the hospital, could be impacted due to access, power, and supply disruptions.

- **District-Specific Vulnerabilities**:
  - A dam failure at the Long Valley Dam, located at Crowley Lake, could damage US 395 between Mammoth Lakes and Bishop, separating transportation between SMHD facilities in those two towns.
  - Street flooding in the town of Mammoth Lakes may present public safety hazards for people accessing the Mammoth Hospital.

Disease and Pest Management

- **Location:** All of SMHD's jurisdiction is at risk of disease and pest management.
- **Extent:** The Disease Severity Scale for Mono County indicates a moderately susceptible/disease score of five as the worst-case scenario.
- **Impacts**: Disease and pest management hazards arise from undesirable organisms, such as insects, bacteria, and viruses, that can cause serious harm to plants, animals, and humans. These organisms threaten human health by infecting individuals, flora, and fauna with various diseases, some of which can be fatal. Impacts on water systems would be particularly impactful for the hospital.
- **District-Specific Vulnerabilities**:
  - If water becomes contaminated with disease, SMHD facilities could be impacted and contingency measures required to be put into place.
  - Public health may be affected particularly if water systems are infected by disease. The SMHD would be in charge of treating the people impacted by disease.

Drought

- **Location:** SMHD's entire district is vulnerable to drought.
- **Extent:** Exceptional Drought (D4) as the worst-case scenario for Mono County.
- **Impacts**: Drought can impact any sector in Mono County that needs consistent access to water, including the healthcare industry. Drought impacts include cascading effects, such as increased wildfire risk.
- **District-Specific Vulnerabilities**:
  - SMHD facilities require a consistent water source, especially where required for medical processes. Under an exceptional drought, when these water sources are threatened, SMHD facilities might have difficulty functioning.
  - Older residents may lack efficient cooling systems and face health risks from elevated temperatures and lack of water. These residents would need to be treated by SMHD.

Earthquake and Seismic Hazards

- **Location:** All of SMHD is susceptible to the impacts of earthquakes. Mammoth Hospital is located in the Antelope Valley and Hilton Creek fault shake scenarios.
- **Extent:** Moderate intensity shaking level as the worst-case scenario for Mono County.
- **Impacts**: Major earthquakes could damage buildings, disrupt essential utilities, and isolate communities by damaging key roadways, such as US 395.
- **District-Specific Vulnerabilities**:
  - SMHD facilities are vulnerable to seismic events like earthquakes. Relocating services from the old hospital to a new facility which is built in accordance with 2030 state seismic code for hospitals can help reduce this vulnerability.
  - SMHD would be called upon to support the medical response efforts to an earthquake. A major earthquake could produce significant injuries or fatalities to people in Mono County. Mammoth Hospital is a 17-bed facility which may be quickly overwhelmed, particularly during peak tourism season when the Town's population rises dramatically.
  - Disruptions to transportation routes could block access to SMHD facilities for both staff and patients.

Energy Shortages and Energy Resiliency

- **Location:** SMHD's entire district is susceptible to energy shortages and energy resilience.
- **Extent:** All four Bishop/Mammoth District Indices for planned and unplanned outages (dSAIDI, dSAIFI, dMAIFI, and dCAIDI) have been consistently rising since 2014.
- **Impacts**: Energy outages disrupt the operation of critical infrastructure reliant on power.
- **District-Specific Vulnerabilities**:
  - Clinics in SMHD without back-up generators are at risk of disruption due to power outages.
  - Residents who rely on powered medical devices are at risk during prolonged outages.

Epidemic/Pandemic

- **Location:** SMHD's entire district is susceptible to epidemics and pandemics. More densely populated areas, such as the Town of Mammoth Lakes, are more likely to spread disease quickly than less densely populated areas of the county.
- **Extent:** Community-wide pandemic (e.g., COVID-19)
- **Impacts**: Pandemics and epidemics can overwhelm healthcare capacity, disrupt public services, and impact the local economy, including tourism.

- **District-Specific Vulnerabilities**:
  - Service interruptions due to illness of SMHD staff.
  - Rising number of emergency illnesses that SMHD would need to respond to, straining capacity.
  - There is limited opportunity to cross-train and prepare for major disaster events. Disaster volunteers are largely staffed with retired nurses or current staff.
  - Vulnerable populations are at higher risk of diseases. There are no pediatric beds or NICUs in the area. Disruptions of any kind to transportation, including flights out of the community, could particularly impact younger patients. In addition, respiratory patients are particularly vulnerable to altitude. Moving these high-risk patients can be affected by disruptions to transportation routes from any cause.
  - During the COVID-19 pandemic, a great number of visitors flocked to Mono County and the Town of Mammoth Lakes to avoid larger communities, bringing COVID-19 with them in the process. Even during the normal tourism season, the population rises. The tourist population is not included in funding calculations, resulting in both difficulties funding and responding to increased need.

Extreme Heat

- **Location:** SMHD's entire district is susceptible to extreme heat.
- **Extent:** Summer highs are between 80–90° Fahrenheit in the summer.
- **Impacts**: Prolonged exposure to extreme heat can lead to heat exhaustion, heat stroke, or even death. Extreme heat can degrade road infrastructure, reduce water availability, stress local power grids, and increase wildfire risk.
- **District-Specific Vulnerabilities**:
  - Heat-related stress on the power grid may trigger power supply events that impact clinics that do not have back-up generators.
  - Vulnerable populations, including those without access to traditional housing options, such as people camping on public land or living in vehicles, are more likely to be affected by this hazard.
  - This can increase the risk of wildfire, threatening SMHD facilities and local transportation infrastructure.

Flood

- **Location:** Flood hazards may affect portions of the SMHD service area located near drainage areas, creeks, stormwater conveyance systems, and low-lying transportation corridors.
- **Extent:** Flooding may result from heavy precipitation, rapid snowmelt, drainage failures, debris blockages, or post-wildfire runoff conditions affecting local infrastructure and roadways.

- **Impacts:** Flooding can damage infrastructure, interrupt utility systems, delay emergency medical response, isolate facilities, and disrupt healthcare operations and patient access. Severe flooding could require temporary service relocation or evacuation operations.
- **District-Specific Vulnerabilities:**
  - Healthcare facilities rely on uninterrupted utility service, emergency power systems, communications infrastructure, medical equipment, and access routes to maintain patient care operations during emergencies. Flooding may damage or interrupt these systems.
  - No SMHD facilities are in the FEMA high (1%) or moderate risk (0.2%) flood zones; however, the entire district is still vulnerable to pluvial flooding, such as rain on snow events.
  - Flooded roadways and transportation disruptions could delay ambulance access, patient transfer operations, staff travel, and delivery of essential medical supplies and support services.
  - Flood impacts to healthcare facilities, access routes, or critical infrastructure may reduce medical service capacity and affect the district's ability to provide emergency and routine healthcare services during disaster events.

Landslide

- **Location:** Landslide hazards may affect steep terrain, mountain roadways, hillside areas, and transportation routes serving healthcare facilities and surrounding communities within the SMHD service area.
- **Extent:** Landslides may result from heavy precipitation, rapid snowmelt, erosion, wildfire-related slope instability, or seismic activity affecting steep slopes and roadway corridors.
- **Impacts:** Landslides can block emergency access routes, damage infrastructure, interrupt utility systems, isolate portions of the community, and delay emergency medical response and patient transport operations.
- **District-Specific Vulnerabilities:**
  - The district relies on regional transportation corridors and local roadways for ambulance response, emergency patient transfer, staff access, and delivery of medical supplies and support resources. Landslide activity may restrict or block these routes.
  - Landslide-related roadway closures may delay emergency response times, disrupt patient transport operations, and limit the ability to transfer patients to or from regional healthcare facilities.
  - Slope instability and associated utility disruptions may interrupt communications, electrical service, or other infrastructure systems necessary to maintain healthcare operations and continuity of care.

Hazardous Materials

- **Location:** Hazardous materials are particularly present in healthcare facilities run by the SMHD.
- **Extent:** The Hazmat Warning System is used to measure Hazmat incident levels.
- **Impacts**: Hazmat events can post immediate health threats, including toxic exposure and respiratory issues.
- **District-Specific Vulnerabilities**:
  - Chemical spills in the SMHD warehouse can lead to health threats to SMHD staff and general public.
  - Chemical leaks from sterile processing can make SMHD facilities inaccessible due to contamination.
  - People can be injured or killed, requiring SMHD medical care.

Severe Wind

- **Location:** All of SMHD is susceptible to the hazard of severe wind.
- **Extent:** The extent of severe wind can be classified using the Beaufort Wind Scale. SMHD can expect to experience force 11 winds as a worst-case scenario.
- **Impacts**: Widespread power outages can occur, along with structural damage, fallen trees, injuries, and flying debris due to severe wind.
- **District-Specific Vulnerabilities**:
  - Clinics in SMHD without backup generators are at risk of disruption due to power outages caused by severe wind.
  - Impacts on roads could block access to SMHD facilities for people who need medical care.
  - People without power due to severe wind face higher risks of compounding concerns like extreme cold.

Severe Winter Weather and Snow

- **Location:** Severe winter weather and heavy snow affect the entire SMHD service area and surrounding mountain communities throughout southern Mono County.
- **Extent:** Winter storms may produce heavy snowfall, high winds, extreme cold, snow drifts, ice accumulation, and prolonged transportation and utility disruptions. The district regularly experiences severe winter weather conditions that affect community access and emergency operations.
- **Impacts:** Severe winter weather may disrupt healthcare operations, damage infrastructure, delay emergency response, interrupt utilities and supply deliveries, isolate communities, and increase demand for emergency and medical services.

- **District-Specific Vulnerabilities:**
  - Healthcare facilities are vulnerable to roof loading, snow accumulation, utility outages, and hazardous travel conditions associated with severe winter storms and prolonged cold weather events.
  - Extended winter weather events may interrupt electrical service, backup power operations, communications systems, heating systems, and delivery of essential medical supplies and resources needed to maintain healthcare operations.
  - Heavy snowfall and hazardous travel conditions may delay ambulance response, patient transportation, staff travel, and mutual aid access, potentially reducing emergency medical response capability throughout the district.
  - Severe winter storms may isolate portions of the community and increase emergency medical demand associated with weather exposure, vehicle accidents, power outages, respiratory illness, and vulnerable populations requiring medical assistance or shelter support.
  - Winter weather conditions and prolonged roadway disruptions may contribute to staffing shortages or reduced operational capacity if medical personnel are unable to safely access healthcare facilities during severe storm events.

Volcanoes

- **Location:** Mono-Inyo Craters volcanic chain and Long Valley Caldera region with elevated exposure in Mammoth Lakes.
- **Extent:** The Long Valley Volcanic Center is one of 18 "very high threat" volcanoes listed in a 2005 ranking developed as part of the National Volcano Early Warning System (NVEWS). The Mono-Inyo Craters volcanic chain would experience a worst-case scenario of a volcanic explosivity index of 3.
- **Impacts**: May require evacuations, air quality deterioration due to ash fall, damage to infrastructure and property, and closure of major transportation corridors. Toxic inhalation of sulfur fumes may cause death.
- **District-Specific Vulnerabilities**:
  - SMHD facilities could face direct damage from volcanic vents in the case of an eruption.
  - SMHD staff could be personally impacted, affecting their ability to report for duty.
  - Major transportation corridors in Southern Mono County could be blocked, restricting travel for staff and patients.
  - Services from SMHD could be severely curtailed, impacting people that need medical care.

Wildfire

- **Location:** All of SMHD is susceptible to impacts from wildfires.

- **Extent:** Most of Mammoth Lakes is in a high wildfire severity zone.
- **Impacts**: Wildfires can lead to widespread evacuations, structure losses, health impacts due to smoke and ash, utility outages, road closures, and economic disruptions.
- **District-Specific Vulnerabilities**:
  - Wildfires could damage or destroy SMHD facilities.
  - Smoke from wildfires can infiltrate the hospital air system, impacting patients and staff.
  - Services from SMHD could be severely curtailed, impacting people that need medical care.

Wildlife Collisions

- **Location:** Wildlife vehicle collisions (WVC) are most common along US 395.
- **Extent:** Although there is no universal scale for wildlife collisions, a hot spot analysis of vehicle collisions with mule deer ranked very high along the southern portions of US 395.
- **Impacts**: Impacts include injury or loss of human life, damage to vehicles and infrastructure, disruption of traffic flow on key routes, and harm to local wildlife populations.
- **District-Specific Vulnerabilities**:
  - WVC can damage or delay emergency vehicles bringing patients to SMHD.
  - WVC are unlikely to damage SMHD facilities.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district), conditions that may affect the risks and vulnerabilities of the districts (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 260 lists the changes in development for the SMHD.

Table 260: Changes in Development for the Southern Mono Healthcare District

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Avalanche	None	No changes	Climate change	Increased
Dam Failure	None	No changes	Climate change	Increased

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Disease and Pest Management	None	No changes	Climate change	Increased
Drought	None	No changes	Climate change	Increased
Earthquake and Seismic Hazards	North Wing Project	No changes	None	Stayed the same, project in progress
Energy Shortages and Energy Resiliency	Generators Implemented	No changes	Climate stressors on electric grid	Decreased
Epidemic/Pandemic	None	No changes	COVID policies	Decreased
Extreme Heat	None	No changes	Climate change	Increased
Flood	None	No changes	Climate change	Increased
Landslide	None	No changes	Climate change	Increased
Hazardous Materials	None	No changes	Code Orange Protocol	Decreased
Severe Wind	None	No changes	None	Stayed the same
Severe Winter Weather and Snow	None	No changes	Climate change	Increased
Volcanoes	None	No changes	None	Stayed the same
Wildfire	None	No changes	Climate change	Increased
Wildlife Collisions	None	No changes	None	Stayed the same

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. the SMHD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 261: Plans of the Southern Mono Healthcare District

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	N/A	N/A	N/A
Capital Improvement Plan	Unsure	Unsure	Unsure
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Include potential mitigation actions and references to hazard mitigation plan in the Emergency Operations Plan	2026
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
HVA & Mitigation Action Plan	Yes	Identifies specific vulnerabilities and mitigation actions.	Unknown
Emergency Response Codes	Yes	N/A	Unknown
96hr Sustainability Plan	Yes	N/A	Unknown
Decon-Hazmat Plan	Yes	N/A	Unknown
Evacuation Plan (*draft*)	Yes	Identify vulnerabilities.	The plan is currently being drafted.
Communication Plan	Yes	N/A	Unknown
COOP (*draft*)	Yes	Reduce risk to operations.	The plan is currently being drafted.
Other? (Describe.) • **Seismic Compliance Summary Document**	Yes	Identify opportunities for future mitigation measures.	Unknown

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
• COVID-19 AAR & IP			

Table 262: Regulations and Ordinances of the Southern Mono Healthcare District

Regulation/Ordinance	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – 2022 California Building Standards Code with local modifications.	Yes – by Town of Mammoth Lakes and Mono County	2022 – Every 4 years as required by the State.
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	Yes	Yes	Integrated into the Land Use Element in 2023 – updated as needed.
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	The Mono County General Plan, Land Use Element contains Chapters on Floodplain Management (Chapter 21) as well as Fire Safe Regulations (Chapter 22). The Safety Element contains regulations and policies regarding natural hazards. The Safety Element is updated in connection with MJHMP update and the Land Use Element is updated annually as necessary.
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They include tools that can help carry out mitigation actions. Table 263 provides a list of the district's administrative capabilities, while Table 264 lists the district's technical capabilities.

Table 263: Administrative Capabilities of the Southern Mono Healthcare District

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	Yes	Unsure	Unsure	Unsure
Civil Engineer	Yes	Unsure	Unsure	Unsure
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Somewhat	No	Yes
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOAD (Voluntary Organizations Active in Disasters)	No	N/A	N/A	N/A
Other? (Please describe.)	No	N/A	N/A	N/A

Table 264: Technical Capabilities of the Southern Mono Healthcare District

Technical Capability	In place? (Y/N)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Few – supply chain; alternative care site	No	Unsure
Other? (Please describe.)	N/A	N/A	N/A

Financial

Financial capabilities are the resources available to fund mitigation actions. Table 265 outlines the district's financial capabilities.

Table 265: Financial Capabilities of the Southern Mono Healthcare District

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Yes, building and updating facilities.	Yes	Unsure
General Funds	Yes	Unsure	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	No	N/A	No	No
Flood Mitigation Assistance (FMA)	No	N/A	Yes	No
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	Yes	No

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Community Development Block Grant (CDBG)	No	N/A	Yes	No
Natural Resources Conservation Services (NRCS) Programs	No	N/A	No	N/A
US Army Corps (USACE) Programs	No	N/A	No	N/A
Property, Sales, Income, or Special Purpose Taxes	No	N/A	No	N/A
Stormwater Utility Fee	No	N/A	No	N/A
Fees for Water, Sewer, Gas, or Electric Services	No	N/A	No	N/A
Impact Fees from New Development and Redevelopment	No	N/A	No	N/A
General Obligation or Special Purpose Bonds	No	N/A	No	N/A
Federally Funded Programs (Please describe)	Hospital Preparedness Program Grant for EP program	Training supplies and programs; communications	Only as it relates to preparedness training and education	Unsure
State-Funded Programs (Please describe)	Yes	No	Yes	Yes
Private Sector or Nonprofit Programs	Yes	No	Yes	Yes

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction. Table 266 summarizes the district's education and outreach capabilities.

Table 266: Education and Outreach Capabilities of the Southern Mono Healthcare District

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	Yes	No	Heartbeats
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	No	EP Coordinator in communication with the Firewise Representative for Mono County
Public Meetings/Events (Please describe.)	Yes	Unsure	Elevate; Board Meetings; Trauma Series; hospital sponsored events
Emergency Management Listserv	Somewhat	No	Lists included in Communications Plan; MIHCC Teams
Local News	No	No	No
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	Unsure	Unsure	Unsure
Insurance Disclosures/Outreach	Unsure	Unsure	Unsure
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	Yes	Unsure	AFN program linked to Clinic visits
Social Media (Please describe.)	Yes	No	EP website – not promoted or utilized at this time

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in .

Table 267: Opportunities to Expand or Improve Capabilities of the Southern Mono Healthcare District

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	A multi-year training and exercise planning workgroup is in progress to build a 3–5 year plan related to an all-hazards approach to top 10 hazards, improvement plans, and required training and testing hospital-wide, which will help mitigate risks. The implementation of this plan could use addition funding and support. Safety and security procedures could use updating.

Capability Type	Opportunity to Expand and/or Improve
Administrative and Technical	Additional administrative support including for hospital-wide training and implementation could be beneficial. Training staff will increase their awareness of hazard events and what to do about them as well as garner support for mitigation measures.
Financial	The SMHD would like to be able to access the Hazard Mitigation Grant Program to fund mitigation actions across their facilities. Obtaining this grant will help advance SMHD's mitigation-related financial capabilities.
Education and Outreach	Staff education program needs building and implementation for standardized operational procedures related to emergencies and policy referencing. Time and funding is limited in all groups and staffing levels.

National Flood Insurance Program Capability Assessment

The SMHD does not participate and is not eligible to participate in the National Flood Insurance Program (NFIP), a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 268 includes a high-level overview of what, if anything, the district does to support floodplain management for known risks.

Table 268: NFIP Capabilities of the Southern Mono Healthcare District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Town of Mammoth Lakes and Bishop; Unaware of flooding concerns
Which of your assets are at-risk from flooding?	N/A
Is your organization involved in floodplain management? If so, how?	N/A

Southern Mono Healthcare District 2026–2031 Mitigation Strategy

The mitigation strategy is often seen as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities is an ongoing process to identify, analyze, and address hazards of concern. The strategy comprises goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- **Goal 1:** Avoid the exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- **Goal 2:** Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks of natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- **Goal 3:** Prepare for changing climate conditions in Mono County.
- **Goal 4:** Maintain adequate emergency response capabilities.
- **Goal 5:** Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- **Goal 6:** Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- **Goal 7:** Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- **Goal 8:** Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The SMHD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risk and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may include additional response, preparedness, or prevention focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures the SMHD has identified. Actions might not be completed in five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the case of a disaster event. As funding and resources become available, the SMHD will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Dam Failure
- Disease/Pest Management
- Drought
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Epidemic/Pandemic
- Extreme Heat
- Flood
- Landslides
- Hazardous Materials
- Severe Wind
- Severe Winter Weather and Snow
- Volcanoes
- Wildfire
- Wildlife Collisions

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[294]

- **Safety and Security:** Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, and Community Safety
- **Food, Hydration, Shelter:** Food, Hydration, Shelter, Agriculture
- **Health and Medical:** Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy:** Power Grid, Fuel
- **Communications:** Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation:** Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials:** Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems:** Potable Water Infrastructure, Wastewater Management

[294] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

Priorities

Priorities are defined by the district. After considering the following evaluation criteria and the definitions, assign a prioritization category of low, medium, or high to each natural hazard action item being retained or created. SMHD prioritized actions based on the perceived benefits to the safety of hospital facilities, staff, and patients.

Table 269 shows the mitigation actions the SMHD has selected for this planning cycle.

Table 269: Southern Mono Healthcare District 2026–2031 Mitigation Actions[295]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Time-frame	Community Lifelines	Priority
1	Protect Critical Infrastructure & Facilities	Earthquake/ Seismic Events	Implement seismic mitigation measures to reduce risk to critical infrastructure and facilities. Measures may including seismically retrofitting facilities like Mammoth Hospital, bracing generators, using flexible piping, and installing shut-off valves.	SMHD	TOML Mono County OES	Hospital reserves; revenue bonds; philanthropic donations; HMGP	High	Medium-term	Health and Medical	High
2	Energy Research & Development	Energy Shortages and Energy Resiliency	Invest in R&D for new energy technology.	SMHD	TOML Mono County OES	Hospital reserves	Unknown	Long-term	Health and Medical	Low
3	Develop Comprehensive Surge Capacity & Crisis Management Training Program	Epidemic/ Pandemic	Develop and implement comprehensive training modules, collaboration & resource management, prioritize crisis communication, collect feedback.	SMHD	Mono County Public Health & OES	Staff time, SMHD General Fund	Staff time	Medium-term	Health and Medical	Low
4	Proper Disposal	Hazardous Materials	Establish protocols for safe disposal; collaborate with licensed contractors	SMHD	Waste Management; Mono County Public Health & OES	Staff time, SMHD General Fund	Staff time	Medium-term	Health and Medical	Low
5	Reduce Impacts to Roadways	Severe Winter Weather and Snow	Support the installation of roadway heating systems. Reduce transportation disruptions,	SMHD	TOML, Mono County, Caltrans,	Caltrans	High	Long-term	Health and Medical	Low

[295] BRIC = Building Resilient Infrastructure and Communities, Caltrans = California Department of Transportation, HMGP = Hazard Mitigation Grant Program, ICARP = Integrated Climate Adaptation and Resiliency Program, OES = Office of Emergency Services, TOML = Town of Mammoth Lakes,

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Time-frame	Community Lifelines	Priority
			reducing road debris and clearing.							
6	Air Filtration Systems for Critical Facilities	Wildfire	Ensure the highest ability to provide clean air by upgrading air filtration systems.	SMHD	Mono County Public Health	Hospital reserves, HMGP, BRIC, ICARP	Low	Medium-term	Health and Medical	High
7	Increased Hazard Education & Risk Assessment	Avalanche, Dam Failure, Disease/ Pest Management, Drought, Earthquake/ Seismic Hazards, Energy Shortages and Energy Resiliency, Epidemic/ Pandemic, Extreme Heat, Flood, Landslides, Hazardous Materials, Severe Wind, Severe Winter Weather and Snow, Volcano, Wildfire, Wildlife Collisions	Launch seasonal hazard awareness week, interactive website, annual workshops. Engage the public on how they can reduce their hazard risks.	SMHD	Mono County OES & Public Health	Staff time, SMHD General Fund	Staff time	Short-term	Health and Medical	High

Mitigation Action Prioritization

The SMHD organized discussions with staff to prioritize projects. Staff provided feedback on which projects they deemed most important for the safety of hospital facilities, staff, and patients. This feedback was collected and averaged to get to the final priority level.

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards to which the community is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to be carried out in the future

Past Integration Efforts

The SMHD did not meaningfully integrate the prior plan anywhere, as the district was not a plan participant in the prior plan.

Future Integration Opportunities

The SMHD identified future plan integration opportunities, as described in Table 270.

Table 270: Future Plan Integration by the Southern Mono Healthcare District

Plan	Description	Process for Integration
Training and Exercise Plan	A multi-year training and exercise planning workgroup is in progress to build a 3–5 year plan related to an all-hazards approach to top 10 hazards, improvement plans, and required training and testing hospital-wide.	The updated hazard mitigation plan will be utilized to make sure all relevant hazards are included in training for staff.

Conclusion

The Southern Mono Healthcare District has actively participated in the hazard mitigation planning process to document past disasters, understand potential impacts, and prioritize mitigation actions. SMHD healthcare facilities are critical for the health and safety of residents of Southern Mono County. Through this planning process, SMHD has identified specific vulnerabilities and ways to mitigate disaster impacts that could threaten healthcare services. This process meets the requirements for eligibility for FEMA hazard mitigation grants. By implementing effective mitigation measures, the district will be better positioned to continue to support health and safety of residents across Southern Mono County before, during, and after disaster events.

Wheeler Crest Community Services District Special District Annex

2026



MONO COUNTY CALIFORNIA

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Wheeler Crest Community Services District

The Wheeler Crest Community Services District (CSD) has demonstrated its commitment to a comprehensive mitigation program by developing a district-specific annex for inclusion in this plan. This annex is intended to be read in conjunction with the base plan, where more general information, such as hazard descriptions, extent, and location, can be found. This is the first time the special district is participating in a hazard mitigation plan; therefore, there are no changes in priority since the prior plan update. The following is intended to clarify what, if any, unique considerations and differences exist between the plan participants' hazards and mitigation capabilities. Furthermore, this annex documents the selected mitigation actions for the Wheeler Crest CSD.

Wheeler Crest Community Services District Participation

This plan was developed through a collaborative planning process that included Mono County, the town of Mammoth Lakes, the participating special districts, many stakeholders, and the public. An important part of the plan update was documenting the planning process itself, including who represented which plan participant. The Wheeler Crest CSD was represented during the plan update process by the individual listed in Table 271.

Table 271: Representatives of the Wheeler Crest Community Services District in the Planning Process

Name	Title	Organization/Department
Charles Tucker	Chairman of the Board	Wheeler Crest Community Services District

Local Stakeholder Involvement

Stakeholders, including local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, neighboring communities, representatives of businesses, academia, other private organizations, nonprofit organizations, and community-based organizations, were invited to participate in the plan update. A full list of stakeholders is included in the base plan. Table 272 lists at least one stakeholder per required stakeholder type that works in or has knowledge of the Wheeler Crest CSD. Stakeholders were invited by email to participate by attending two meetings on the Risk Assessment and Mitigation Strategy, attending focused stakeholder meetings, completing the draft stakeholder survey, and reviewing the draft plan.

Table 272: Local Stakeholders

Name	Description	Stakeholder Type
Wheeler Crest Fire Protection District	Fire protection special district	Local and regional agencies involved in hazard mitigation activities
Wheeler Crest Fire Safe Council	A volunteer organization committed to facilitating and assisting the Swall Meadows community to: • Promote awareness of fire safe practices • Reduce property loss due to wildland fires • Enhance the effectiveness of wildland firefighting efforts • Preserve healthy wildlife habitat and native plant communities	Representatives of nonprofit organizations, including community-based organizations
Southern California Edison	Utility company	Representatives of businesses, academia, and other private organizations
United States Marine Corps Mountain Warfare Training Center	Military training center	Neighboring communities
Eastern Sierra Avalanche Center	Provides information and education on avalanche conditions for the Eastern Sierra Region	Representatives of nonprofit organizations, including community-based organizations
Wheeler Crest Board of Directors	Community Services District Board	Agencies that have the authority to regulate development

Public Engagement

The public was also encouraged to participate in the plan update process. Members of the public were provided the opportunity to participate in the planning process through a digital survey, flyers, and public meetings. Wheeler Crest CSD Board of Directors shared information with the public about the digital hazards survey during their monthly public meetings throughout the planning period. District 2 Supervisor Rhonda Duggan distributed the public survey to her email list of residents of Swall Meadows. Public feedback was incorporated into the risk assessment and mitigation strategy sections, including specific vulnerabilities identified and mitigation action recommendations.

District-Specific Hazards and Vulnerabilities

The risk assessment identifies and analyzes the hazards of concern in the planning area. The full risk assessment is included in the base plan. Where differences exist, they are noted in this annex. Table 273 provides an overview of hazards that have been omitted from the risk assessment due to their irrelevance or lack of impact on the planning area.

Table 273: Hazard Omissions

Hazard	Statement of Omission
Dam Failure	Not applicable; no dam facilities uphill of water systems.
Disease and Pest Management	Not applicable; no risk to water system infrastructure.
Drought	Not applicable; highly unlikely and no impact/risk to water systems. No historical impacts on district critical infrastructure.
Epidemic/ Pandemic	Not applicable; no impact/risk to water systems. No historical impacts from epidemic/pandemic on district critical infrastructure.
Extreme Heat	Not applicable; no impact/risk to water systems. No historical impacts on district critical infrastructure, which is situated above typical impacts of extreme heat.
Flood	Not applicable; water systems located high above mapped high- and moderate-risk flood zones.
Landslide	Not applicable; no historical impacts on district critical infrastructure, which is predominantly underground.
Hazardous Materials	Not applicable; water systems in residential communities with no hazardous materials impact/risk.
Volcanoes	Not applicable; highly unlikely. Air quality issues will not affect the district's water systems.
Wildlife Collisions	Not applicable; incidents will have no impact/risk to water systems. No historical impacts from wildlife collisions on district critical infrastructure.

District Risk Differences

Each plan participant was asked to consider how their risks and vulnerabilities compared to the overall planning area. To calculate these differences, participants ranked their unique vulnerabilities using the Calculated Priority Risk Index in Table 274 and the equation below it.

Table 274: Calculated Priority Risk Index

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
Probability of Future Events	1	Unlikely	Less than 1% probability of occurrence in the next year or a recurrence interval of greater than every 100 years	30%
	2	Occasional	1%–10% probability of occurrence in the next year or a recurrence interval of 11–100 years	
	3	Likely	11%–90% probability of occurrence in the next year or a recurrence interval of 1–10 years	
	4	Highly Likely	91%–100% probability of occurrence in the next year or a recurrence interval of less than 1 year	
Spatial Extent (Geographic coverage) ***How large of an area could be affected by the specific hazard?***	1	Limited	Less than 10% of the planning area could be impacted.	20%
	2	Small	10%–25% of the planning area could be impacted.	
	3	Significant	25%–50% of the planning area could be impacted.	
	4	Extensive	50%–100% of the planning area could be impacted.	
Severity of Life/Property Impact	1	Negligible	Less than 5% of the affected area's critical and non-critical facilities and structures are damaged or destroyed. Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	30%
	2	Limited	Greater than 5% and less than 25% of property in the affected area is damaged or destroyed. Complete shutdown of critical facilities for more than one day but less than one week.	
	3	Critical	Greater than 25%, but less than 50% of property in the affected area was damaged or destroyed. Complete shutdown of critical facilities for over a week but less than one month.	

Risk Index Factor	Degree of Risk Level		Criteria	Factor Weight for Degree of Risk Level
	4	Catastrophic	Over 50% of critical and non-critical facilities and infrastructures in the affected area are damaged or destroyed. Complete shutdown of critical facilities for more than one month.	
Warning Time (***Warning time refers to the duration between the moment a warning is issued for an impending threat or disaster and when the threat or disaster occurs. Having more warning time allows for better emergency preparations and public information dissemination.)***	1	Self-defined	More than 24 hours	10%
	2	Self-defined	12–24 hours	
	3	Self-defined	6–12 hours	
	4	Self-defined	Less than 6 hours	
Duration (***The span of time local, state, and/or federal assistance will be necessary to prepare for, respond to, and recover from a potential disaster event.)***	1	Brief	Up to 6 hours	10%
	2	Intermediate	Up to one day	
	3	Extended	Up to one week	
	4	Prolonged	More than one week	

Risk Factor Equation

RF Value = [(Probability x .30) + (Spatial Extent x .20) + (Severity of Life/Property Impact x .30) + (Warning Time x .10) + (Duration x .10)]

Hazards with an RF value greater than or equal to 2.5 are considered high risk. Those with RF values of 2.0 to 2.4 are considered moderate risk hazards, and those with an RF value less than 2.0 are considered low risk. The highest possible RF value is 4. The calculated priority risk index for the Wheeler Crest CSD is presented in Table 275.

Table 275: Calculated Priority Risk Index for the Wheeler Crest Community Services District

Type of Hazard Event	Probability of Future Events	Spatial Extent	Severity of Life/Property Impact	Warning Time	Duration	Risk Factor Value
Avalanche	2	1	2	1	4	1.6
Earthquake and Seismic Hazards	1	4	4	1	4	2.8
Energy Shortages and Energy Resiliency	4	3	3	2	2	3.1
Severe Wind	4	4	2	3	1	3
Severe Winter Weather and Snow	3	4	2	3	2	2.8
Wildfire	3	4	4	4	4	3.7

Past Hazard Events

The plan must present the history of hazard events. Although the past cannot predict the future, especially as climate change is causing more frequent and intense events, it can give an idea of what might happen and what is at risk. The base plan provides descriptions of general hazard occurrences identified by the state and/or the Federal Emergency Management Agency (FEMA). The plan participants were asked to provide additional information on hazards that have impacted them, if any. Table 276 lists these hazard events of local significance.

Table 276: Previous Disaster Impacts for the Wheeler Crest Community Services District

Type of Hazard Event	FEMA Disaster # (If Applicable)	Date(s)	Damage or Impacts	Description
Avalanche	N/A	N/A	N/A	N/A
Earthquake and Seismic Hazards	N/A	N/A	N/A	N/A
Energy Shortages and Energy Resiliency	N/A	N/A	N/A	N/A
Severe Wind	N/A	N/A	N/A	N/A
Severe Winter Weather and Snow	N/A	Dec 2022–April 2023	No reported damage to water and wastewater systems	Severe winter storms and snowfall exceeding normal seasonal levels, prompting emergency activation
Wildfire	N/A	February 2024	Pump houses and equipment destroyed	N/A

District-Specific Vulnerabilities

The plan participants also evaluated their specific vulnerabilities to each hazard that affects the overall planning area. Assets were determined by the community. Asset types may differ among plan participants, including the following:

- **People:** Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, and lower-income individuals
- **Structures:** Residential, commercial, industrial, government-owned, planned capital improvement, etc.
- **Economic Assets:** Major employers, primary economic sectors, key infrastructure like telecommunications networks
- **Natural, Historic, and Cultural Resources:** Areas of conservation, parks, critical habitats, community centers, historic places, etc.
- **Critical Facilities and Infrastructure:** Hospitals; law enforcement; water, power, transportation systems; etc.
- **Community Activities:** Major local events, such as festivals, or economic events, like farming or fishing.

The following problem statements describe the district-specific vulnerabilities of the Wheeler Crest CSD. Where no unique considerations are noted, it can be assumed that the information included in the base plan also applies to the Wheeler Crest CSD.

Avalanche

- **Location:** Water- and wastewater-critical facilities owned by the district are in the Eastern Sierra Avalanche Zone.
- **Extent:** Based on historical occurrences, the planning area can expect to experience D2 avalanches as a worst-case scenario.
- **Impacts**: District water and wastewater treatment plants are at risk of avalanche damage, which could impact water service to customers/people, resulting in loss of revenue to the district in the case of prolonged service disruptions. Avalanches have downed power lines connected to the systems. Power outages can disrupt water systems reliant on electricity.

District-Specific Vulnerabilities:

- In Swall Meadows, the Wheeler Crest CSD manages two vulnerable water systems: the Hilltop Estates subdivision (upper) and Pinon and Rimrock Ranch subdivision (lower).
- Avalanches can threaten power systems which could potentially disrupt the district's electricity-dependent water systems and service.

- Customers/people reliant on the water and wastewater treatment services provided by the district are vulnerable to avalanche events. Any damage to the upper and lower water system infrastructure can cause service disruption, potentially impacting public health.

Earthquake and Seismic Hazards

- **Location:** Earthquake and seismic shaking can occur anywhere in the Swall Meadows service area and the district. The community of Swall Meadows, where the district provides services, is on a major fault line.
- **Extent:** Based on historical occurrences, the planning area can expect to experience shaking of moderate intensity, given the district's location and proximity to faults.
- **Impacts**: Damage to the district's water and wastewater treatment plants from earthquake shaking could impact water service to people/customers, resulting in a loss of revenue for the district in the case of prolonged service disruptions.
- **District-Specific Vulnerabilities**:
  - Wells and water distribution systems are vulnerable to earthquake shaking. The water distribution lines may be severed, causing leaks and service disruptions to customers/people. The district's water wells and water mains could benefit from additional seismic retrofitting and system redundancies to improve seismic performance.
  - People may experience impacts to their health or recovery following the earthquake due to loss of water/wastewater services.

Energy Shortages and Energy Resiliency

- **Location:** Public Safety Power Shutoff (PSPS) service outages occur throughout the Swall Meadows service area and the district.
- **Extent:** Based on historical occurrences, the planning area can expect to experience regular intervals of power outages that cause service disruptions to people/customers in the water distribution system.
- **Impacts**: Loss of power to local homes and businesses can impact daily life of people/customers if service disruptions are persistent, as water and wastewater systems depend on electrical power provided by the regional power grid.
- **District-Specific Vulnerabilities**:
  - The district's water wells and water distribution systems are vulnerable to frequent service disruptions from PSPS service outages, as systems require electric power to operate.
  - Power outages can reduce the water supply available for fire suppression measures, increasing risk to wildfire.

- People in the Swall Meadows service area may experience disruptions to service. Prolonged outages could impact public health or result in economic losses. ›Residents/people and businesses dependent on electricity to power water wells are particularly vulnerable.

Severe Wind

- **Location:** Severe wind events can affect the entire Wheeler Crest Community Services District (WCCSD) service area and surrounding areas within the Swall Meadows and Wheeler Crest communities.
- **Extent:** Based on historical wind events and regional weather conditions, the district service area is vulnerable to strong winds capable of damaging trees, overhead utility infrastructure, communications systems, and other exposed facilities and equipment.
- **Impacts:** Severe wind events can damage critical infrastructure, down power lines, interrupt utility and communications service, increase wildfire ignition potential, and disrupt water system operations that rely on electrical power and telecommunications infrastructure.
- **District-Specific Vulnerabilities:**
  - The district's water system infrastructure, including pumps, storage facilities, water distribution components, and power-dependent operational equipment, is vulnerable to prolonged electrical outages caused by downed power lines or severe wind-related infrastructure damage. Structures built before the adoption of modern building codes might not be designed to withstand severe wind conditions, increasing the risk of service disruption to customers/people. The upper water system was constructed in 1956.
  - Above-ground utility systems, communications infrastructure, and electrical service connections throughout the district may be damaged by fallen trees, airborne debris, or severe wind conditions, affecting operational coordination and continuity of district services.
  - Water service interruptions may occur if severe wind events damage electrical infrastructure, disrupt power supply to pumps and operational facilities, or block access routes needed for maintenance and emergency repairs.
  - Communications disruptions associated with severe wind events could affect emergency coordination, public notification capabilities, operational monitoring systems, and communication between district personnel and emergency response agencies.
  - Severe wind events may increase wildfire ignition potential from downed power lines, damaged electrical equipment, or wind-driven fire spread, creating additional risk to district infrastructure, nearby residences, and surrounding wildland areas.

Severe Winter Weather and Snow

- **Location:** All critical facilities in the district can be impacted by severe winter weather and snow.

- **Extent:** Based on historical occurrences, each year the planning area can expect to experience multiple winter storm warnings and winter advisories issued by the National Weather Service that align with the Winter Storm Severity Index (WSSI) and the Wind Chill Temperature Index, both used to indicate severity levels for winter weather and snow.
- **Impacts:** Prolonged service disruption of water and wastewater systems can be caused by failure of infrastructure that has been compromised by snow and ice damage, necessitating costly repairs and preservation efforts. Service disruptions will impact the district in lost revenues, as service shut-offs persist while repair or replacement of the water system is completed.
- **District-Specific Vulnerabilities:**
  - Significant disruption by power outages caused by severe winter weather can disrupt the water and wastewater system lifeline.
  - Individuals/people with preexisting health conditions or who lack the ability to shelter in place or temporarily relocate during periods of prolonged service disruptions are particularly vulnerable to this hazard.

Wildfire

- **Location:** Wildfire is a concern for the entire district and all of the Swall Meadows service area.
- **Extent:** According to CAL FIRE mapping, all of Mono County—including Swall Meadows and the parts of the district in the Wildland Urban Interface—are in the high and very high wildfire severity zones.
- **Impacts:** Wildfire can damage or destroy power lines, critical facilities, and other district assets, based on the very high fire hazard severity level mapped by CAL FIRE. Wildfire can impact vulnerable populations with health conditions that become exacerbated by poor air quality during wildfires.
- **District-Specific Vulnerabilities:**
  - The district's vulnerability to wildfire includes prolonged power outages caused by downed power lines, which disrupts customer/people access to water distribution systems.
  - A reduction in water levels from increased water use for fire suppression increases the district's vulnerability to wildfire. The district's lower water system has three wells, reservoirs of 100,000 and 120,000 gallons, and a distribution system that not only supports the lots in the distribution system but also serves as a water source for the Wheeler Crest Fire Protection District, which services all of Swall Meadows.

District-Specific Changes in Development and Impacts

The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each participant since the previous plan was approved.

Changes in development include recent development (e.g., construction completed since the last plan was approved), potential development (e.g., development planned or under consideration by the district),

conditions that may affect the risks and vulnerabilities of the district (e.g., climate change, declining populations or projected increases in population, or foreclosures), shifts in the needs of underserved communities, or gaps in social equity. This can include changes in local policies, standards, codes, regulations, land use regulations, and other conditions. Table 277 lists the changes in development for the Wheeler Crest CSD.

Table 277: Changes in Development for the Wheeler Crest Community Services District

Type of Hazard Event	Changes in Land Use	Changes in Population	Changes in Conditions (e.g., Climate Change)	Overall Vulnerability
Avalanche	None	None	None	Stayed the same
Earthquake and Seismic Hazards	None	None	None	Stayed the same
Energy Shortages and Energy Resiliency	None	None	None	Stayed the same
Severe Wind	None	None	None	Stayed the same
Severe Winter Weather and Snow	None	None	None	Stayed the same
Wildfire	None	None	Climate change is making wildfires more frequent and severe. The district is now more likely to experience wildfire than in previous years.	Increased

Mitigation Capabilities

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or could help carry out hazard mitigation activities. Analyzing local mitigation capabilities and opportunities to expand or improve mitigation capabilities can help decision makers determine feasible mitigation actions. The Wheeler Crest CSD assessed the following mitigation capabilities.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Table 278 provides an overview of the plans relevant to the Wheeler Crest CSD, while Table 279 outlines the relevant regulations and ordinances.

Table 278: Plans of the Wheeler Crest Community Services District

Plan	Does the plan address hazards? (Y/N)	How can the plan be used to implement mitigation actions?	When was it last updated? When will it next be updated?
General Plan	N/A	N/A	N/A
Capital Improvement Plan	N/A	N/A	N/A
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	N/A	N/A	N/A
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Other? (Describe.)	N/A	N/A	N/A

Table 279: Regulations and Ordinances of the Wheeler Crest Community Services District

Regulation/Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes – Mono County enforces the 2022 California Building Code	Yes – Mono County is responsible for enforcing the building code	Yes – 2022, 2026
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

Administrative and Technical

Administrative and technical capabilities include staff and their skills. They include tools that can help you carry out mitigation actions. Table 280 provides a list of the district's administrative capabilities, while Table 281 lists the district's technical capabilities.

Table 280: Administrative Capabilities of the Wheeler Crest Community Services District

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	No	N/A	N/A	N/A

Administrative Capability	In place? (Y/N)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Is coordination between agencies and staff effective?
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOAD (Voluntary Organizations Active in Disasters)	No	N/A	N/A	N/A

Table 281: Technical Capabilities of the Wheeler Crest Community Services District

Technical Capability	In place? (Y/N)	How has the capability been used to assess/ mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/ mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A

Financial

Financial capabilities are the resources available to fund mitigation actions. Table 282 outlines the district's financial capabilities.

Table 282: Financial Capabilities of the Wheeler Crest Community Services District

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Drilling new wells	Yes	Yes
General Funds	Yes	Maintenance and repair of water systems	No	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A

Funding Resource	In place? (Y/N)	Has this funding resource been used in the past and for what types of activities?	Could this resource be used to fund future mitigation actions?	Can this be used as the local cost match for a federal grant?
Building Resilient Infrastructure & Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Public Assistance Mitigation (PA Mitigation/406)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
US Army Corps (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income, or Special Purpose Taxes	Yes	Yes – Funding for capital improvement projects, maintenance and repair	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas, or Electric Services	Yes	Y. Funding for capital improvement projects, maintenance and repair	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	Y. Funding for capital improvement projects, maintenance and repair	Yes	Yes
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federally Funded Programs (Please describe)	No	N/A	N/A	N/A
State-Funded Programs (Please describe)	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

Education and Outreach

Education and outreach capabilities are programs and methods that could communicate about and encourage risk reduction. Table 283 summarizes the district's education and outreach capabilities.

Table 283: Education and Outreach Capabilities of the Wheeler Crest Community Services District

Education and Outreach Capability	In place? (Y/N)	Does this resource currently incorporate hazard mitigation?	Notes
Community Newsletter(s)	No	N/A	–
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	–
Public Meetings/Events (Please describe.)	No	N/A	–
Emergency Management Listserv	No	N/A	–
Local News	No	N/A	–
Distributing Hard Copies of Notices (e.g., public libraries, door-to-door outreach)	No	N/A	–
Insurance Disclosures/Outreach	No	N/A	–
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities (Please describe.)	No	N/A	–
Social Media (Please describe.)	No	N/A	–

Ability to Expand and Improve Existing Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 284.

Table 284: Opportunities to Expand or Improve Capabilities of the Wheeler Crest Community Services District

Capability Type	Opportunity to Expand or Improve
Planning and Regulations	The Wheeler Crest Community Services District (CSD) can participate in the countywide Community Wildfire Protection Plan update, with an emphasis on the vulnerabilities and mitigation actions that will support both district operations and wildfire response and recovery efforts. Further, the District could develop a plan for mitigating against and recovering from a substantial damage event.
Administrative and Technical	The Wheeler Crest CSD can acquire a broad range of administrative and technical resources to assist the Board of Directors in developing hazard mitigation projects to sustain the water and wastewater system in all-hazards events. One method of

Capability Type	Opportunity to Expand or Improve
	obtaining additional technical support could be through the Resilience Branch of the California Office of Emergency Services, which helps eligible subapplicants pursue funding for hazard mitigation and resilience projects.
Financial	The Wheeler Crest CSD could expand grant writing capabilities to apply for eligible hazard mitigation grant funding such as the Hazard Mitigation Grant Program to assist the district in meeting its goals and objectives.
Education and Outreach	The Wheeler Crest CSD can expand on its current public outreach and education programs to increase awareness of hazard mitigation measures that can reduce risk. For example, the district could use social media to conduct outreach to its customer base, as well as hold community meetings to share information.

National Flood Insurance Program Capability Assessment

The Wheeler Crest CSD does not participate and is not eligible to participate in the National Flood Insurance Program (NFIP), a FEMA program that provides flood insurance to millions of policyholders across the country. This program is typically regulated at the local and county levels; however, FEMA mitigation planning guidelines still request information on how each plan participant supports or implements floodplain management regulations. Table 285 includes a high-level overview of what, if anything, the district does to support floodplain management for known risks.

Table 285: NFIP Capabilities of the Wheeler Crest Community Services District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Swall Meadows. No concerns.
Which of your assets are at risk from flooding?	None
Is your organization involved in floodplain management? If so, how?	No

Wheeler Crest Community Services District 2026–2031 Mitigation Strategy

The mitigation strategy is often seen as the heart of the plan or the community's blueprint for disaster risk reduction. Updating the mitigation strategy to reflect current conditions, vulnerabilities, and action priorities is an ongoing process to identify, analyze, and address hazards of concern. The strategy

comprises goals (included in the base plan), actions, and the mitigation action plan. The goals of this plan are as follows:

- **Goal 1:** Avoid the exposure of people and improvements to unreasonable risks of damage or injury from the hazards identified in this plan.
- **Goal 2:** Keep Mono County and the Town of Mammoth Lakes a safe place to live, work, and play by reducing the risks of natural hazards through planning for safe development, increasing public awareness of the natural hazards in Mono County, and providing an integrated multi-agency approach to emergency response.
- **Goal 3:** Prepare for changing climate conditions in Mono County.
- **Goal 4:** Maintain adequate emergency response capabilities.
- **Goal 5:** Build partnerships with local, state, federal, tribal, and other stakeholders to promote a whole-community approach to response, recovery, and mitigation.
- **Goal 6:** Identify, develop, and publicize evacuation routes to reduce risk from hazards like wildfire.
- **Goal 7:** Study and implement mitigation actions to address potential impacts of compounding hazards, such as floods following wildfires.
- **Goal 8:** Utilize the mitigation planning process as a call to action demonstrating the plan participants' commitment to work together toward implementing the mitigation actions identified in the plan.

Status of Previous Actions

The Wheeler Crest CSD did not participate in the last hazard mitigation plan update and therefore has no status updates to report at this time.

Considered Mitigation Actions

The mitigation strategy must include analyzing a comprehensive range of actions or projects the participants considered to address vulnerabilities identified in the risk assessment. The actions considered must emphasize reducing risk to existing buildings, structures, and infrastructure and limiting risk to new development and redevelopment. They must connect specifically to the risks and vulnerabilities identified in the risk assessment, including the specific hazards profiled by each plan participant. Types of actions considered for this plan update included the following:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

The Mitigation Action Plan may include additional response, preparedness, or prevention-focused actions, but these are not considered mitigation actions during the FEMA plan review process. A full list of actions considered can be found in Appendix C: Sample Mitigation Action Ideas.

2026 Mitigation Action Plan

The Mitigation Action Plan outlines the mitigation measures that the Wheeler Crest CSD has identified. Actions might not be completed in five years. Including long-term actions and priorities in the mitigation plan reflects a comprehensive approach to managing community resilience and reducing risk. Furthermore, it positions the plan participant to access post-disaster funding in the event of a disaster. As funding and resources become available, the Wheeler Crest CSD will pursue the mitigation actions included in this plan. Implementing mitigation actions like these will help save lives, protect property and livelihoods, and break the cycle of disaster damage and reconstruction.

Key components of the Mitigation Action Plan are defined as follows:

Hazards Addressed

- Avalanche
- Earthquake/Seismic Hazards
- Energy Shortages and Energy Resiliency
- Severe Wind
- Severe Winter Weather and Snow
- Wildfire

Responsible Agency

- The position, office, department, or agency responsible for implementing/administrating the identified mitigation action

Potential Funding

- Grants or local funding sources relevant to implementing the associated action

Cost Estimate

- A rough estimate of the project's cost, which may help determine which projects to pursue and when

Timeframes

- Short-term: 1–2 years
- Medium-term: 2–5 years
- Long-term: 5+ years

Community Lifelines

Community lifelines are essential for the continuous operation of critical government and business functions and are vital for human health, safety, and economic security. They represent the most fundamental services in the community, and when they are stabilized, they enable all other aspects of society to function. The FEMA community lifelines are as follows:[296]

- **Safety and Security**: Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, and Community Safety
- **Food, Hydration, Shelter**: Food, Hydration, Shelter, Agriculture
- **Health and Medical**: Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy**: Power Grid, Fuel
- **Communications**: Infrastructure, Responder Communications, Alerts, Warnings and Messages, Finance, 911, and Dispatch
- **Transportation**: Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Materials**: Facilities, Hazmat, Pollutants, Contaminants
- **Water Systems**: Potable Water Infrastructure, Wastewater Management

Priorities

Priorities are defined by the district. After considering the following evaluation criteria and the definitions, the district assigned a prioritization category of low, medium, or high to each natural hazard action item. The criteria to calculate the following priority categories (STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental) are listed in Table 287.

- **Low:** Based on one to two STAPLEE criteria, the action is feasible and important for the district but has multiple potential challenges. The action should be implemented as funding becomes available.

[296] FEMA. "Community Lifelines Implementation Toolkit." https://www.fema.gov/emergency-managers/practitioners/lifelines-toolkit.

- **Medium:** Based on three to four STAPLEE criteria, the action is feasible and important for the district, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the district with minimal to no concerns. It is essential for the district to implement and may be prioritized in the short term.

Table 286 shows the mitigation actions that the Wheeler Crest CSD has selected for this planning cycle.

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Table 286: Wheeler Crest Community Services District 2026–2031 Mitigation Actions[297]

#	Project Title	Hazard Addressed	Description	Responsible Agency	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifeline	Priority
1	Critical Facilities Generator Installation Project	Energy Shortage and Energy Resiliency, Wildfire, Severe Wind, Severe Winter Weather and Snow, Avalanche	Provide a generator to power water wells during extended power outages. Power outages can be caused by all of the hazards addressed, and the directly impact the district's electricity-dependent water systems and service.	Wheeler Crest Community Services District	Wheeler Crest Fire Protection District	HMGP, PDM	$34,000	1 year	Water Systems	High
2	Water Well Infrastructure System Upgrades	Earthquake	Water wells and water mains must be retrofitted or replaced to be more seismically resilient. Incorporating seismic concerns into the design may include utilizing new materials and techniques designed to improve seismic performance, reinforcing systems and developing redundancies.	Wheeler Crest Community Services District	Wheeler Crest Fire Protection District	HMGP, PDM	Unknown	1–3 years	Water Systems	High

[297] HMGP = Hazard Mitigation Grant Program, PDM = Pre-Disaster Mitigation.

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Mitigation Action Prioritization

The Wheeler Crest CSD considered the STAPLEE criteria when prioritizing their actions. Table 287 documents how each action was prioritized.

Table 287: STAPLEE Prioritization for the Wheeler Crest Community Services District

Action	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Priority
1	4	4	4	4	4	3	4	High
2	4	4	4	4	4	3	4	High

Plan Integration

One way to demonstrate progress in local mitigation efforts and increase the likelihood of mitigation action implementation is through plan integration. An updated mitigation plan describes how each plan participant integrated the previous plan or could integrate the prior plan into their respective planning mechanisms. Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, or other long-range plans, codes, and ordinances. Relevant components of hazard mitigation that could be integrated into other mitigation plans include the following:

- The integration of the hazards to which the community is vulnerable
- The data and analysis presented in the risk assessment
- The goals of the mitigation plan
- Potential projects or actions to be carried out in the future

Past Integration Efforts

The Wheeler Crest CSD did not participate in the previous hazard mitigation plan and therefore did not incorporate information from the prior plan into other planning mechanisms.

Future Integration Opportunities

The Wheeler Crest CSD identified future plan integration opportunities, as described in Table 288.

Table 288: Future Plan Integration by the Wheeler Crest Community Services District

Plan	Description	Process for Integration
Substantial Damage Plan	Community Services District planning mechanism (new)	The district will integrate the Multi-Jurisdictional Hazard Mitigation Plan risk assessment and mitigation actions to support ordinances and future strategic planning, including how the district prepares for and recovers from substantial damage to the district's water/wastewater infrastructure

Conclusion

The Wheeler Crest Community Services District has set forth in this annex its intentions to address the hazard risks facing the district related to frequent PSPS power outages and the impact on service delivery to its customers on its upper and lower water systems. The district hopes to acquire the necessary direct technical assistance and grant funding to implement its energy resilience program by installing backup generator systems in all of its facilities or providing a portable backup generator to transport between facilities as needed. The district looks forward to drawing from this hazard mitigation plan update to develop future mitigation projects that will support the district's identified goals and objectives and better meet the needs of its customers in the Swall Meadows service area.