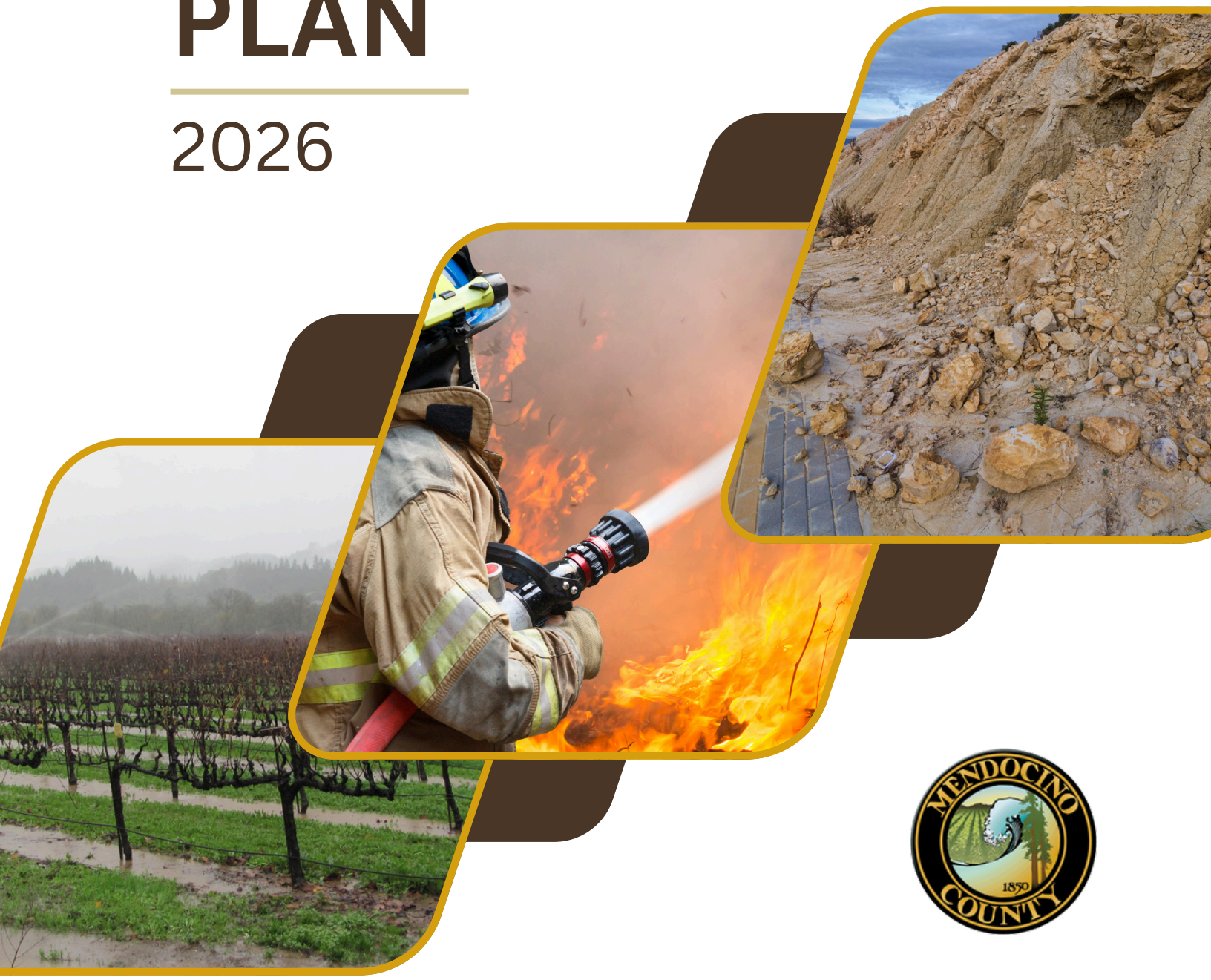
The County of Mendocino

HAZARD MITIGATION PLAN

2026



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SYNERGY DISASTER RECOVERY

Executive Summary

The 2026 Mendocino County Hazard Mitigation Plan (HMP) is a comprehensive, multi-jurisdictional strategy to reduce long-term risks to lives, property, environment, and critical infrastructure from natural hazards. Aligned with the Disaster Mitigation Act of 2000 and FEMA's Local Mitigation Planning Policy Guide (2025), this update to the 2021 plan ensures continued eligibility for FEMA Hazard Mitigation Assistance (HMA) grant programs. The plan integrates current hazard data, climate change projections, community priorities, and best available data, and provides a coordinated framework for mitigation actions from 2026–2031.

Mendocino County faces hazards including wildfire, earthquake, inland flooding, drought, severe storms, mass earth movements, extreme heat, cold/freeze, and tsunamis. Recent disasters and updated risk assessments identify wildfires, earthquakes, floods, droughts, and severe storms as the highest threats. Climate change is expected to worsen many of these hazards by increasing their frequency and strength. The HMP addresses these challenges through comprehensive hazard identification and risk assessment, capability evaluation, and prioritized strategies focusing on risk reduction, resilience, equity, and feasible actions.

This plan was developed and adopted by the Planning Partners, the local governments with the authority to implement mitigation actions, including the County of Mendocino, the Mendocino County Office of Education, and the Cities of Fort Bragg, Point Arena, Ukiah, and Willits, along with districts such as Covelo Fire Protection District, Redwood Coast Fire Protection District, and Noyo Harbor District. Each Planning Partner contributed local knowledge, hazard data, capability assessments, and specific mitigation actions, and is responsible for executing the plan.

The Core Planning Team (CPT), comprising representatives from all Planning Partners and stakeholders, including neighboring jurisdictions, utilities, nonprofits, community organizations, and federal and state agencies, guided the planning process. This inclusive approach incorporated diverse perspectives, existing plans, and considerations for vulnerable populations.

The mitigation strategy establishes six countywide goals to reduce risks, economic losses, enhance capabilities, raise public awareness, and promote hazard-resilient development. It prioritizes actions based on risk, feasibility, funding, equity, and community support. The County's Chief Recovery and Resiliency Officer will oversee plan maintenance, annual progress reviews, and integration into local planning.

Through ongoing collaboration, the 2026 Mendocino County Hazard Mitigation Plan provides an actionable roadmap to reduce disaster impacts and boost community resilience over the next five years.

Mitigation Strategy

The mitigation strategy is a central component of the hazard mitigation plan (HMP) and the primary outcome of the planning process. This strategy serves as a long-term framework for reducing the vulnerabilities identified in the **HAZARD IDENTIFICATION AND RISK ASSESSMENT**. The mitigation strategy outlines the approach the county and its participating local governments (i.e., Planning Partners) will take to meet the goals of the planning process.

While this document begins by focusing on this mitigation strategy, it is important to acknowledge the various components that informed the planning process. These inputs included decisions and information from the Planning Partners, Core Planning Team (CPT), and general public, in addition to the results of the risk and vulnerability assessment. All of this information is captured in detail across this plan.

1.1 Mitigation Goals

The County of Mendocino and its Planning Partners have identified the following goals as the overarching framework for Mendocino County's hazard mitigation strategy. The previous plan's goals have been completely revised to adequately capture the county's planned mitigation strategy. These broad goals express the overall, long-term vision for mitigating natural hazards throughout the county.

Goal 1: Reduce risk to the people, property, and environment from the impacts of natural hazards

Goal 2: Minimize economic losses from disaster events

Goal 3: Reduce the number of injuries, fatalities, and property damage, both public and private, due to natural hazards

Goal 4: Enhance local government mitigation capabilities, including human, technical, financial, and regulatory

Goal 5: Increase public awareness and education relating to natural hazards and mitigation

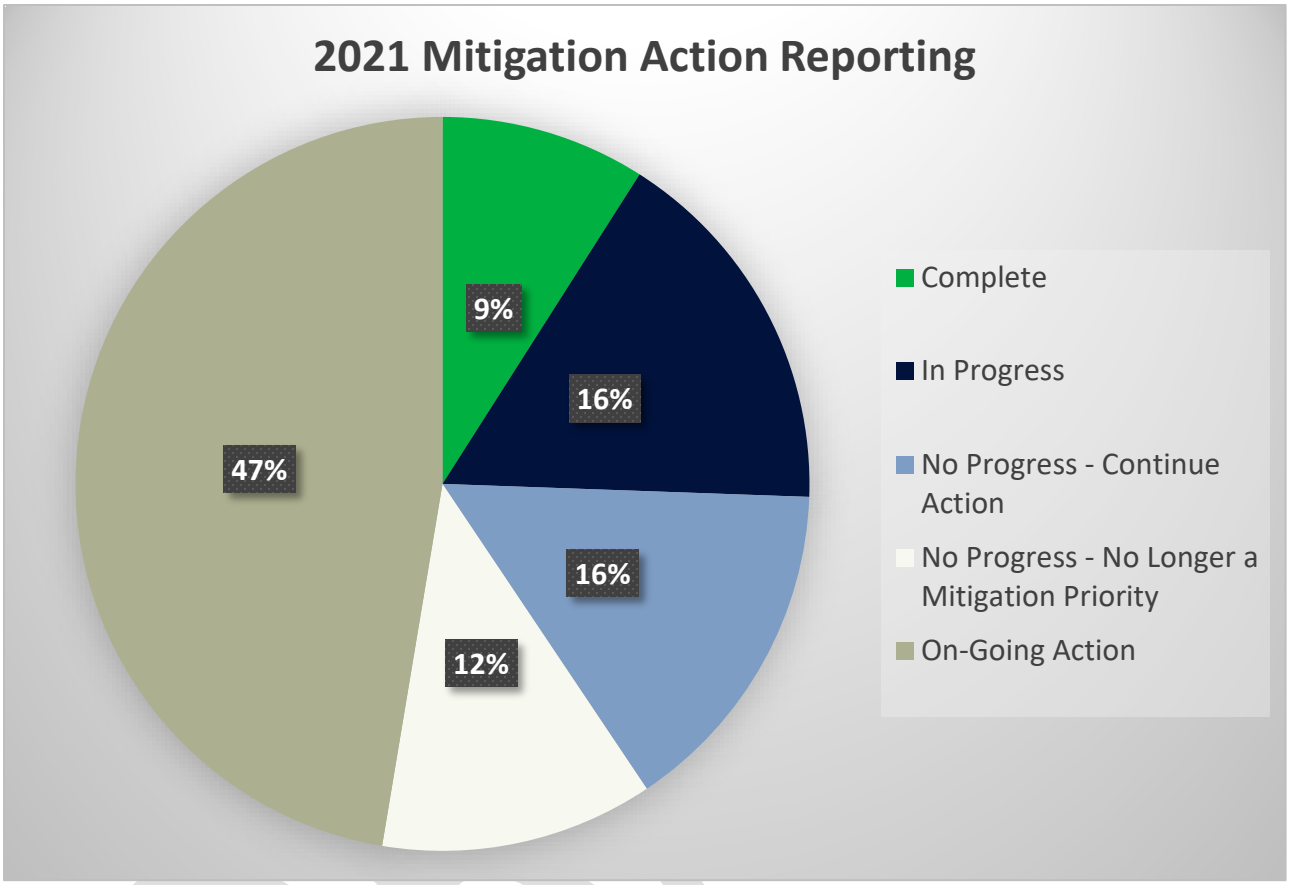
Goal 6: Promote hazard-resilient future development

1.2 2021 Mitigation Actions

As part of the plan update process, the county reviewed and reported on the status of all mitigation actions (i.e., projects) identified in the 2021 HMP. **FIGURE 1** summarizes the status of each previous mitigation action, while **APPENDIX B – 2021 MITIGATION ACTION STATUS REPORTING** provides more details on progress towards making the County of Mendocino more resilient to

the impacts of hazards. Status updates for each Planning Partner are available in their respective Planning Partner Annexes.

Figure 1 Summary Status of 2021 Mitigation Actions



As crucial as acknowledging completed efforts, continual community actions are often overlooked as examples of the positive implementation of the county's mitigation strategy. These actions are those without a timeline, but instead have continued milestones. Examples include education and outreach efforts, maintenance activities, ongoing planning updates, organizational coordination, and continuous efforts to improve processes and infrastructure.

In addition to the actions identified in the previous HMP, local organizations have achieved further mitigation successes. The following is a summary of these efforts:

- Fuels reduction work on Pine Mountain that augmented an existing fire break created by CAL FIRE. This collaborative effort between the Mendocino County Fire Safe Council and local neighbors helped to save structures threatened by the May 2025 Ridge Fire.
- A grant award received by the Redwood Forest Foundation to perform $2.8 million in wildfire mitigation work near Leggett. This funding from the U.S. Department of Agriculture will support the expansion and maintenance of fuel breaks along State Highway 1.

1.3 2026 Mitigation Actions

As part of the HMP update, the County of Mendocino and its Planning Partners compiled a revised list of mitigation actions (i.e., projects) to implement over the next five years. During the planning process, a comprehensive range of mitigation action types, including the protection of natural systems and nature-based solutions, education and awareness initiatives, structural and infrastructure projects, and local planning and regulations, were reviewed.

Planning workshops included discussions of the various mitigation ideas identified during the planning process. Attention was directed toward actions to reduce the impacts and vulnerabilities identified in the risk assessment, enhance current capabilities, or address capability gaps. Emphasis was also placed on identifying actions to mitigate the vulnerabilities of new and existing structures and infrastructure. A list of potential mitigation actions was provided to the Planning Partners for their reference. The list was developed based on community input from the pubic survey and public events, discussions during plan development workshops, and existing community plans.

After identifying the 2026 mitigation actions, the county and each Planning Partner prioritized each. According to the Federal Emergency Management Agency (FEMA) mitigation planning requirements, any prioritization system should emphasize the extent to which benefits are maximized. This requires a planning-level assessment of whether the costs are reasonable relative to the probable benefits of an action (a positive cost-benefit). Benefits may include preventing damage to structures and infrastructure, saving lives, reducing injuries, improving quality of life, and protecting ecosystems.

The County of Mendocino and its Planning Partners reviewed FEMA's suggested prioritization methodology and other methods to determine which the county would utilize. Ultimately, it was decided that the following criteria would be considered when prioritizing mitigation efforts:

- Risk Mitigation
- Revenue Impact
- Grant Availability
- Regulatory Requirement
- Staff Resource Allocation
- Strategic Alignment
- Community Support
- Equity

During the planning process, it was decided that the county and each Planning Partner would prioritize mitigation actions using a three-tiered methodology: High, Moderate, or Low.

- High Priority: These are critical and urgent actions that address a significant and imminent threat to life safety and critical infrastructure. They are cost-effective,

technically feasible, and have strong public support. These projects are considered essential for the community's immediate safety and well-being.

- Moderate Priority: These actions are important for reducing risk and protecting property but may address a less immediate or severe threat than high-priority items. They are generally cost-effective and feasible, but may have a longer implementation timeframe or require further study.
- Low Priority: These actions are desirable for further risk reduction but are not considered urgent. They may have a lower benefit-cost ratio, address a less significant hazard, or face implementation challenges such as funding constraints or a lack of political support. These projects are often considered for implementation as resources become available.

To ensure this updated HMP meets FEMA policy, one primary mitigation action has been identified per natural hazard (as defined by FEMA) for the county and each Planning Partner. As noted in **SECTION 4 RISK ASSESSMENT OVERVIEW** and in the Planning Partner Annexes, select hazards were identified as affecting the county, but have not been identified as a mitigation priority by some local governments. These hazard risks are denoted as not applicable (N/A) and no mitigation actions have been identified in these cases.

The County of Mendocino identified and prioritized the following mitigation actions. Refer to the **APPENDIX C – 2026 MITIGATION ACTIONS** for further details on each mitigation action listed below. The individual Planning Partner Annexes also present the identified mitigation actions for each local government.

1.3.1 Coastal Hazards

- **Medium Priority**
  - (ME1) Complete Update to the Local Coastal Program and Continued Program Implementation. Mendocino County's Local Coastal Program (LCP) has not been comprehensively updated since it was certified by the California Coastal Commission in 1992. The on-going update will include revisions to the Coastal Element of the General Plan (Land Use Plan, "LUP") and Coastal Zoning Code (Implementation Program, "IP"). The overall goal of the project is to improve local coastal planning in Mendocino County to better address coastal resiliency and climate change adaptation by updating technical studies, descriptions, policies, maps, and the implementation plan for the LCP in order to adapt to the impacts of climate change, sea level rise, and associated coastal hazards while maintaining the overall quality of the coastal zone environment in the interest of all people.
  - (ME2) Review and Identify Priority Projects from the Sea Level Rise Impact Assessment. A sea level rise study for Mendocino County is being conducted by the Mendocino Council of Governments (MCOG) to identify and prioritize coastal roads at risk from flooding and erosion. The study will assess impacts on

infrastructure, potential solutions, and develop preliminary cost estimates for roadway modifications.

1.3.2 Dam and Levee Incident

- **High Priority**
  - (ME3) Coyote Valley Dam Response Plan. HHPD: As part of the upcoming Flood Response Plan, develop a chapter devoted to the Coyote Valley Dam inundation.
- **Medium Priority**
  - (ME4) Public Dam/Levee Risk Educational Campaign. Develop an educational campaign to inform at-risk populations annually during the Spring about inundation risk and voluntary flood insurance. Utilize all of the county's messaging tools including social media and targeted mailings and communications. (past action ma-DF-MC-126)

1.3.3 Drought

- **High Priority**
  - (ME7) Include a Coastal Groundwater Study within the Local Coastal Program Update. Review study results and identify mitigation actions to prioritize for the hazard of drought.
- **Medium Priority**
  - (ME5) Coordination with Local Water Providers. Support water districts, cities, the Ukiah Valley Basin Groundwater Sustainability Agency (UVBGSA), or any other relevant agency in their infrastructure projects by encouraging, helping to facilitate coordination, assisting in identifying available grant funding, drafting letters of support, etc. Because the county is not a water purveyor, it likely would not take on any actual infrastructure projects, but rather serve in a support role to the water purveyor. The Water Agency has identified a related new mitigation action relating to a water supply study that could help inform those infrastructure projects.
  - (ME6) Improving Understanding of County's Water Supply Resources and Hydrogeology. Conduct countywide groundwater and geomorphology studies, well inventories, or additional groundwater monitoring and public outreach to fill existing data gaps. These efforts will enhance the understanding of local water supply systems and hydrogeology through coordination with relevant agencies, water entities, and the UVBGSA. These efforts will support more informed water management decisions and long-term drought resilience planning.
  - (ME50) Land Use Updates - Water Efficiency. Amend land use codes to incorporate regulations that encourage and incentive water savings for development. (ma-DR-MC-197)
- **Low Priority**

- (ME8) Drought Resistant. Replace existing turf grass and water intensive landscaping with drought resistant landscaping. (past action ma-DR-MC-198)
- (ME59) Public Water Conservation Campaign. Develop a public education campaign to encourage water conservation during drought. (ma-DR-MC-196)

1.3.4 Earthquake

- **High Priority**
  - (ME10) Gas Shut-Off Valves on County Buildings. Install seismic gas shut-off valves on county buildings to prevent the flow of gas into structures during a seismic event.
- **Medium Priority**
  - (ME11) Seismic Assessments and Retrofits. Conduct a seismic assessment of vulnerabilities to county facilities and infrastructure. Retrofit / harden OES and other county facilities (including water & sewer infrastructure) to improve the ability for these structures and infrastructure to withstand earthquakes.
- **Low Priority**
  - (ME9) Coordinating Countywide MOUs for All Districts. Create formalized MOUs for all school districts.
  - (ME60) Ramp & Bridge Sesmic Retrofits. Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, identified as needing replacement by the County, are located in an high ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency. (ma-EQ-MC-127)
  - (ME61) Private Critical Facility Seismic Assessments. Encourage privately owned critical facilities (e.g. churches, hotels, other gathering facilities) to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified. (ma-EQ-MC-200)
  - (ME62) Seismic Hardening of County-owned Critical Facilities. Retrofit/harden county-owned critical facilities (including water & sewer infrastructure) and buildings for their ability to withstand earthquakes. (ma-EQ-MC-201)
  - (ME63) County Facility Ceiling Retrofits. Retrofit non-compliant suspended ceilings in county buildings. This includes non-structural suspended gypsum dry-wall & cement plaster ceilings built 1950-1974. (ma-EQ-MC-202)

1.3.5 Extreme Cold or Freeze

- **Medium Priority**
  - (ME12) Cold/Freeze Mitigation Producer Educational Campaign. Develop an annual Spring outreach campaign. The goal to educate producers on solutions to mitigate losses from cold / freeze events.

1.3.6 Extreme Heat

- **Medium Priority**

- (ME13) Cooling Centers and Stations in Population Centers. Specific concerns in Anderson Valley / Boonville. County to evaluate the Admin and Library buildings for the need for backup generators if able to serve as designated cooling centers. Consider integrating charging stations as well. Centers could also serve as community resilience centers, a concept currently being piloted within the state.

1.3.7 Flood (Inland)

- **Medium Priority**
  - (ME14) Flood Management Plan. Develop a Floodplain Management & Flood Response Plan to address countywide flooding. Identify specific mitigation projects to reduce the magnitude, frequency, and severity of flooding in Mendocino County.
  - (ME16) Flood Proofing Assessment & Retrofits. Perform a feasibility study of flood proofing options for county facilities and analyze the drainage systems of all county facilities.
  - (ME17) Higher Regulatory Standards. Adopt higher regulatory standards (including but not limited to freeboard, comp storage, lower substantial damage thresholds, setback and fill restrictions) as means to reduce future flood risk and support a no-adverse-impact (NAI) philosophy to floodplain management.
  - (ME64) Stormwater Channel Inspection Program. Routinely inspect stormwater channels for vegetation build up or encroachment, trash and debris, silt and gravel build up, and erosion or bank failure. (ma-EW-MC-207)

1.3.8 Mass Earth Movements

- **Medium Priority**
  - (ME18) Slope Failure Location Inventory. Establish a priority list of slope failure locations and implement slope stabilization projects in the highest risk areas. (past action ma-SF-MC-225)

1.3.9 Severe Storms

- **High Priority**
  - (ME19) Vegetation & Tree Management Program. Develop a program to manage vegetation and trees in areas within and adjacent to rights of way in order to reduce the risk of tree failure and property damage and avoid the creation of wind acceleration corridors within vegetated areas. (past action ma-WS-MC-118)
  - (ME20) Vegetation & Tree Management Program. Develop a program to manage vegetation and trees in areas in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid the creation of wind acceleration corridors within vegetated areas. (past action ma-WS-MC-118)
- **Medium Priority**

- (ME21) Floodproofing Assessment. Perform a feasibility study for flood proofing options and analyze the drainage systems County-wide. (past action ma-EW-MC-208)

1.3.10 Tsunami

- **High Priority**
  - (ME22) Update Tsunami Sirens. All four tsunami sirens require either maintenance or replacement.

1.3.11 Wildfire

- **High Priority**
  - (ME24) Develop New & Maintain Fuel Breaks. Identify and develop a plan and maintenance schedule for key fuel breaks currently existing around population centers and other key resources; develop new fuel breaks as identified. One current priority is a shaded fuel break in Hopland.
  - (ME25) Evacuation Route Construction. As needed to ensure multiple ingress/egress routes from neighborhoods. Ukiah, Redwood Valley Calpella, and Round Valley/Covelo are particular areas of focus. Per the prioritized list other areas of focus include: Brooktrails, Mitchell Creek, East Hills Ukiah, Russian River Estates, and Potter Valley. Other specifics from Prepare CA efforts included: Anderson Valley/Boonville and Willits (Second Access out of Brooktrails, Tomki in Pine Mountain Area, Willits Creek Rd., Old Mill, and Ridge Rd at the top of Brooktrails subdivision).
  - (ME26) Evacuation Route Maintenance & Planning. Greatest concern with communities having only one ingress/egress route. Specific areas included surrounding Ukiah, Willits, and the following roads around Hopland (Mountain House Rd, US 101, Hwy 175, La Franchi Rd, Redemeyer Rd).
  - (ME27) Fire Road Atlas. Development of a Fire Road Atlas to inform planning efforts.
  - (ME28) Fire-Hazard Abatement Ordinance Implementation Planning and Capacity Building. The project aims to enhance public safety and reduce the risk of wildfires by developing a comprehensive and enforceable strategy for managing hazardous vegetation and combustible materials. Key tasks include researching best practices from other jurisdictions, analyzing the existing County ordinance (Chapter 8.77), and creating a tailored fuel abatement strategy specific to Mendocino County's rural context. The goal is to explore how other communities enforce hazardous fuel abatement for public safety, analyze existing ordinances, recommend a strategy for the county's program, and update ordinance language while estimating implementation resources.
  - (ME29) Fuels Reduction and Community Preparedness. Project goals include implementation of roadside fuels reduction in key areas, completion of CEQA

analysis for five future projects to streamline implementation, and funding the Mendocino County Community Chipper Days program for three additional years (225 days, serving 1,575 residents). The project will treat 66.2 acres in Covelo and Dos Rios, protecting 100-150 homes. The proposed CEQA projects (Branscomb, Black Bart Trail, Redwood Ridge, Old River Road, Hopland) aim to clear approximately 207 acres and enhance future funding opportunities.

- (ME30) Hazardous Fuels Reduction. Priority locations include: Anderson Valley/Boonville (removal of eucalyptus trees along road, Bell Springs Road (first four miles), Branscomb & Old River Road, Covelo Airport (control burn), Leggett (in coordination with Team Rubicon), Redwood Valley Calpella, and Round Valley/Covelo (along Highway 162)
- (ME31) Home Hardening / Fuels Management. The project intends a Phase 1 scoping project to design a Phase 2 program focused on home hardening and fuels management. Phase 1 involves hiring consultants, LIDAR mapping, public outreach, screening homes for fire hardening, identifying fuels treatment methods, site inspections, CEQA analysis, budget revisions, and report delivery. Phase 2 scope includes approximately 750 residential home retrofits using ignition-resistant construction materials and defensible space establishment, and approximately 1,520 acres of hazardous fuels reduction, including grazing, to build community resiliency to future wildfire events in the Brooktrails/Sherwood Corridor, targeted fuels reduction around City of Willits water treatment plant, with a specific target of at least 300 acres of grazing for fuels reduction and at least 5 acres of invasive species removal.
- (ME33) Orr Springs Road Fuels Reduction (Phase 1). Project reduces hazardous fuels along Orr Springs Road/Comptche-Ukiah Road to improve ingress and egress and aid in evacuations and access during fire events. Phase 1 includes hiring a project management contractor, completing a route survey to identify trees for removal, engaging with landowners on 183 parcels for access agreements, and developing an operations plan with revised project maps and CEQA review actions.
- (ME35) Redwood Complex Ignition-Resistant Construction, Phase 2 - Batch 2. Project entails replacing flammable roofing materials with ignition resistant roofing materials for properties within Mendocino County to help improve community resiliency in the face of wildfire.
- (ME36) Road Addressing, Signage, & Mapping. Ensure addresses and locations are easily accessed during emergency, especially in the WUI. Methods include installation of high visibility street signs and address markers, partnering with County Fire Chiefs to reduce overlapping, duplicate, or misordered street and address markings.

  - (ME37) Support External Programs to Reduce Fuel Loads. Continue to support programs to reduce fuel loads in the county, including but not limited to continuing the chipper program, mastication and removal of fuels, and encouraging prescribed burns when practicable.

- **Medium Priority**
  - (ME32) Lifeline Hardening Assessments. Provide hardening assessments to public critical facilities (adult care, child care, schools, and railway infrastructure) to identify recommended mitigation.
  - (ME34) Potter Valley Road Widening Project. Widen for safety, emergency access, and evacuation.
- **Low Priority**
  - (ME23) County Road Evacuation Route Signage. Primary focus areas are Nash Ranch, the Navarro Area, Baldwin Hills, and Anderson Valley / Boonville
  - (ME54) Critical Facility Hardening and Defensible Space. Retrofit critical facilities (adult care, child care, schools, railways) with fire-resistant materials and create defensible space around structures. (ma-WF-MC-227)
  - (ME56) Vegetation Management Program. Coordinate with fire protection agencies to develop vegetation management program to remove understory brush, hazardous trees, and excessive fuels around county roads and evacuation routes. (ma-WF-MC-239)
  - (ME67) CWPP Implementation & Support. Implement and continue to re-prioritize Mendocino County CWPP Mitigation Projects and support smaller scale neighborhood and community plans as appropriate. (ma-WF-MC-287)

1.3.12 Multi-Hazard

- **High Priority**
  - (ME38) 911 Switching Equipment. Project entails the purchase and installation of an approximately 760-square-foot prefabricated bunker-type structure (bunker) to house 911 switching equipment, the replacement of the existing building's electrical panels, and a new generator.
  - (ME38) 911 Switching Equipment. Project entails the purchase and installation of an approximately 760-square-foot prefabricated bunker-type structure (bunker) to house 911 switching equipment, the replacement of the existing building electrical panels, and a new generator.
  - (ME40) Community-Based Emergency Preparedness Program. Program will focus on education relating to the public's need to sustain themselves for 72-hours following disaster events (cots, non-perishable food, supplies, etc.).
  - (ME41) Critical Generators Mitigation Project. Project ensures county continuity of operations during power outages due to public safety power shutoffs and disaster events. Phase 1 deliverables will include procurement for a design

consultant, regulatory permitting where needed, project design for finalizing each site's generator capacity and site design, and other administrative tasks to install generators at five County facilities.

- (ME43) Grants Capacity Building. The objective of the capacity building grant is to establish a Grants Unit within the Executive Office. This unit will improve the processes of grant research, application development, and reporting. The initiative will include acquiring grant management software and hiring consultants to provide technical expertise and assist with grant writing.
- (ME45) Microwave and Radio Communication System Enhancements. Project entails improved reliability and resiliency of microwave and radio communications systems through procurement and installation of higher capacity, upgraded microwave equipment (16 sites to receive upgraded equipment).
- (ME46) Mobile Communications Van. Purchase a utility van equipped with HAM radio & other emergency communication tools. This will ensure the dissemination of vital communication, and effective event response and deployment of services.
- (ME48) Tomki Creek Crossing. Implement design for the evacuation route improvements within Tomki (secondary egress Willits to Ukiah).
- (ME49) Westport / Whale Gulch Repeater. This is currently a dead area for communications. Can put repeater on existing pole.

- **Medium Priority**
  - (ME39) Resiliency Center Development. The county will coordinate with local communities to develop formalized resiliency centers within existing public buildings.
  - (ME44) Microwave (Repeater Site) Hardening. Harden repeater sites to ensure uninterrupted communications.
  - (ME47) Natural Hazard Mitigation Educational Campaign. Develop a public outreach program that distributes consistent hazard mitigation content and mitigation tips for property owners. Engagement will utilize regular (monthly) social media posts and booths at annual public events (County Fair, Pumpkin Fest, etc.).
  - (ME55) Code Updates for Response Improvements. Update County Code/ Land Use Regulations/Subdivision Design Guidelines to include design and siting standards to incorporate, for example, emergency response access and turn around space or fire suppression water needs. (ma-WF-MC-238)
- **Low Priority**
  - (ME42) Emergency Warning Siren Feasibility and Installation Project (Phase 1). Project address the county's multiple hazards through the installation and management of early warning sirens. Phase 1 deliverables include conducting

site specific workplans, mapping and land use planning, permitting and environmental activities. Phase II pending FEMA review.

- (ME51) Critical Facility Upgrades (Pandemic). Assess and institute necessary upgrades to critical facilities to allow for usage during pandemic, including adequate ventilation and physical barriers. (ma-PN-MC-222)
- (ME52) Shelter Upgrades (Pandemic). Institute necessary structural improvements to evacuation centers/sheltering locations to allow for proper ventilation, space for staff, and structural barriers to be used during pandemic and hazard event. (ma-PN-MC-223)
- (ME53) Alternative Sheltering Locations. Develop alternative sheltering/ evacuation locations for social distancing required during pandemic and other hazard event. (ma-PN-MC-224)
- (ME57) Class K Structure Owner Education. Develop an education program to inform both existing Class K structure owners and applicants of building permits for Class K structures of the inherent risks of such structures to all natural hazards. (ma-AH-MC-205)
- (ME65) Asbestos Awareness. Develop educational outreach during the building permit process to raise awareness about the presence naturally occurring asbestos. (ma-SH-MC-206)

1.4 Mitigation Capabilities

The following mitigation capability assessment evaluates the County of Mendocino's ability to implement and oversee the comprehensive mitigation strategy outlined in this HMP. It identifies strengths, weaknesses, and resources to ensure effective and appropriate management of the county's hazard mitigation program.

Refer to the Planning Partner Annexes for each local government's updated capability assessment. Note that this assessment evaluated different capabilities depending on the type of local government, as some do not apply to special districts and, therefore, were not assessed.

Mitigation capabilities are classified into the following types:

- Planning & Regulatory
  - Plans
  - Building Code, Permitting, & Inspection
  - Land Use Planning & Ordinances
- Administrative & Technical
  - Administration
  - Staff
  - Technical

- Financial
    - Funding Resources
- Education & Outreach
    - Programs & Organizations

1.4.1 Planning and Regulatory Capabilities

Planning and regulatory capabilities are powerful tools for implementing hazard mitigation. The county and local governments currently utilize or have implemented many of these capabilities, as shown in the list below and the Planning Partner annexes. The county supports local government with some of these available capabilities. It is essential for the county to regularly review these tools, identify opportunities for additional risk reduction efforts, and explore ways to enhance the capabilities of the local governments.

1.4.1.1 Capabilities In Place

- Building Codes (Year)
    - 2025 California Building Standards Code
- Zoning Ordinance
- Subdivision Ordinance
- Hazard-Specific Ordinance
    - Regulations for Limited Density Rural Dwellings (Ch. 18); Fire Safety Requirements (18.23.345); Unreinforced Masonry Buildings Article 1 (Ch. 18); Mitigation Program (18.30.060)
- Site Plan Review Requirements
- Capital Improvement Program or Plan (CIP)
- Stormwater Program, Plan, or Ordinance
    - Mendocino County Storm Water Management Program Annual Report; Coastal Mendocino Co. Storm Water Resource Plan, 2019 Update, applies to the County Unincorp. and Fort Bragg.
- General Plan Safety Element
    - Safety Element part of the Development Element, adopted 2021
- Community Wildfire Protection Plan (CWPP)
    - 2025 County-wide CWPP
- Local Emergency Operations Plan
    - Mendocino County Operational Area Emergency Operations Plan (2025)
- Continuity of Operations Plan (COOP)
- National Flood Insurance Program (NFIP) Participant
- Floodplain Ordinance
- Flood Insurance Study
- Flood Insurance Rate Map/DFIRM
- Growth Management Ordinance

    - Chapter 4.13 of the Coastal Element for the County includes growth management policies.
- Erosion / Sediment Control Program
    - County provides documents such as Erosion and Sediment Control Best Management Practices and Erosion and Sediment Control Practices for Construction Projects
- Other (Relevant Permitting or Inspections/Relevant Plans)

1.4.2 Administrative and Technical Capabilities

Administrative and technical capabilities include staff, working groups, and technology, which are vital for a community to implement hazard mitigation. The county and local governments currently utilize or have implemented many of these capabilities, as shown in the list below and the Planning Partner annexes.

1.4.2.1 Capabilities In Place

- Planner/Engineer (Land Development)
    - Department of Planning and Building Services
- Engineer/Professional (Construction)
    - Department of Planning and Building Services
- Floodplain Administrator
    - Building Official serves as Floodplain Administrator
- Public Information Officer
    - Division of Information Services.
- GIS Specialist and Capability
    - Mendocino County Public GIS Portal
- Emergency Manager
- Building Official
- Grant Writing / Management
- Warning Systems / Services (general)
- Mutual Aid

1.4.3 Financial Capabilities

A community's ability to implement a comprehensive mitigation strategy depends on available funding. The county and local governments currently utilize or have implemented some of these capabilities, as shown in the list below and Planning Partner annexes.

1.4.3.1 Capabilities In Place

- Levy for Specific Purposes with Voter Approval
- Utilities Fees
- System Development / Impact Development Fee
    - The Building Division Master Fee Schedule

- General Obligation Bonds to Incur Debt
- Capital Improvement Project Funding

1.4.4 Education and Outreach Capabilities

Education and outreach are essential capabilities, allowing a community to continue the conversation with the public regarding hazard risks and mitigation opportunities. The county and local governments currently utilize or have implemented some of these capabilities shown in the list below and Planning Partner annexes.

1.4.4.1 Capabilities In Place

- Website Dedicated to Hazard Topics
- Social Media
- Community Newsletter
    - County Newsletter
- Fire Safe Councils
    - The Mendocino County Fire Safe Council assists local councils with a variety of needs.
- Other Relevant Programs or Organizations
    - The Mendocino County Resource Conservation District has implemented a wide range of programs across the County; Hazard information availability at Library/Planning Desk; Ability to field public technical assistance requests

1.4.5 Capabilities to Add/Enhance

Local governments are encouraged to use this assessment to identify mitigation capabilities to support expansion and improvement of their mitigation efforts. The ability to do so depends on elected leaders, management, and available resources, including funding and staffing. Grant opportunities are also available to support these enhancements.

The county has identified expanding the identification and use of external funding for hazard mitigation as the top capability priority to improve over the next five years. Additionally, the **2026 MITIGATION ACTIONS** section details several actions by local governments aimed at strengthening these mitigation capabilities.

1.5 Compliance with Floodplain Requirements

The National Flood Insurance Program (NFIP) provides federally backed flood insurance to homeowners, renters, and business owners in participating communities. The Flood Insurance Rate Map (FIRM) is the primary tool for identifying the extent and location of flood hazards, showing base flood elevations and the 100- and 500-year floodplain boundaries. FIRMs provide detailed and consistent data and represent the minimum oversight area under their floodplain management program for many communities.

Participants in the NFIP must, at a minimum, regulate development in floodplain areas by NFIP criteria. Before issuing a permit to build in a floodplain, participating local governments must ensure the following requirements are met:

- New buildings and those undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain development must not aggravate existing flood problems or increase damage to other properties.

The NFIP looks to reduce flood risk after a flood event. It does this through substantial damage/substantial improvement rules. These rules apply when a structure is more than 50% damaged or improved (by cost). The owner must build in a way that complies with current building codes and ordinances by going through the floodplain application and permit process. This applies even if the structure was exempt from those rules before the damage or improvement. It also applies to damage from non-flood events, such as fire or wind. Substantial damage or substantial improvement allows communities to require owners of structures built before they joined the NFIP to comply with current standards. Communities are responsible for making substantial damage or substantial improvement determinations and notifying property owners.

The County of Mendocino, City of Fort Bragg, City of Point Arena, City of Ukiah, and City of Willits all currently participate in the NFIP program. The county and participating communities are currently in good standing with the provisions of the NFIP. The county has recently amended its Mendocino County Code Chapter 22.17 (Floodplain Ordinance) to comply with federal and state regulations, including conformance with the newly adopted Flood Insurance Study (FIS) and FIRM whose effective date is September 19, 2025.

Each local government will continue compliance, including enforcing all locally adopted floodplain management regulations concerning existing structure improvements and new construction, and will be monitored by FEMA regional staff. Maintaining compliance under the NFIP is an essential component of flood risk reduction.

Currently no communities in Mendocino County participate in FEMA's Community Rating System (CRS) Program, which provides an opportunity to earn policy discounts to insurance premiums.

The following list provides details on the county's NFIP participation and current policy coverage as of July 31, 2025.

- Date of Entry: 06/01/83
- Initial Flood Hazard Boundary Map (FHBM) Identified: 01/03/74
- Initial FIRM Identified: 06/01/83
- Policies in Force: 192 (410 countywide)
- Total Coverage: $52,597,200 ($108,382,200 countywide)

As of July 31, 2025, 40 policy claims had been made in the county's unincorporated areas, totaling $1,049,851 in payments, including building and content values since 1980. Countywide a total of 77 claims have been made, totaling $2,056,438 in payments. The unincorporated county has one Repetitive Loss property near Ukiah and a Severe Repetitive Loss property in Navarro.

Adopting floodplain management rules is only effective if the rules are followed and enforced. Implementation and enforcement of local floodplain regulations (i.e., "compliance") is achieved through the following:

- Continuing to participate in FIRM updates and adopt floodplain maps when created/updated
- Implementing, maintaining, and updating floodplain ordinances
- Continued designation of a local floodplain manager whose responsibilities include reviewing floodplain development permits to ensure compliance with local floodplain management ordinances and rules
- Suggest improvements to the enforcement of, and compliance with, regulations and programs
- Promote and educate the public on the benefits of flood insurance

The county's NFIP compliance is implemented through the County Building Official as the appointed Floodplain Administrator to implement and enforce the provisions of Chapter 22.17 Floodplain Ordinance of the County Code and other appropriate Sections of 44 CFR (National Flood Insurance Program regulations) pertaining to floodplain management.

Refer to the Planning Partner Annexes for each local government's NFIP and insurance details, and specific designations for implementing floodplain management ordinances.

1.6 Plan Monitoring and Maintenance

The County of Mendocino and its Planning Partners have agreed upon the following HMP maintenance procedures. It was determined that the County of Mendocino's Chief Recovery and Resiliency Officer (CRRO) will serve as the primary point of contact for these maintenance tasks. This individual will coordinate all efforts to monitor, assess, and update the HMP.

Throughout the year, the CRRO will monitor events that may require revisions to sections of the HMP. Reasons for these updates may include, but are not limited to: major disaster events (impacting the county or other communities nationwide); changes in hazard risk or vulnerability due to population change, development, or climate change impacts; changes in available funding resources; updated hazard studies or information; changes in governmental organizational structure and capabilities; or public input/concerns. The CRRO will track hazard events that do not require an immediate update to the HMP for integration into the five-year update.

Annually, in the Fall, the CRRO will coordinate an HMP annual review meeting to include all Planning Partners within the county. This meeting will be scheduled to follow the California Financing Coordinating Committee's Fall Funding Fair, allowing updates on available funding sources to be shared and discussed.

In preparation for this meeting, the CRRO will request status reporting on all mitigation actions identified in this HMP. Responses will be compiled from all Planning Partners, and the results will be broadcast via the Monthly CEO Report.

This publicly available report will summarize progress made, challenges in implementation, and the results of funding programs pursued for hazard mitigation.

An evaluation of the HMP's effectiveness will be measured directly from these annual progress reports.

Additionally, the annual review meetings will provide an opportunity for local governments to amend existing mitigation actions or to append newly identified actions to the HMP.

Starting in the third year of the HMP's five-year lifespan, the CRRO will begin efforts to secure funding and resources for the next update process. At this time, it will be determined who will lead this effort and if outside organizations or consultants will be utilized for technical assistance.

APPENDIX F – PLAN MAINTENANCE RESOURCES provides templates to help guide and facilitate the annual plan monitoring and maintenance process.

1.7 Planning Integration

Integrating the HMP into other planning mechanisms is crucial for effectively implementing the mitigation strategy. This also benefits communities by preventing conflicts among planning documents. The county utilized the 2021 HMP when developing grant applications and also used the plan to guide and support exercises. Refer to the Planning Partner Annexes to see how the Planning Partners incorporated the 2021 HMP into their local planning.

The county plans to incorporate the updated HMP into several efforts, including future mitigation grant applications, updates to the General Plan, and for countywide grant prioritization efforts. Refer to the Planning Partner Annexes to see how Planning Partners intend to incorporate the 2026 HMP into their local planning mechanisms.

1.7.1 Incorporation of Existing Plans and Information

All HMP-relevant existing plans, studies, reports, data, and technical information were reviewed during the planning process. The following list provides an overview of how county and regional resources were incorporated into the 2026 HMP. Refer to the Planning Partner Annexes for a list of existing local plans and information that were utilized.

These plans and workshops helped to inform the hazard profiles and the updated mitigation strategy:

- The County of Mendocino Community Wildfire Protection Plan (CWPP), 2025
- The County of Mendocino Local Coastal Program Update, 2023-2026
- The County of Mendocino Sea Level Rise Resiliency Strategy, 2023-2025
- The County of Mendocino Drought Resilience Plan, 2025
- The County of Mendocino Safety Element Update/Climate Vulnerability Assessment Report, 2021
- The County of Mendocino Prepare CA Community Workshops, 2023
- The County of Mendocino Multi-Jurisdictional Hazard Mitigation Plan, 2021
- The County of Mendocino General Plan, Development Element, Coastal Element, 2021
- The County of Mendocino Fire Vulnerability Assessment for Mendocino County, 2020
- Ukiah Valley Groundwater Sustainability Plan, 2022
- The State of California Enhanced State Mitigation Plan, 2025
- The State of California Fourth Climate Change Assessment – North Coast Region Report, 2018-2019
- Existing Conditions Analysis for County of Mendocino Sea Level Rise Resilience Strategy, 2025

1.8 Continued Public Engagement

Ongoing public engagement during the next five years of the HMP is essential for maintaining community support for the mitigation strategy. The county plans to continue public hazard and mitigation engagement through the following tools: (Refer to the Planning Partner Annexes for Planning Partners' public engagement activities)

- Hazard education and booth materials at the annual PumpkinFest in October, the County Fair in September, the Comptche Barbeque event in June, and the Laytonville Resource Fair in May.
- Through regular social media posts from the Office of Emergency Services and regular radio spots on local stations.
- Through coordination with GO (Growing Older) Comptche community group.
- Through publication of the annual HMP maintenance summary report in the Monthly CEO Report.

Additionally, the County of Mendocino will continue engaging with local groups and nonprofits to encourage ongoing conversations on hazard mitigation. Organizations that will be coordinated with include, but are not limited to, the North Coast Resource Partnership (NCRP), the Redwood Coast Tsunami Work Group, the Countywide Drought Task Force, the Redwood Forest Foundation, and the Mendocino County Fire Safe Council.

1.9 Changes in Community Priorities

Communities are constantly evolving throughout the HMP's five-year lifespan. This can result in shifts in local government priorities related to hazard mitigation. Factors that could impact these priorities include recent disaster events, changes in local resources, needs, or capabilities; new state or federal policies and funding resources; newly identified hazard impacts from updated risk assessments; or changes in growth and development. Conversely, some communities may not have experienced significant changes that would affect the updated HMP.

The county has noticed increased public attention to many natural hazards that can affect the area, including wildfires, tsunamis, drought, winter storms (North County), and earthquakes. The frequency of these hazard events seems to have increased recently. This additional attention is driving the desire for more mitigation action at the county level. Refer to the Planning Partner Annexes for changes in priorities for each Planning Partner.

Planning Process

This HMP has been adopted by local governments within the County of Mendocino, as authorized by the State of California. This HMP was developed following current state and federal rules and regulations governing local HMPs and shall be monitored and updated on a routine basis to maintain compliance with the following legislation and guidance:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C., Section 322, Mitigation Planning, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390) and by FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201

The following FEMA guides and reference documents were used to prepare this document:

- FEMA. Local Mitigation Planning Policy Guide. April 11, 2025
- FEMA. Local Mitigation Planning Handbook. June 2025

2.1 Background

The 2026 County of Mendocino HMP is a multi-jurisdictional plan that includes many local municipalities and special districts (i.e., Planning Partners). This updated HMP was built on previous county HMPs developed in 2014 and 2021 and closely referenced the 2023 State of California Enhanced State Hazard Mitigation Plan (E-SHMP). The HMP must be updated and approved by FEMA every five years to keep it current and to maintain eligibility for FEMA Hazard Mitigation Assistance (HMA) Grant Programs.

2.2 Update Process and Methodology

The planning process began in June 2025, with the county hiring a consultant to guide the HMP's development. Initial efforts included the identification of the Core Planning Team (CPT), which included all Planning Partners and Stakeholders (a full roster is provided in **APPENDIX D – CORE PLANNING TEAM**). These individuals and organizations were invited to participate via email, announcements at other meetings and events, individual discussions, and through other interactions. The roster highlights those individuals who participated in the planning workshops and details those community sectors that each individual represents.

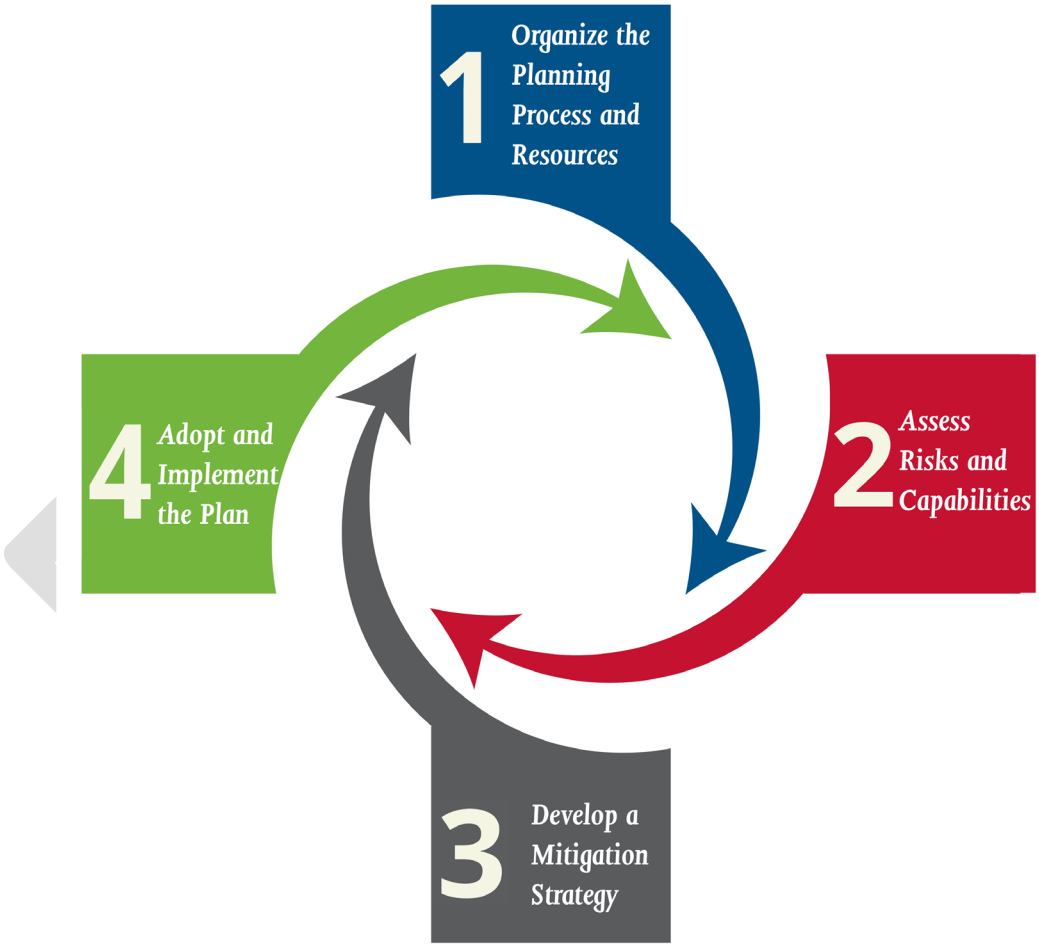
A summary of those sectors invited to the planning process included:

- Hazard Mitigation (Emergency Management, Public Works, Floodplain Admin., GIS)
- Regulating Development (Zoning, Planning, Community/Economic Development, Building Officials, Planning Commissions, Elected Officials)
- Neighboring Communities

- Businesses, Academia, Other Private Interests (Utilities, Chambers of Commerce, Dam Owners, Educational Centers, Major Lifeline Employers)
- Nonprofit & Community-Based Orgs. (Faith-based, Disability, NGO, Rural Support, Health & Human/Social Services, Housing Agencies)
- State Dam Safety Agency
- Public

A total of three CPT workshops were held between July 2025 and February 2026. Additionally, two rounds of individual coordination meetings were facilitated with each Planning Partner. Summaries from these workshops are provided later in this section. The planning process followed FEMA's recommended four-step mitigation planning process, as shown in.

Figure 2 Hazard Mitigation Planning Process



2.2.1 Planning Partners

The following local governments were formal participants in the planning process and adopted this HMP. New Planning Partners since 2021 are identified with an asterisk (*).

- The County of Mendocino

- Mendocino County Office of Education
- City of Fort Bragg
- City of Point Arena
- City of Ukiah
- City of Willits
- Covelo Fire Protection District*
- Redwood Coast Fire Protection District*
- Noyo Harbor District*

2.2.2 Core Planning Team (CPT)

The planning process also provided opportunities for neighboring communities, stakeholders, private and nonprofit organizations, and local, regional, state, and federal agencies to be involved. The CPT includes those individuals or groups that a mitigation action or policy affects. All CPT members were invited to engage in each planning workshop and contribute pertinent information to support the revision of the HMP. These contributions offered diverse insights from the community, which are essential components of an effective and comprehensive planning process.

Stakeholders invited to participate and contribute to the HMP update included the following:

- All neighboring counties in California
- Anderson Valley Senior Center
- Anderson Valley Village
- Blue Zones Project – Mendocino
- Caspar Community Center
- Climate Action Mendocino
- Cloud Forest Institute
- Community Development Commission of Mendocino County (CDC)
- First 5 Mendocino
- Ford Street
- Grass Roots Institute
- Gualala Municipal Advisory Council (GMAC)
- Hopland Municipal Advisory Council (HMAC)
- Laytonville Area Municipal Advisory Council (LAMAC)
- Laytonville Healthy Start
- Legal Services of Northern California – Ukiah
- Long Valley Health Center – Laytonville
- MCAVIN Care and Prevention Network
- Mendo Food Network
- Mendocino Area Parks Association

- Mendocino Cannabis Alliance
- Mendocino Coast Children's Fund
- Mendocino Coast Street Medicine Project
- Mendocino Community Health Clinic
- Mendocino County Resource Conservation District
- Mendocino County Tourism Commission-Visit Mendocino
- Mendocino County Youth Project
- Mendocino Farm Bureau
- Mendocino Land Trust
- Mendocino Wine Growers Association
- Mendonoma Health Alliance
- Neighborhood Fire Safe Councils
- North Coast Energy Services
- North Coast Opportunities
- North Coast Regional Office
- Northern Mendocino Ecosystem Recovery Alliance (NM-ERA)
- Noyo Center for Marine Science
- Noyo Food Forest
- Plowshares Community Dining Center
- Potter Valley Youth and Community Center
- Project Sanctuary
- Redwood Coast Medical Services
- Redwood Coast Regional Center
- Redwood Coast Seniors
- Redwood Valley Municipal Advisory Committee (RVMAC)
- Round Valley Area Municipal Advisory Council (RVAMAC)
- Round Valley Family Resource Center
- Rural Communities Housing Development Corporation
- University of California Agriculture and Natural Resources (UC ANR) Hopland Research and Extension Center
- County VOADs
- West Business Development Center
- Westport Municipal Advisory Council (WMAC)
- Workforce Alliance of the North Bay
- Albion- Little River Fire Protection District
- Anderson Valley Fire Department
- Brooktrails CSD Fire Department
- Comptche Fire Department

- Covelo Fire Department
- Elk Fire Department
- Fort Bragg Fire Department
- Hopland Fire Department
- Laytonville-Long Valley Fire Department
- Leggett Valley Fire Department
- Little Lake Fire Department (Willits)
- Mendocino Fire Department
- Piercy Fire Department
- Potter Valley Fire Department
- Redwood Coast Fire Department
- Redwood Valley-Calpella Fire Department
- South Coast Fire Department
- Ukiah Valley Fire Authority
- Westport Volunteer Fire Department
- Whale Gulch Valley Fire Department
- Cahto Tribe
- Consolidated Tribal Health Project
- Coyote Valley Band of Pomo Indians
- Guidiville Indian Rancheria
- Hopland Band of Pomo Indians
- InterTribal Sinkyone Wilderness Council
- Manchester-Point Arena Band of Pomo Indians
- Northern Circle Indian Housing Authority
- Pinoleville Pomo Nation
- Potter Valley Tribe
- Redwood Community Services (RCS)
- Redwood Valley Little River Band of Pomo Indians of the Redwood Valley Rancheria
- Round Valley Indian Health Center – Covelo
- Round Valley Tribal Council
- Scotts Valley Band of Pomo Indians
- Sherwood Valley Rancheria of Pomo Indians
- Pacific Gas & Electric (PG&E)
- CAL FIRE - Mendocino Unit
- Cal Governor's Office of Emergency Services (OES)
- California Coast Commission
- Caltrans
- Coastal Commission: North Coast District

- California Division of Safety of Dams
- California State Parks
- U.S. Army Corps of Engineers
- US Coast Guard
- U.S. Forest Service - Mendocino National Forest

Stakeholders specific to the Planning Partners can be found in the Planning Partner Annexes.

2.3 Planning Activities

The following sections detail those meetings and workshops conducted as part of the HMP planning process. Significant points of discussion and decisions made are provided.

2.3.1 Pre-Kickoff Meeting

An initial virtual meeting with Mendocino County and the consulting team, Synergy Disaster Recovery, was held on June 5, 2025. The meeting aimed to discuss the planning process and schedule the kickoff workshops. The following topics were discussed.

- Overview of hazard mitigation plan requirements
- Project scope and schedule
- Roles and responsibilities
- Public engagement strategy
- Input on the previous plan and recent planning efforts
- Hazards to profile
- Recent hazard events
- Lifelines and analysis
- Next Steps

The county agreed that to best engage the CPT, and especially the Planning Partners, a series of four kickoff workshops would be facilitated in-person at locations scattered across the county.

2.3.2 CPT Kickoff Workshops

In-person kickoff meetings were held at the following locations and dates. The CPT was invited to participate in any of these workshops, as schedules and logistics permitted. Planning Partners who participated are noted.

- July 16, 2025
    - Meeting #1 (hybrid) Mendocino County EOC: Mendocino County, Office of Education, City of Ukiah
    - Meeting #2 (in-person) Willits Fire Station: City of Willits, Covelo Fire Protection District, Cahto Tribe, Cal OES
- July 17, 2025

- Meeting #3 (in-person) Fort Bragg Police Station: City of Fort Bragg, Fort Bragg Police, Noyo Harbor District
- Meeting #4 (in-person) Point Arena City Hall (Veteran's Hall): City of Point Arena, Redwood Coast Fire Protection District

The following topics were discussed at each kickoff meeting.

- Hazard mitigation overview
- Project scope and schedule
- Roles and responsibilities
- Public engagement strategy
- Initial plan update input
- Hazards to profile and recent events
- Lifelines
- Mitigation strategy
- Mitigation grant funding
- Next steps

The CPT reached an agreement on the new hazards to profile. Input was collected about the preferred public engagement strategy and potential community events to leverage as part of the HMP update. CPT members also provided roster additions to be included in all future HMP project messaging and workshop invites.

2.3.3 CPT Risk Assessment Workshop

A virtual risk assessment workshop was held on October 8, 2025, for the entire CPT. In total, 35 individuals joined the webinar. The workshop focused on presenting and discussing the completed risk and vulnerability assessment results. This informed all stakeholders and prepared the Planning Partners with the information needed for the upcoming Individual Coordination Meetings. Planning Partners also reviewed the preliminary results of the public survey findings on perceived hazards.

The session concluded with planning for the individual coordination meetings, during which each Planning Partner's specific hazard vulnerabilities would be captured.

2.3.4 Individual Coordination Meetings

A second round of in-person Individual Coordination Meetings were held on October 16 and 17, 2025, and virtual meetings were held with the Covelo Fire Protection District on October 27, 2025 and the County Office of Education on October 28, 2025. These meetings were held with either the Planning Partner's Steering Committee or its sole local point of contact.

These meetings were crucial for gathering local input that's essential for a successful and ultimately FEMA-approvable HMP. The discussion focused on several topics, including:

- Past action status reporting
- Mitigation capability review
- Local vulnerabilities & changes relating to development
- Hazard risk ranking
- Identification of new mitigation actions
- HHPD (county only)
- Past HMP incorporation / future HMP integration
- Continued public involvement
- Changing priorities
- Mitigation goals (county only)

The takeaways from these meetings are captured across this updated HMP.

2.3.5 CPT Mitigation Strategy Workshop

[future event]

2.3.6 Draft Plan Review

Following the individual coordination meetings, a complete draft of the updated HMP, including all Planning Partner Annexes, was provided to the CPT for review and comment.

2.4 Public and Stakeholder Participation

Public engagement was essential to ensure the community was informed about how they could participate in and contribute to the planning process. The public engagement strategy was discussed early in the process with the CPT to generate ideas for consideration.

2.4.1 Project Messaging

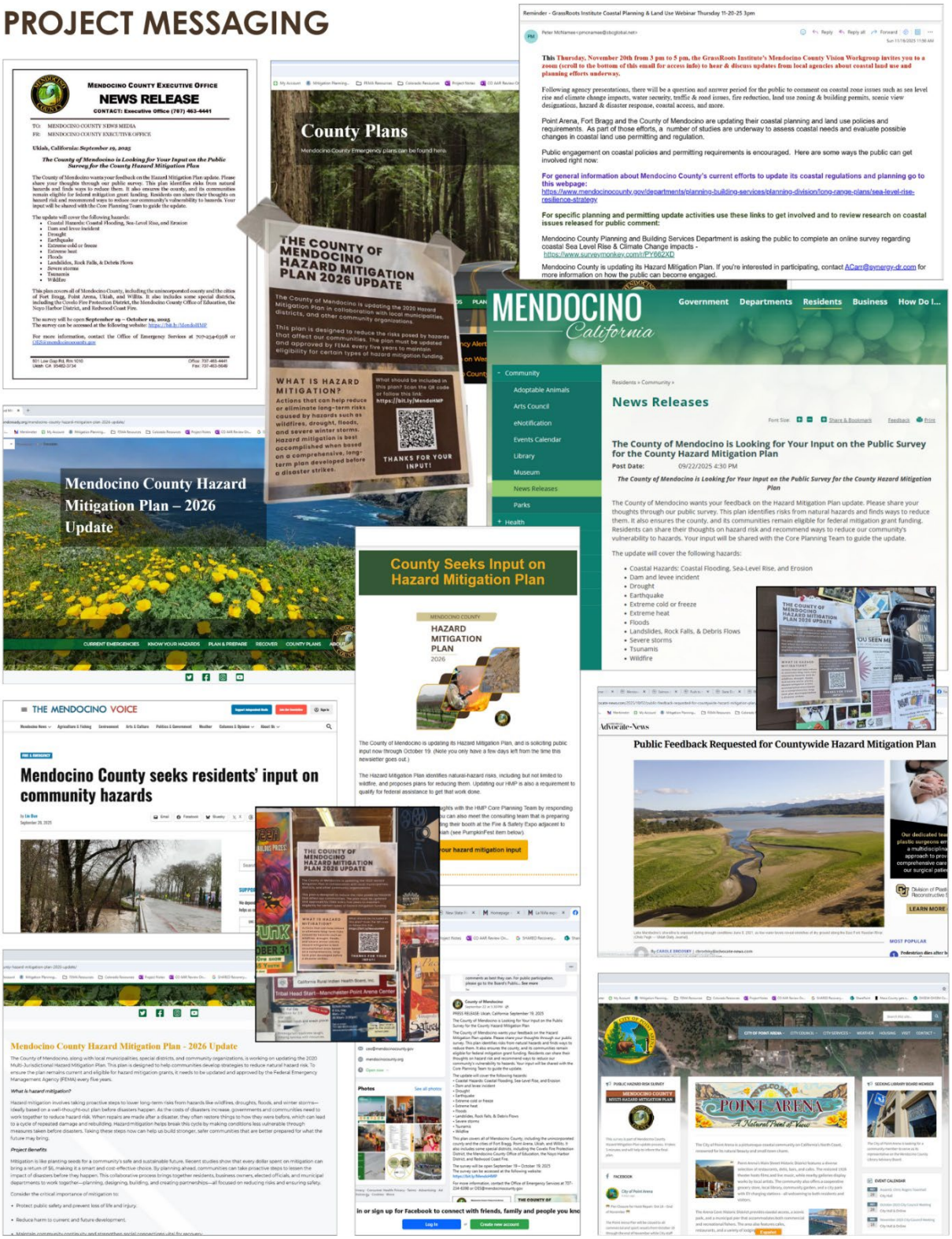
It was decided that public engagement messaging regarding the HMP would use several existing communication channels. Project-related content was developed, and dissemination was coordinated through the CPT. A wide variety of tools were utilized, including a project website, news releases, stakeholder distribution lists, hardcopy fliers, and social media.

A news release about the hazard mitigation planning process and to advertise the public survey was read on air on KZYX&Z, the community radio station for Mendocino County. The news release was also posted on the county's website and on mendoready.org, the county's Office of Emergency Services website.

Flyers were posted throughout the county at various locations, including the Supermarket and Surf Market in Gualala; on a bulletin board at the Point Arena Pier and at the Arena Market and Cafe COOP in downtown Point Arena; the Elk Store in Elk; and at the Town of Mendocino Post Office.

Additionally, during a meeting between County Emergency Management and the Round Valley Indian Tribe in Covelo, the County provided the Tribe with information about the HMP planning process and general information about mitigation planning and funding. A hardcopy flyer providing public information about the planning process was left with tribal leadership.

Figure 3 Public Messaging Examples



2.4.2 Non-Profits and Community-Based Organizations Involvement

At each of the kickoff workshops, the CPT discussed various non-profits and community-based organizations in Mendocino County that serve vulnerable and under-resourced populations. Often, these populations face the most significant challenges in recovering from a disaster and find it difficult to engage meaningfully in these types of planning processes, as they are just trying to live day-to-day. Following the discussion with the CPT, the following community-based organizations were identified and recommended to engage with directly as part of the planning process:

- Anderson Valley Senior Center
- Anderson Valley Village
- Blue Zones Project – Mendocino
- Caspar Community Center
- Climate Action Mendocino
- Cloud Forest Institute
- Community Development Commission of Mendocino County (CDC)
- First 5 Mendocino
- Ford Street
- Fort Bragg Food Bank
- Grass Roots Institute
- Greater Ukiah Business & Tourism Alliance
- InterTribal Sinkyone Wilderness Council
- Laytonville Healthy Start
- Legal Services of Northern California – Ukiah
- Long Valley Health Center – Laytonville
- MCAVIN Care and Prevention Network
- Mendo Food Network
- Mendocino Area Parks Association
- Mendocino Cannabis Alliance
- Mendocino Coast Children's Fund
- Mendocino Coast Street Medicine Project
- Mendocino Community Health Clinic
- Mendocino County Resource Conservation District
- Mendocino County Tourism Commission-Visit Mendocino
- Mendocino County Youth Project
- Mendocino Farm Bureau
- Mendocino Land Trust
- Mendocino Wine Growers Association
- Mendonoma Health Alliance

- North Coast Energy Services
- North Coast Opportunities
- Northern Circle Indian Housing Authority
- Northern Mendocino Ecosystem Recovery Alliance (NM-ERA)
- Noyo Center for Marine Science
- Noyo Food Forest
- Nuestra Alianza de Willits
- Plowshares Community Dining Center
- Potter Valley Youth and Community Center
- Project Sanctuary
- Redwood Coast Medical Services, Inc
- Redwood Coast Regional Center
- Redwood Community Services (RCS)
- Round Valley Indian Health Center – Covelo
- Rural Communities Housing Development Corporation
- UCANR Hopland Research and Extension Center
- Ukiah Senior Center
- Visit Fort Bragg
- Visit Ukiah
- Visit Willits
- West Business Development Center
- Willits Senior Center
- Workforce Alliance of the North Bay

A stakeholder survey was sent to these organizations, asking for their input on how past disasters have impacted the under-resourced communities they serve daily and their concerns about the impacts of future disasters on these populations.

Responses indicated that these organizations are concerned about the impacts of wildfire events, drought, extreme heat, earthquakes, severe storms, and flooding. Responses also reinforced the need for the HMP to prioritize a number of needs, including:

- Ensuring the resilience of essential services such as electricity, food, medical services, and transportation.
- Supporting community groups serving seniors and the disabled during emergencies.
- Expanding backup power, cooling, clean air centers, and mobile services.
- Ensuring equitable communication, including low-tech and in-person outreach.
- Incorporating social vulnerability into mitigation and grant priorities.

2.4.3 Community Survey

The project's community survey was developed as a digital and hard copy survey. The survey was open to the public from September 19 through October 31, 2025. The non-profits and community-based organizations also shared hard copy versions of the public survey and assisted in disseminating and collecting the results. In total, 130 responses were received. The Planning Partners were crucial in disseminating community messages through their websites, local news, social media, and word of mouth.

Public responses were reviewed during CPT workshops, informing the mitigation strategy, planning process, and risk assessment chapters of this HMP.

2.4.4 Community Event

During the planning process, one in-person event was held to promote engagement and inform the public about hazards in their communities.

On October 18, 2025, the county, with support from the consulting team, staffed two booths at the annual Pumpkin Fest in the City of Ukiah to share information about natural hazards. Attendees at this popular event who stopped by the booths were given information about the hazard mitigation planning process and hazards in general. Attendees were also asked to share their hazards of concern by placing a color dot next to them on a board. Sharing information about past disasters and concerns for future events was also encouraged, and attendees were asked to identify these concerns on a county map. In addition to information about the planning process, the county provided attendees with information on evacuation centers and general preparedness information.

Figure 4 Pumpkin Fest Photos

2.4.5 Public Review Draft and Comment

The two-week public review and comment period was held in March 2026 and was widely communicated through the identified messaging tools. Individuals had the opportunity to submit comments via an online survey. A total of xyz….comments were incorporated…

County Profile

The following section provides a brief overview of Mendocino County. **FIGURE 5** and **FIGURE 6** present the planning area and the boundaries of each Planning Partner.

Mendocino County covers approximately 3,878 square miles, larger than the state of Delaware. It spans from the Pacific coast on the west to the mountains on the east, with valley areas in between, and unincorporated communities scattered throughout. Mendocino County is mainly accessed via U.S. Highway 101 and State Route 1 (also called Highway 1 or Hwy-1), which serve as the primary north–south transportation routes in the area. Important east–west connections include SR-20, SR-128, SR-253, SR-175, and SR-162, which link the coast with the county's inland mountains and valleys.

The largest population centers in the county's unincorporated areas include Brooktrails, Redwood Valley, Covelo, Laytonville, Talmage, and Boonville.[1] The following ten federally recognized tribal nations are located within Mendocino County and provide varying levels of services to their communities: Cahto Tribe, Coyote Valley Band of Pomo Indians, Guidiville Indian Rancheria, Hopland Band of Pomo Indians, Manchester Band of Pomo Indians, Pinoleville Pomo Nation, Potter Valley Tribe, Redwood Valley Little River Band of Pomo Indians, Round Valley Reservation, and Sherwood Valley Rancheria.

The county experiences a Mediterranean climate with cool, wet winters and warm, dry summers. Coastal areas are influenced by marine conditions, while inland areas experience greater temperature extremes. Average annual precipitation ranges from approximately 41 inches in Redwood Valley to 80 inches near Branscomb, eight miles west-southwest of Laytonville, annually.[2]

According to the California Department of Finance, as of July 1, 2025, the county's estimated population is 89,411, with the largest population living in the City of Ukiah. The county's overall population is projected to gradually increase to 90,152 over the next five years.[3]

The county has a higher proportion of older adults than the State of California, with approximately 24% of residents aged 65 or older. The rural settlement patterns and population distribution across the county also influence exposure to hazards and affect evacuation, response, and recovery capabilities.

[1] Mendocino County Climate Vulnerability Assessment, March 2021
[2] Mendocino County Climate Vulnerability Assessment, March 2021
[3] California Department of Finance. Demographic Research Unit. Report P-2A: Total Population Projections, California Counties, 2020-2070 (Baseline 2023 Population Projections; Vintage 2025 Release). Sacramento: California. April 2025.

Figure 5 County of Mendocino Boundaries

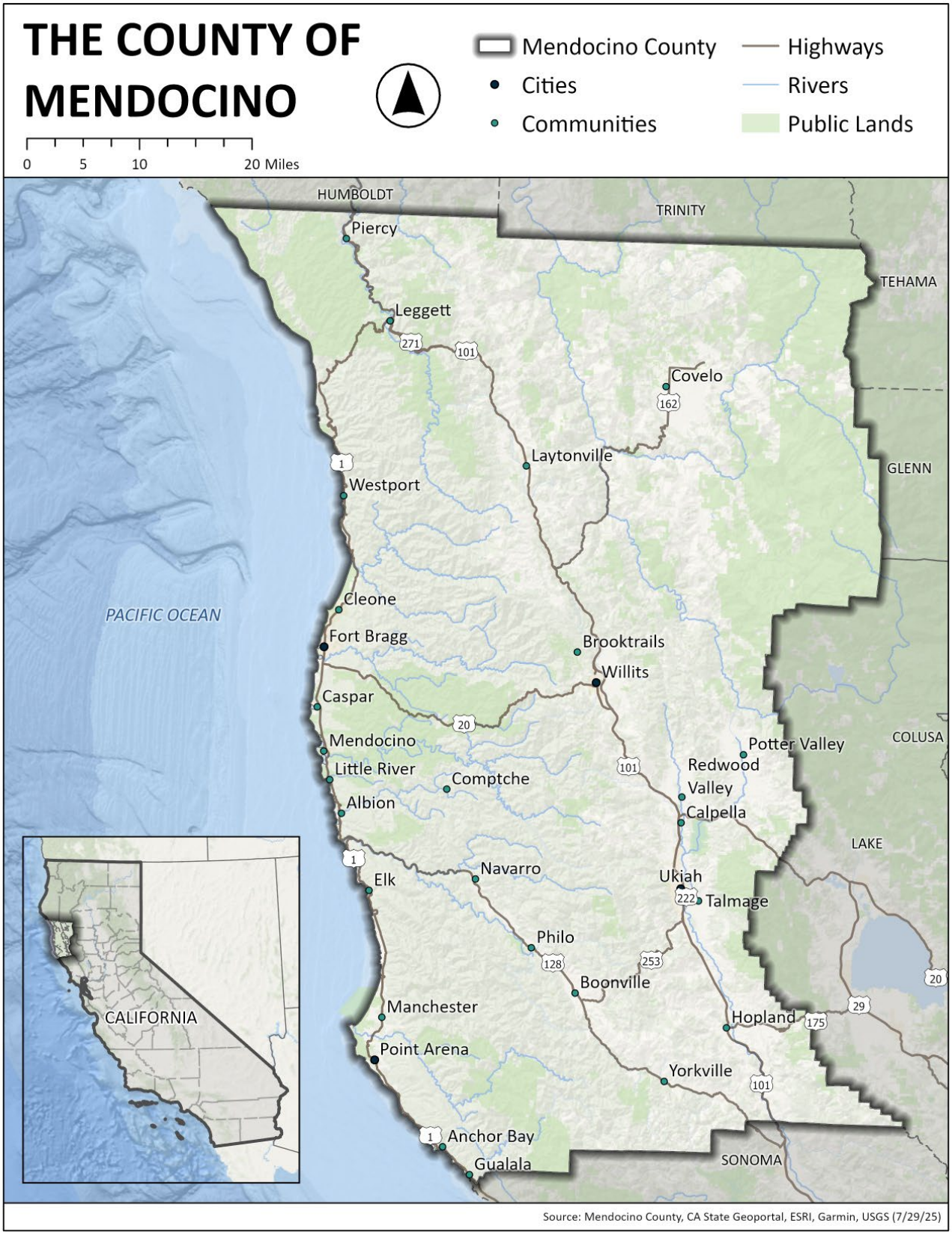
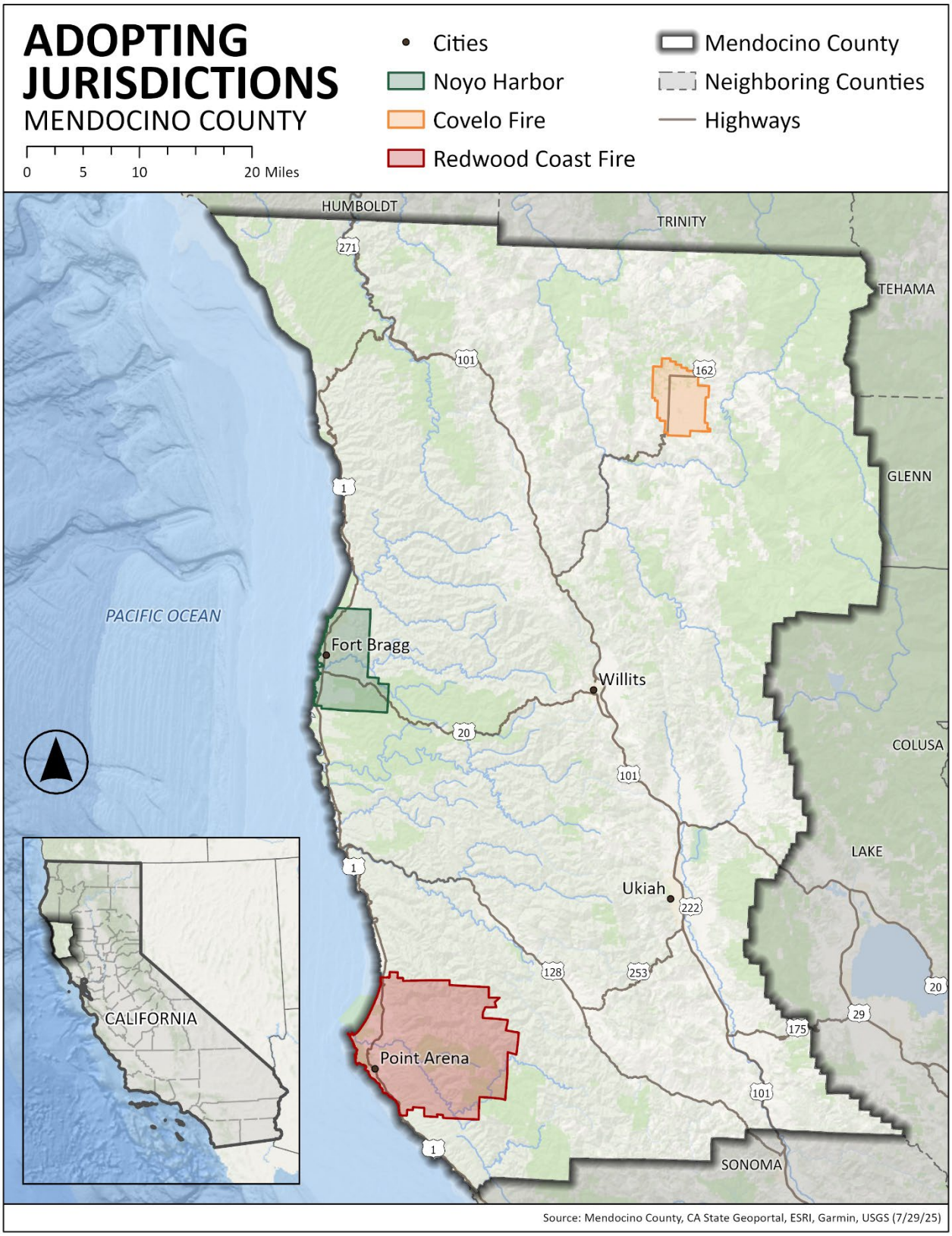


Figure 6 Planning Partner Boundaries



3.1 Development Trends

Over the past five years, development activity in Mendocino County has been modest and uneven, influenced by environmental constraints, wildfire risk, infrastructure capacity, and community preferences. Along the coast, new development mainly consists of scattered single-family homes rather than large subdivisions, due to Coastal Act requirements and limited available land. Inland, the most significant residential growth has occurred in the Ukiah Valley, highlighted by the Bella Vista subdivision at Ukiah's south end, which is the first major new subdivision in years. This project has been amended multiple times to reduce its size and meet fire safety standards, including collaboration with the Ukiah Valley Fire Authority to ensure proper access. Besides residential projects, the county has seen larger industrial and commercial proposals, such as two warehouse facilities near Ukiah, one a 96,000-square-foot, three-story U-Haul and another a 17,000-square-foot warehouse believed to attract Amazon, and the Harris Quarry Asphalt Plant near Willits, which was approved in 2019 and now has permits.

Looking ahead, development in the next five years is expected to stay cautious and incremental, with a focus on fire safety, infrastructure, and hazard-aware planning. The Bella Vista subdivision might begin construction within a year, though its final lot count could be reduced further. Ukiah’s proposed annexation, which would expand mainly to the north, south, and east, could influence future growth if approved, despite its early stage and community opposition. Elsewhere, growth will likely focus primarily on infill, small-scale residential development, and targeted industrial or infrastructure projects, rather than broad expansion. All development activities will require close coordination with fire protection districts, reflecting a countywide effort to incorporate wildfire mitigation, emergency access, and resilience in land use and planning.

3.2 Class K Structures

In Mendocino County, California, “Class K” structures refer to a special alternative building standard under the county’s building code that applies to owner-built rural dwellings and related structures in limited-density areas. This provision allows property owners to construct homes using non-standard or alternative methods and materials that deviate from the conventional California Building Code, provided the structures still offer a reasonable degree of health and safety and meet basic criteria such as minimum lot size and height limits. Class K was adopted to promote affordable, owner-built housing in rural parts of the county, but has also been the focus of discussion and review due to concerns about safety, inspection practices, enforcement, and appropriate use of the permitting process.

Hazard Identification and Risk Assessment

4.1 Risk Assessment Overview

4.1.1 Introduction

The Hazard Identification and Risk Assessment (HIRA) aims to identify natural and human-caused hazards impacting Mendocino County and assess the risks they pose to individuals, property, the economy, and the environment. The HIRA serves as a critical input into the mitigation strategy, providing a collaborative assessment that considers local community risk. Utilizing best-available data, the HIRA process focuses on the following elements:

- Hazard identification - Determine disaster hazard types, frequency, and severity.
- Vulnerability identification - Assess the impact on people, property, environment, economy, and lands.
- Loss evaluation - Estimate potential damages, losses, or costs that can be avoided through mitigation.

4.1.2 Identified Hazard of Concern

For the update of this Hazard Mitigation Plan (HMP), the Core Planning Team (CPT) examined the full range of hazards that could affect the planning area and identified those that pose the most significant concern. The process included a review of the 2023 California Enhanced State Hazard Mitigation Plan (CA E-SHMP) and the current county HMP, along with information on the frequency, magnitude, and losses associated with hazards that have affected or could affect the planning area. Additionally, anecdotal information about the perceived vulnerability of the assets within the planning area was considered.

Based on this evaluation, this plan profiles the following hazards of concern:

- Coastal Hazards (coastal flooding, sea-level rise, erosion)
- Dam and Levee Incident
- Drought
- Earthquake
- Extreme Cold or Freeze*
- Extreme Heat*
- Flood (inland)
- Mass Earth Movements (landslides, rock falls, debris flows)
- Severe Storms (severe wind, heavy rain, lightning)
- Tsunami
- Wildfire

New hazards (*) profiled in this 2026 plan update include extreme cold or freeze and extreme heat. Several hazards were profiled together because of their common occurrence, exposure areas, or damage assessments. These hazards include coastal hazards, mass earth movements and severe storms. All other natural hazards profiled in the 2023 SHMP were reviewed for inclusion in this update. Those natural hazards not profiled in this plan (snow avalanche, subsidence and volcano) do not currently present an immediate or impactful risk to Mendocino County and are, therefore, not a mitigation priority.

4.1.3 Hazard Risk Ranking

The Core Planning Team performed a risk ranking for the hazards profiled in this plan. This risk ranking assessed the probability of each hazard's occurrence and its likely impact on the Authority's assets. Hazards were evaluated utilizing a four-category qualitative scale. For the probability of the hazard, the options included "unlikely (1)," "possible (2)," "probable (3)," and "likely (4)." For the impact of the hazard, the scale included "minor (1)", "limited (2), "critical (3)", and "catastrophic (4)". A quantitative hazard risk was then calculated by multiplying the impact score with the probability score, which then correlated to the ultimate "high," "moderate," and "low" risk rankings. **TABLE 1** shows the rankings for the county only, refer to the Planning Partner annexes for hazard risk rankings for each participating local government.

Table 1 Mendocino County Hazard Risk Rankings

Hazard	Probability x	(Impact on People +	Impact on Property/ Environment+	Impact on Economy)	= Relevant Risk	Risk Rank
Coastal Hazards (Flood, Sea-level rise, Erosion)	3	3	3	3	**27**	**Moderate**
Dam & Levee Incidents	1	4	4	4	**12**	**Low**
Drought	4	2	2	3	**28**	**High**
Earthquake	4	3	3	3	**36**	**High**
Extreme Cold or Freeze	3	2	2	4	**24**	**Moderate**
Extreme Heat	4	2	2	2	**24**	**Moderate**

Hazard	Probability x	(Impact on People +	Impact on Property/ Environment+	Impact on Economy)	= Relevant Risk	Risk Rank
Flood (Inland)	4	3	3	3	**36**	**High**
Mass Earth Movements (landslides, rock falls, debris flows)	3	3	3	3	**27**	**Moderate**
Severe Storms	4	2	2	3	**28**	**High**
Tsunami	2	4	4	4	**24**	**Moderate**
Wildfire	4	4	4	4	**48**	**High**

4.1.4 Hazard Profiles

This HIRA chapter provides detailed hazard profile sections for each of the 11 hazards assessed in this plan. Each profile follows the same outline and addresses the following topics:

- General background
- Past events
- Location
- Severity
- Secondary hazards
- Exposure and vulnerability
    - Lifelines
    - People
    - Structures
    - Natural, Historic, and Cultural Resources
    - Local Vulnerability
- Future trends in development
- Probability of future occurrences
    - Annually – Expected to occur every year
    - Highly Likely – Occurring every 1 to 10 years
    - Likely – Every 10 to 50 years
    - Unlikely – Intervals of over 50 years
- Climate change impacts

Local government-specific risk and vulnerability assessments were conducted and are presented within the Planning Partner Annexes of this document.

4.2 Disaster Declaration History

Mendocino County has been designated in numerous state and federal disaster declarations. Droughts, floods, pandemics, severe winter weather, thunderstorms, and wildfires have significantly impacted the county and its communities, as illustrated in the following tables.

4.2.1 State of California Emergency Proclamations

Mendocino County has been included in 19 state emergency proclamations. Most were related to flooding (8), winter weather (3), severe storms (2), and wildfire (2). The remaining declarations were related to freeze, atmospheric river storms, and earthquakes. **TABLE 2** shows these state emergency proclamations by date and designated areas. Due to the regional nature of most of these hazards, many of the declarations were statewide.

Table 2 State of California Emergency Proclamations that Include Mendocino County

Year	Disaster Name	Executive Order	Hazard	Areas Declared
1970	1970 Freeze		Freeze	Napa, Sonoma, Mendocino, San Joaquin, Lake
1973	Storms and Floods		Flood	Mendocino
1977	Heavy Rainstorms	77-03/4	Flood	Imperial, Mendocino, Riverside
1978	1978 Storms	78-03/04	Flood	Humboldt, Mendocino, Santa Cruz
1987	1987 Wildland Fires		Wildfire	Colusa, Del Norte, Butte, Fresno, Humboldt, Inyo, Kern, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Placer, Plumas, Riverside, San Bernardino, Shasta, Sierra, Siskiyou, Trinity, Tulare, Tuolumne
1996	Torrential Winds and Rain	96-01	Flood	Humboldt, Mendocino, Plumas, Sacramento, San Francisco, San Mateo, Santa Cruz, Shasta
1997	Winter Storms	97-01	Flood	Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El

Year	Disaster Name	Executive Order	Hazard	Areas Declared
				Dorado, Fresno, Glenn, Humboldt, Kings, Lake, Lassen, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napam Nevada, Placer, Plumas, Sacramento, San Benito, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stainslaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Yolo, Yuba
2003	Storms & Flooding	2003-01	Flood	Humboldt, Mendocino, Trinity
2003	State Road Damage	-	Flood	Alameda, Colusa, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Trinity
2008	2008 January Storms	2008-01	Flood	Alameda, Butte, Colusa, Del Norte, El Dorado, Glenn, Kings, Mendocino, Nevada, Placer, Sacramento, San Francisco, Sierra, Sutter, Yolo, Yuba
2016	December 2016 Storms	2016-05	Severe Storms	Del Norte, City of Fort Bragg (Mendocino)
2018	Summer 2018 California Wildfires and High Winds	2018-06	Fire and Wind	Colusa, Lake, Mendocino, Napa, Shasta
2020	Fire – Slates, Bobcat, Oak	N-81-20, N-22-21	Wildfire	Del Norte, Los Angeles, Mendocino

Year	Disaster Name	Executive Order	Hazard	Areas Declared
2021	January 2021 Winter Storms		Winter Weather related to an atmospheric river leading to damaging winds, heavy rain, flooding, and erosion	Del Norte, Los Angeles, Madera, Mariposa, Mendocino, Napa, Orange, San Benito, San Mateo, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Tehama, and Trinity
2021	October 2021 Storms		Atmospheric River storm	Amador, Butte, Contra Costa, Glenn, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, Placer, Plumas, San Francisco, Solano, Sonoma, Trinity
2023	February -March 2023 Storms – additional 6 counties	N-6-23, N-7-23, N-9-23, N-10-2	Winter Weather, including an atmospheric river system	Butte, El Dorado, Fresno, Humboldt, Imperial, Inyo, Lake, Mendocino, Merced, Monterey, Napa, Placer, Plumas, Sacramento, San Francisco, San Mateo, Santa Clara, Santa Cruz, Stanislaus, Tuolumne, and Yuba
2024	Early February 2024 Storms – additional counties		Winter Weather	Alameda, Butte, Glenn, Lake, Mendocino, Monterey, Sacramento, San Francisco, Santa Cruz, Sonoma, and Sutter
2024	March 2024 Storms		Heavy rain, mountain snow, thunderstorms, flooding, landslides, high winds	Alameda, Contra Costa, Los Angeles, Marin, Mendocino, Monterey, Napa, Nevada, Plumas, San Bernardino, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Sonoma, Trinity, and Ventura.
2024	Northern California Earthquake		Earthquake	Del Norte, Humbolt, and Mendocino

Year	Disaster Name	Executive Order	Hazard	Areas Declared
2025	2025 February Storms		Series of atmospheric rivers, excessive rainfall, landslides, and flooding	Humboldt, Mendocino, Modoc, Napa, Shasta, Sonoma, Trinity

Source: 2023 California Enhanced State Hazard Mitigation Plan; Cal OES Open State of Emergency Proclamations as of May 28, 2025.HTTPS://WWW.CALOES.CA.GOV/OFFICE-OF-THE-DIRECTOR/POLICY-ADMINISTRATION/LEGAL-AFFAIRS/EMERGENCY-PROCLAMATIONS/

4.2.2 Federal Disaster Declarations

Federal disaster declarations are issued for hazard events that cause more damage than state and local governments can handle without federal assistance. A federal disaster declaration initiates recovery programs to assist disaster victims, businesses, and public entities. Mendocino County has been included in 33 federal disaster declarations since 1964, with 25 being Major Disaster designations. These events are listed in **TABLE 3**.

Table 3 Federal Disaster Declarations including Mendocino County

Year	Declaration Number	Declaration Type	Declaration Title	Hazard(s)
1965	DR-183-CA	Major Disaster	Heavy Rains & Flooding	Flood
1969	DR-253-CA	Major Disaster	Severe Storms & Flooding	Flood
1970	DR-283-CA	Major Disaster	Severe Storms & Flooding	Flood
1974	DR-432-CA	Major Disaster	Severe Storms & Flooding	Flood
1974	DR-412-CA	Major Disaster	Severe Storms & Flooding	Flood
1977	EM-3023-CA	Emergency	Drought	Drought
1983	DR-677-CA	Major Disaster	Coastal Storms, Floods, Slides & Tornadoes	Coastal Storm
1986	DR-758-CA	Major Disaster	Severe Storms & Flooding	Flood
1991	DR-894-CA	Major Disaster	Severe Freeze	Freezing
1993	DR-979-CA	Major Disaster	Severe Winter Storm, Mud & Landslides, & Flooding	Flood

Year	Declaration Number	Declaration Type	Declaration Title	Hazard(s)
1994	DR-1038-CA	Major Disaster	The El Nino (The Salmon Industry)	Fishing Losses
1995	DR-1046-CA	Major Disaster	Severe Winter Storms, Flooding, Landslides, Mud Flow	Severe Storm
1995	DR-1044-CA	Major Disaster	Severe Winter Storms, Flooding, Landslides, Mud Flows	Severe Storm
1997	DR-1155-CA	Major Disaster	Severe Storms, Flooding, Mud, And Landslides	Severe Storm
1998	DR-1203-CA	Major Disaster	Severe Winter Storms And Flooding	Severe Storm
2005	EM-3248-CA	Emergency	Hurricane Katrina Evacuation	Hurricane
2006	DR-1628-CA	Major Disaster	Severe Storms, Flooding, Mudslides, And Landslides	Severe Storm
2008	EM-3287-CA	Emergency	Wildfires	Fire
2017	DR-4305-CA	Major Disaster	Severe Winter Storms, Flooding, And Mudslides	Flood
2017	DR-4301-CA	Major Disaster	Severe Winter Storms, Flooding, And Mudslides	Severe Storm
2017	FM-5219-CA	Fire Management	Redwood Valley Fire	Fire
2018	FM-5262-CA	Fire Management	Mendocino Fire Complex	Fire
2018	DR-4344-CA	Major Disaster	Wildfires	Fire
2019	DR-4434-CA	Major Disaster	Severe Winter Storms, Flooding, Landslides, And Mudslides	Severe Storm
2019	DR-4431-CA	Major Disaster	Severe Winter Storms, Flooding, Landslides, And Mudslides	Severe Storm
2020	DR-4558-CA	Major Disaster	Wildfires	Fire
2020	DR-4482-CA	Major Disaster	COVID-19 Pandemic	Biological

Year	Declaration Number	Declaration Type	Declaration Title	Hazard(s)
2020	EM-3428-CA	Emergency	COVID-19	Biological
2021	DR-4569-CA	Major Disaster	Wildfires	Fire
2023	DR-4699-CA	Major Disaster	Severe Winter Storms, Straight-Line Winds, Flooding, Landslides, And Mudslides	Severe Storm
2023	DR-4683-CA	Major Disaster	Severe Winter Storms, Flooding, Landslides, And Mudslides	Flood
2023	EM-3592-CA	Emergency	Severe Winter Storms, Flooding, Landslides, And Mudslides	Flood
2023	EM-3591-CA	Emergency	Severe Winter Storms, Flooding, And Mudslides	Flood

Source: OpenFEMA

4.2.3 United States Department of Agriculture (USDA) Disaster Designations

The U.S. Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency (EM) loans available to producers suffering losses in those counties and in contiguous counties. In addition to EM loan eligibility, other emergency assistance programs, such as the Farm Service Agency (FSA) disaster assistance programs, have historically used disaster designations as a trigger for eligibility. A USDA disaster declaration designates counties that have experienced at least a 30% loss in one or more crops or livestock due to a natural hazard event.

Between 2012 and 2023, Mendocino County was included in 28 USDA Disaster Designations (**TABLE 4**). Most of the declarations were related to drought events, except for six events associated with freezing temperatures and one event related to excessive rain and severe weather.

Table 4 USDA Disaster Designations, including Mendocino County

Crop Year	Designation Number	Hazard Type
2012	S3246	Freezing Temperatures
2012	S3248	Drought
2012	S3268	Drought-FAST TRACK

Crop Year	Designation Number	Hazard Type
2012	S3379	Drought
2012	S3452	Drought
2013	S3565	Drought-FAST TRACK
2013	S3569	Drought-FAST TRACK
2014	S3637	Drought-FAST TRACK
2014	S3637	Drought-FAST TRACK
2014	S3743	Drought
2014	S3797	Drought
2015	S3784	Drought-FAST TRACK
2015	S3943	Drought
2016	S3952	Drought-FAST TRACK
2016	S3964	Drought-FAST TRACK
2016	S4170	Excessive Rain, High Winds, Cold Temperatures, And Hail
2017	S4163	Drought-FAST TRACK
2018	S4349	Freeze
2019	S4467	Drought-FAST TRACK
2020	S4675	Drought-FAST TRACK
2020	S4691	Drought-FAST TRACK
2020	S4697	Drought-FAST TRACK
2022	S5146	Drought-FAST TRACK
2022	S5229	Freeze
2022	S5230	Freeze
2022	S5332	Freeze
2023	S5371	Drought-FAST TRACK
2023	S5566	Freezing Temperatures

4.3 Exposure Analysis

4.3.1 Community Lifelines

As defined by the Federal Emergency Management Agency (FEMA), community Lifelines represent critical services and infrastructure systems that are essential to the health, safety, and economic stability of communities. This framework enables emergency managers to prioritize response and recovery efforts by focusing on the most vital functions impacted during a disaster. As part of this hazard mitigation planning effort, a Lifeline analysis was conducted to identify and assess key assets located within designated hazard risk areas across the county. The results of this analysis support the identification of vulnerabilities within essential systems, thereby informing more targeted and effective mitigation and emergency response strategies.

Lifeline data for the exposure analysis was obtained from multiple authoritative sources, including the County of Mendocino GIS Department, the California State Open Data Portal, and the Lifeline dataset utilized in the 2025 County Community Wildfire Protection Plan (CWPP). A total of 683 Lifelines were identified within the county. Relevant datasets were organized according to FEMA's community lifelines framework, as detailed in the summary below. For a detailed breakdown of Lifelines exposed in each local government, please refer to the Planning Partner Annexes.

Safety and Security – 91 locations:

- Fire Facilities (County GIS)
- Law Enforcement Facilities (County GIS)
- Public Schools (California State Portal)

Food, Hydration, Shelter – 56 locations:

- Food Banks (California Office of Emergency Services GIS)
- Shelter Locations (FEMA National Shelter System)

Health and Medical – 66 locations:

- Assisted Living Facilities (California State Portal)
- Health Facilities (County GIS)
- EMS Stations (County GIS)
- Hospitals (County CWPP)

Energy – 27 locations:

- Sub Stations (County CWPP)
- Power Plants (County CWPP)

Communications - 48 locations:

- Communication Site (County CWPP)
- Communication Tower (County CWPP)

Transportation – 373 locations:

- Rail Stations (County CWPP)
- Airports (County CWPP)
- Bridges (County CWPP)

Hazardous Materials – 15 locations:

- Toxic Release Inventory (TRI) Facilities (California State Portal)
- Hazardous Waste Tracking System – Active Transporters (California State Portal)

Water Systems – 7 locations:

- Wastewater Treatment Facilities (California Office of Emergency Services GIS)

In addition to the point-based lifeline data analysis, a broader assessment of linear Lifeline systems was conducted. Disruptions caused by natural hazards at any point along these systems have the potential to trigger cascading impacts throughout the county. The data was again organized by community lifeline categories, as summarized below.

Transportation – 587.3 total miles:

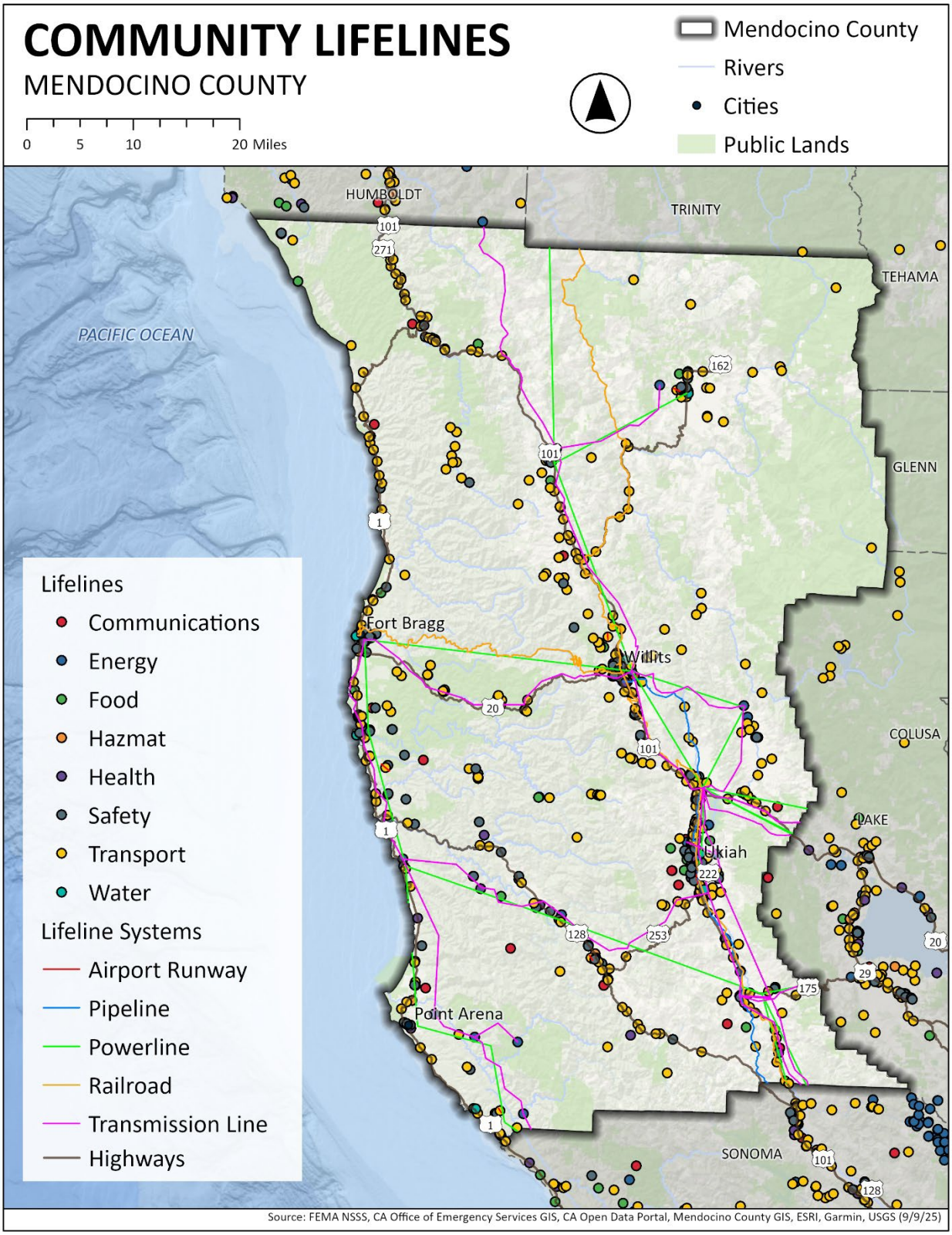
- Airport Runway - 4.1 miles (County CWPP)
- Railroad - 158.9 miles (County CWPP) – a majority of these lines are no longer operational
- Highway - 424.3 miles (County GIS)

Energy – 633.9 total miles:

- Powerline - 255.6 miles (County CWPP)
- Transmission Line - 329.6 miles (County CWPP)
- Natural Gas Pipelines - 48.7 miles (County CWPP)

These Lifeline points and systems are mapped in **FIGURE 7** below.

Figure 7 Community Lifelines in the County of Mendocino



4.3.2 Parcel Inventory

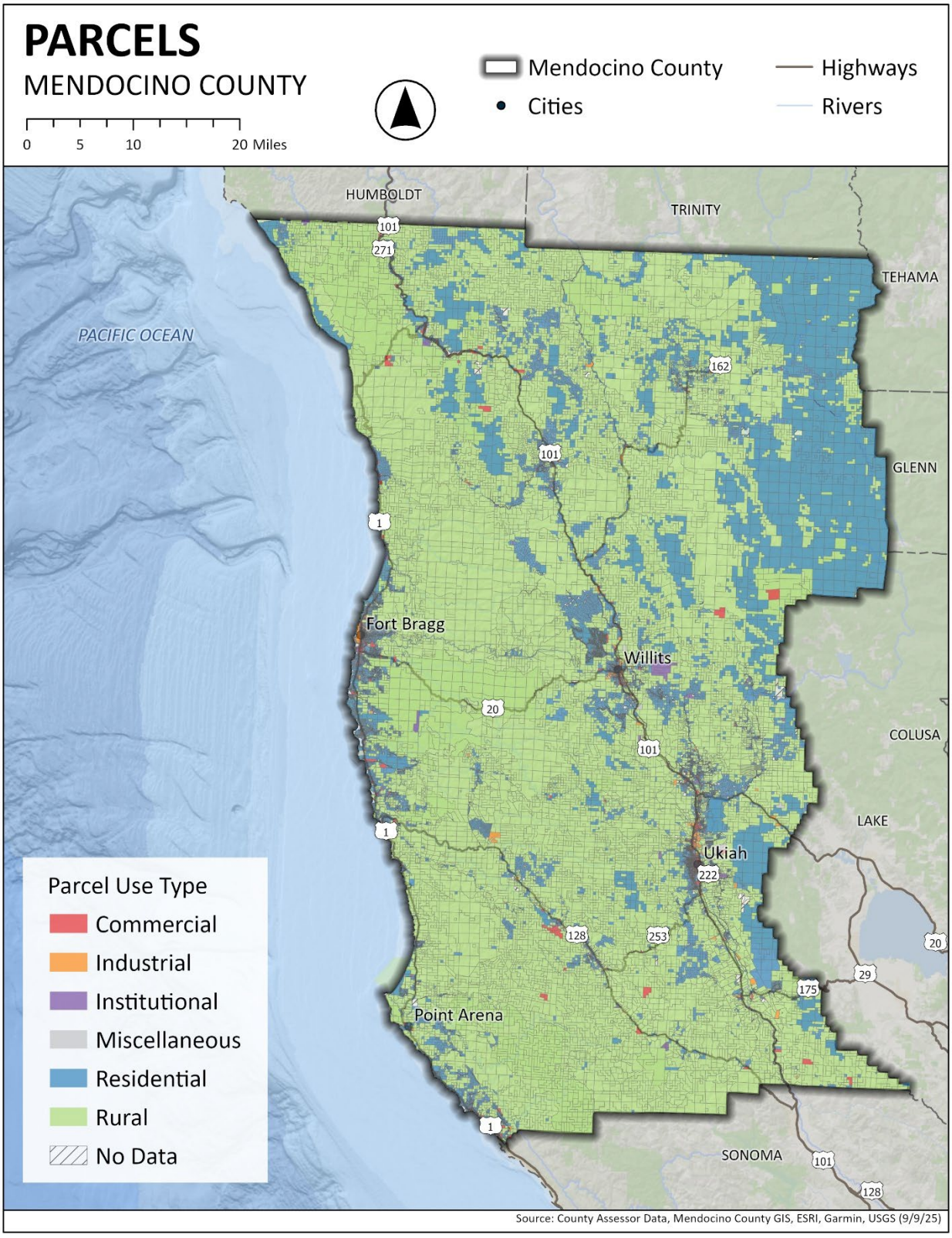
An assessment was also conducted to evaluate parcels exposed to identified hazard risk areas. Parcel data used in this analysis was obtained from the Mendocino County Assessor's Office and GIS Department. The assessment provides insight into the land use and assessed value of parcels throughout the county that are vulnerable to various hazards. It is important to note that because the analysis was conducted at the parcel level, any parcel with even a portion intersecting a hazard area is considered at risk. As a result, structures located on those parcels may not necessarily lie within the hazard zone itself. A summary of the total parcel inventory is provided in **TABLE 5** and shown in **FIGURE 8**. For detailed information on parcel exposure specific to each community, please refer to the individual community annexes.

Table 5 The County of Mendocino Parcel Inventory

Use Type	Parcel Count	Land Value	Improved Value
Commercial	2,534	$549,853,073	$978,460,439
Industrial	600	$128,217,293	$200,336,349
Institutional	457	$32,791,245	$146,267,423
Miscellaneous	949	$10,841,721	$4,198,469
Residential	37,146	$3,661,530,419	$4,920,013,995
Rural	17,251	$1,241,683,954	$816,972,011
No Data	2,993	$189,492,317	$193,207,671
Total	**61,930**	**$5,814,410,022**	**$7,259,456,357**

Source: The County of Mendocino Assessor's Office and GIS Department

Figure 8 Parcel Use Type in the County of Mendocino



4.4 Hazard Data Viewers

The following risk and vulnerability assessment information is based on the best available data at the time this plan was developed. Over the five-year span of this updated HMP, it is expected that many of these data sets will continue to be refined, and new data sources will become accessible. To access the most current hazard data, communities need to know how to obtain this information. State and federal web map viewers offer communities tools to review the latest hazard mapping for many of the hazards included in this plan. Details about these tools are provided below, and the platforms can be accessed by clicking on the tool's title.

- **CAL-ADAPT** – is an interactive online platform providing peer-reviewed climate data, visualizations, and analysis tools designed to help communities, researchers, planners, and decision-makers understand and prepare for climate change impacts across California. It features map-based explorers for indicators like extreme heat, precipitation, and wildfire weather, along with downloadable datasets, an Analytics Engine, an API, and open-source code for advanced analyses. This setup allows users to explore future climate scenarios at both state and local levels and incorporate those insights into resilience planning.
- **CALIFORNIA COASTAL HAZARDS GEO-PORTAL (OCEAN PROTECTION COUNCIL)** – is a GIS-based data portal that provides access to multiple coastal hazard datasets, including sea level rise projections, flood inundation zones, and erosion risk. It supports coastal resilience planning by enabling users to visualize and download spatial data layers for analysis and decision-making. The portal is designed for planners, researchers, and state and local agencies.
- **THE CALIFORNIA HEAT ASSESSMENT TOOL (CHAT)** - is an interactive web app enabling planners, public health officials, policymakers, and community members to examine how extreme heat and heat-related health incidents are expected to evolve across California. It offers map-based visualizations, downloadable datasets, and location-specific analyses to identify vulnerable populations and assist resilience planning.
- **CLIMATE MAPPING FOR RESILIENCE AND ADAPTATION (CMRA) ASSESSMENT** – is a tool that provides current and future climate hazard information to assist with prioritizing, identifying, and implementing climate-informed infrastructure investments. As a single source of historical and future climate data, the tool covers exposure to multiple hazards, the status of disadvantaged communities, and building codes. The information can support the planning and implementation of climate-resilient projects.
- **FEMA RESILIENCE ANALYSIS AND PLANNING TOOL (RAPT) –** is a FEMA tool designed to support resilience planning. The tool integrates national datasets on social vulnerability, community resilience, critical facilities and infrastructure, and risk from natural hazards. In late 2025, FEMA integrated the National Risk Index (NRI) dataset into RAPT, enabling users to analyze NRI risk metrics along with other demographic, infrastructure, hazard, and resilience layers within a single GIS platform. The NRI risk framework includes three

core components: a natural hazards component (Expected Annual Loss), a consequence-enhancing component (Social Vulnerability), and a consequence-reducing component (Community Resilience).

- **FIRE HAZARD SEVERITY ZONES MAP (OSFM)** – is an official map viewer developed by the California Office of the State Fire Marshal to show Fire Hazard Severity Zones (FHSZ) in both State Responsibility Areas (SRA) and Local Responsibility Areas (LRA). Users can search by address or browse the map to determine if a property is in a moderate, high, or very high fire hazard zone. This tool supports wildfire preparedness, building code enforcement, and public awareness.
- **MYHAZARDS (CAL OES)** – is an interactive web tool designed for the public to easily determine what natural hazards may affect a specific California location. Users can search by address to explore hazards such as earthquakes, floods, fires, and tsunamis. The platform provides general risk assessments and preparedness recommendations, making it a useful resource for homeowners, renters, businesses, and local officials seeking to understand vulnerability and plan for emergencies.
- **MYPLAN 2.0 (CAL OES)** – is a hazard planning tool developed for use by local governments, emergency planners, and decision-makers. It integrates statewide natural hazard data—including flood, wildfire, landslide, and earthquake risks—with social vulnerability indicators, critical facilities, and future land development considerations. MyPlan 2.0 allows users to assess hazards and mitigation priorities to support risk-informed planning and resilience building.

4.5 Coastal Hazards: Flood, Sea-Level Rise, and Erosion

4.5.1 General Background

Mendocino County's 129 miles of coastline are valued for their environmental, economic, and recreational importance. However, these areas face increasing risks from coastal hazards, particularly flooding, sea-level rise, and erosion. These threats jeopardize critical infrastructure, homes, natural habitats, and public safety along the shoreline. This section provides an overview of the primary coastal hazards affecting Mendocino County. Information related to tsunami risks is addressed separately in the **TSUNAMI** section of this plan.

Coastal Flooding

Coastal flooding occurs when ocean waters inundate normally dry land due to high tides, storm surges, or a combination of both. The coast experiences two high and two low tides daily, with flooding risks peaking when high tides coincide with storm-driven surge.

Storm surge is caused by strong winds pushing seawater toward the shore, with severity influenced by storm strength, track, and coastal topography. As sea levels rise, even moderate storms can cause significant flooding. High-tide or "nuisance" flooding, when water levels

exceed typical high tides by 1.75 to 2 feet, is becoming increasingly common, particularly during El Niño events, which bring more frequent and intense storm systems.[4]

Sea-Level Rise

Sea-level rise refers to the long-term increase in global ocean levels, driven by climate change through ocean warming, melting glaciers and ice sheets, and changes in land-water storage. Since 2006, melting ice has been the dominant contributor, with mountain glaciers and ice sheets accounting for over half of observed global sea-level rise.

In California, the impact of sea-level rise is experienced as relative sea-level change, which considers both ocean level and vertical land movement. Along Mendocino County's coast, relative sea-level trends are influenced by local tectonics, sediment compaction, storm patterns, and hydrological variability such as river flows. Periodic phenomena like El Niño can further intensify these effects by temporarily elevating sea levels and amplifying storm activity.

As sea levels rise, the frequency and extent of tidal flooding, storm surges, shoreline retreat, and wetland loss are expected to increase. Coastal communities, infrastructure, and ecosystems in Mendocino County are at growing risk from these combined stressors.

Coastal Erosion

Coastal erosion is the shoreline retreat process caused by waves, tides, currents, wind, and rising sea levels. In Mendocino County, erosion is often intensified by storm-driven coastal flooding, which allows waves to reach further inland and increases the loss of beach and bluff material.

Erosion happens slowly over time, but it can also occur quickly during big storms in the winter. This process can wash away beaches and sand dunes and even cause coastal bluffs and cliffs to break apart or collapse. Some human actions, like building walls along the shore, dredging waterways, or creating waves with boats, can make erosion worse by changing how sand and sediment naturally move along the coast.

Conversely, accretion, the buildup of sediment, can expand beaches and support dune formation, but may also restrict waterways and raise flood risks. Managing coastal erosion is essential to protecting public infrastructure, private property, and natural habitats along Mendocino County's shoreline.

4.5.2 Past Events

Coastal Flooding

The National Centers for Environmental Information (NCEI) Storm Events Database recorded five coastal flood events in Mendocino County between 1996 and 2024. Additionally, the State

[4] NOAA'S COASTAL CHANGE ANALYSIS PROGRAM (C-CAP) 2021 REGIONAL LAND COVER DATA - COASTAL UNITED STATES - CATALOG

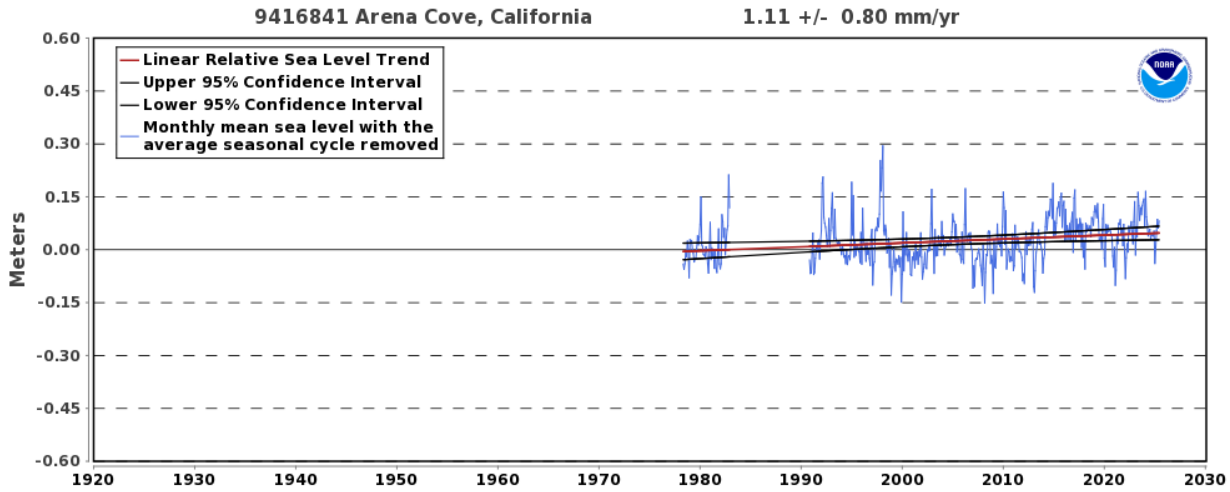
of California reported one coastal flood event impacting the county. According to the NCEI Storm Events database, a total of $10,000 in property damage was reported in Mendocino County from these events, all attributed to a single incident, though actual losses are likely significantly higher due to underreporting and limited data availability. Details of these events are provided below.

- **February 5, 1998:** A combination of heavy surf, strong winds, and high tide caused coastal flooding at Arena Cove, near the town of Point Arena (NCEI).
- **February 15, 1998:** A rogue wave impacted the Point Arena harbor, sweeping into the parking lot. Approximately 30 vehicles were displaced, though only minor damage was reported. Significant sand, logs, and debris were deposited in the area (NCEI).
- **December 18-31, 2005:** Beginning December 18th, a series of strong Pacific storm systems with a subtropical moisture tap brought 12 to 20 inches of rain to Northern California, saturating watersheds and triggering widespread flooding by December 28th. Significant impacts were reported in Humboldt, Del Norte, and Mendocino Counties, particularly in the Klamath and Russian River basins. Along the Russian River, hundreds of homes flooded, agricultural losses occurred, and infrastructure damage was extensive. In Mendocino County, an estimated $10,000 in property damage was reported (NCEI).
- **December 11, 2015:** Elevated water levels in the Navarro River, combined with high astronomical tides and large surf, resulted in the flooding and temporary closure of a portion of Highway 128 (NCEI).
- **January 16-20, 2019:** High surf and King Tides caused widespread coastal flooding across California. Southern counties, including San Diego and Orange, experienced waves up to 15 feet, leading to water rescues, infrastructure damage, and temporary closures. In Mendocino County, wave action displaced a rock sea barrier inland. Additional flooding was reported in La Jolla Shores, Sausalito, and Mill Valley, affecting roads and parking areas (2023 CA E-SHMP).
- **January 5, 2023:** Coastal storm surge during high tide led to flooding of a parking lot located approximately one mile south of Fort Bragg (NCEI).

Sea-Level Rise

The National Oceanic and Atmospheric Administration (NOAA) monitors tides and currents for coastal communities across the United States. At Station 9416841, located at Arena Cove near Point Arena, NOAA has recorded tidal data from 1978 through 2024 as shown in **FIGURE 9**. Based on this data, the relative sea level trend is 1.11 millimeters per year, with a 95% confidence interval of ±0.8 mm/year.

Figure 9 Relative Sea Level Trend



Source: Sea Level Trends - NOAA Tides & Currents

Coastal Erosion

The US Geological Survey studied how California's sandy coastlines have changed over time by looking at shoreline data from the mid-1800s up to 2016. This study used advanced mapping tools and technology, including laser-based measurements taken between 2009 and 2016, to get more precise results and correct for any past errors in the data.

Research indicates that Northern California has the highest average rate of erosion, with an estimated shoreline retreat of approximately –0.4 ± 0.01 meters per year, while southern California experiences more shoreline accretion.[5] This demonstrates persistent long-term erosion throughout the northern region, including Mendocino County.

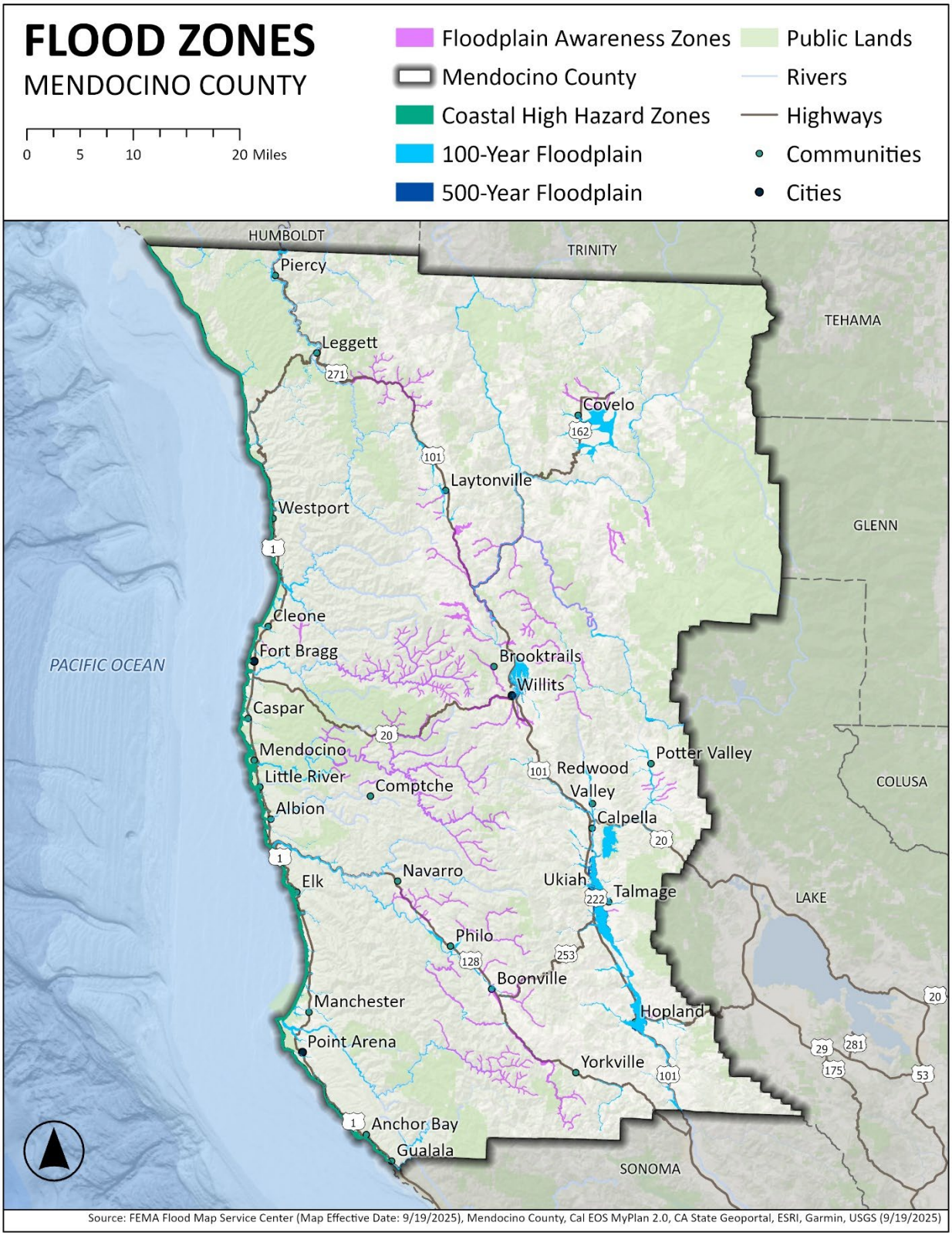
4.5.3 Location

Coastal Flooding

Low-lying coastal areas in California are vulnerable to coastal flooding during periods of elevated water levels caused by storms, astronomical high tides, and intense wave activity. Certain sections of the coastline face a heightened risk of structural damage from wave impact and high-velocity flows during a riverine 1% annual-chance flood event. These coastal flood areas (identified as V and VE Zones) are mapped in **FIGURE 10**.

[5] USGS COASTAL CHANGE HAZARDS PORTAL

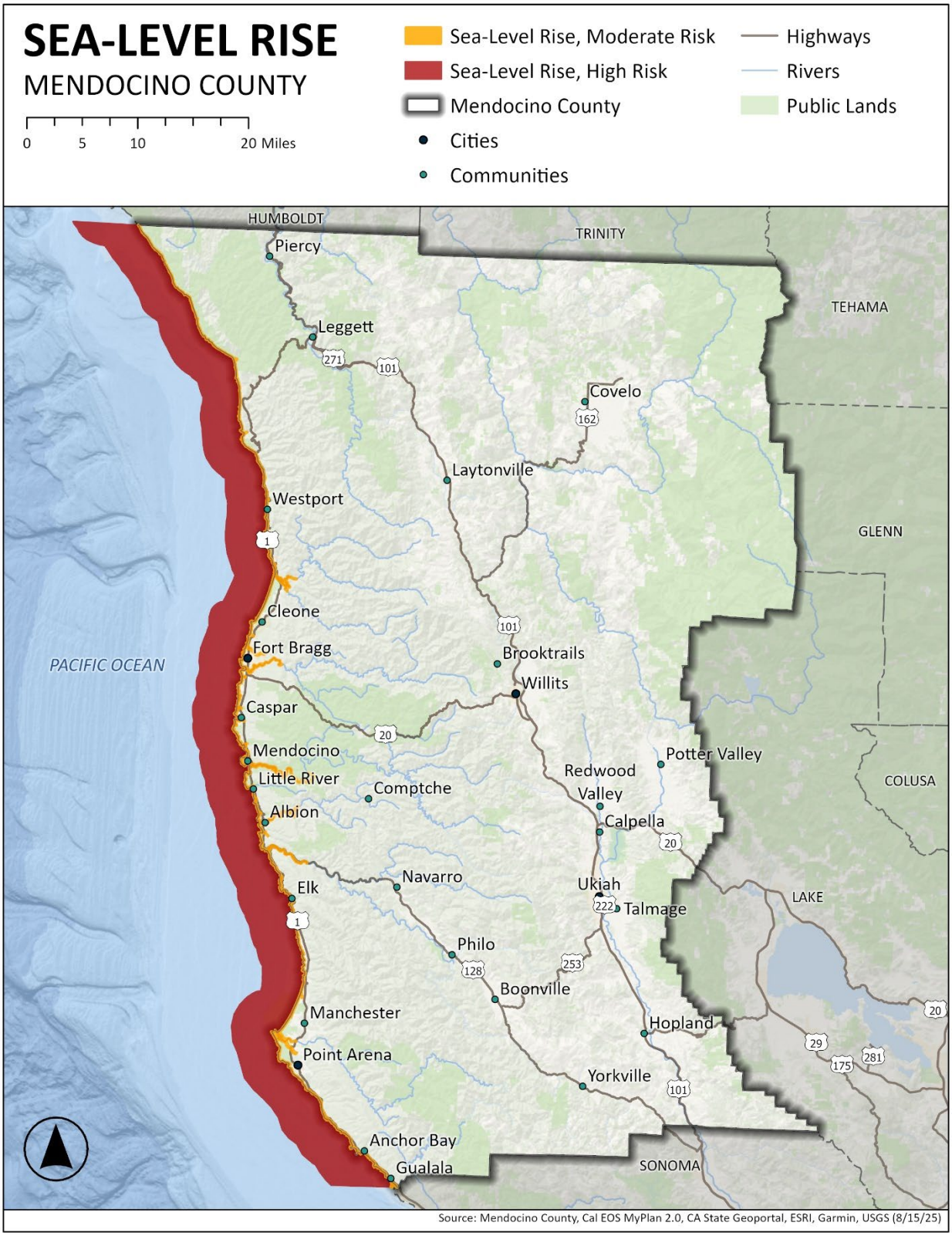
Figure 10 Coastal High Hazard Zones in the County of Mendocino



Sea-Level Rise

Mendocino County's coastline is increasingly vulnerable to sea level rise. The impacts will vary across the region, with southern areas expected to experience higher levels of sea level rise than the northern coast, where tectonic uplift offers some natural protection. Key locations at risk include low-lying coastal zones near Fort Bragg, where rising seas threaten beaches, wetlands, and dunes. Arena Cove near Point Arena is particularly exposed due to its geography, which can amplify storm surges and tsunamis. Additionally, Noyo Harbor is situated in a low-lying coastal area, making its infrastructure vulnerable to future sea level rise. Erosion and flooding are already affecting areas like State Route 1 south of Westport, where infrastructure is increasingly compromised. **FIGURE 11** displays these sea-level rise risk areas in Mendocino County.

Figure 11 Sea-Level Rise Risk Areas in the County of Mendocino



Coastal Erosion

Erosion in Mendocino County is most severe along the coastline near State Route 1 south of Westport, where rapidly retreating cliffs threaten infrastructure[6]. The Fort Bragg area, including MacKerricher State Park, also faces ongoing beach and bluff erosion. Further north, the Lost Coast region in Mendocino and Humboldt Counties, one of the most geologically active areas on the West Coast, experiences natural erosion driven by tectonic uplift, steep terrain, and strong wave action.

4.5.4 Severity

Coastal flooding in Mendocino County is expected to worsen significantly with rising sea levels, putting people, property, and the environment at increasing risk. Low-lying areas, including river mouths and coastal communities, face more frequent and severe flooding that can damage homes, businesses, roads like State Route 1, and disrupt emergency services. This flooding also harms vital coastal ecosystems such as wetlands and dunes, which serve as natural barriers and wildlife habitats.

Sea level rise is projected to reach up to 1 foot by 2050 and over 6 feet by 2100 (under high-emission scenarios). This will intensify these impacts, causing permanent inundation of some areas and loss of natural coastal features. Coastal erosion further compounds these risks by destroying infrastructure, natural resources, and habitats. Sudden bluff and cliff collapses pose dangers to residents and visitors, potentially forcing abandonment of developments near the shoreline. Together, these hazards highlight the urgent need for substantial mitigation and resilient infrastructure planning in Mendocino County.

4.5.5 Secondary Hazards

Secondary natural hazards related to coastal hazards in Mendocino County include mass earth movements such as landslides and rockfalls, as well as increase inland, riverine flooding. Coastal flooding and erosion can weaken and destabilize steep bluffs and slopes, increasing the likelihood of landslides and rockfalls.

Additionally, when the sea level rises, it makes it harder for rivers to flow into the ocean. This causes river water to back up, which can lead to flooding farther inland. Areas near river mouths and low-lying coastal towns are especially at risk because higher ocean water blocks the natural flow of rivers. As a result, flood events happen more often and are more severe, affecting homes, roads, and local wildlife habitats.

4.5.6 Exposure and Vulnerability

4.5.6.1 Lifelines

Coastal hazards in Mendocino County can severely impact critical infrastructure by causing saltwater intrusion into drinking water sources, forcing utilities to increase treatment, relocate

[6] California Cliff Erosion Viewer - Coastal Processes Group

intakes, or find new water supplies. Sea level rise and flooding also threaten hazardous facilities like power plants, refineries, and waste sites, risking the release of dangerous pollutants into communities. Flooding and erosion can damage or block key roadways, disrupting transportation and emergency access.

No lifeline facilities are currently located within FEMA-designated Coastal High Hazard Areas (Zones V and VE). However, several structures are situated within areas at risk from sea level rise. The following provides a summary of the FEMA Lifelines analysis for areas identified as having moderate to high sea level rise vulnerability.

- Safety and Security: 0 locations
- Food, Hydration, Shelter: 0 locations
- Health and Medical: 0 locations
- Energy: 0 locations
- Communications: 0 locations
- **Transportation: 4 locations**
- Hazardous Materials: 0 locations
- Water Systems: 0 locations

The community lifeline system analysis identified approximately **0.8 miles** of assets located in Coastal High Hazard Areas, broken down by system type below. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0 miles)
- Railroad (0 miles)
- Highway (0.2 miles)

Energy:

- Powerline (0.5 miles)
- Transmission Line (0.1 miles)
- Natural Gas Pipelines (0 miles)

Additionally, the community lifeline system analysis identified approximately **2.9 miles** of assets located in moderate to high sea-level rise areas, broken down by system type below. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0 miles)
- Railroad (0.5 miles)
- Highway (0.7 miles)

Energy:

- Powerline (1.1 miles)
- Transmission Line (0.6 miles)
- Natural Gas Pipelines (0 miles)

4.5.6.2 People

Exposure to coastal hazards like flooding, erosion, and sea level rise can have significant impacts on people's mental health and well-being, especially among vulnerable populations such as older adults, low-income individuals, and those experiencing homelessness. These hazards not only damage infrastructure and disrupt daily life but also cause economic losses, including declines in tourism that many communities rely on. Repeated disasters increase these pressures, leading to lasting challenges for individuals and the broader community's social and economic resilience.

4.5.6.3 Structures

Coastal hazards such as flooding, erosion, and sea level rise pose serious risks to structures along Mendocino County's shoreline. Homes and businesses are vulnerable to damage or loss from rising waters, storm surges, and the gradual retreat of the coastline. Erosion can undermine foundations and lead to the collapse of buildings and coastal bluffs, while repeated flooding accelerates wear and increases repair costs. **TABLE 6** displays the total number and value of parcels exposed to sea level rise risk areas in the county.

Table 6 Parcels Exposed to Coastal High Hazard Zones

Use Type	Parcel Count	Land Value	Improved Value
Commercial	32	$18,152,577	$22,027,660
Industrial	6	$3,204,760	$0
Institutional	20	$1,158,688	$471,936
Miscellaneous	45	$2,224,092	$485,391
Residential	698	$264,308,880	$191,197,740
Rural	105	$17,904,264	$7,157,943
No Data	35	$2,241,677	$622,753
Total	**941**	**$309,194,938**	**$221,963,423**

Source: The County of Mendocino Assessor's Office and GIS Department

TABLE 7 displays the total number and value of parcels exposed to sea level rise risk areas in the county.

Table 7 Parcels Exposed to Sea Level Rise (Moderate-High Risk)

Use Type	Parcel Count	Land Value	Improved Value
Commercial	84	$30,661,463	$30,737,218
Industrial	11	$5,688,840	$2,507,927
Institutional	22	$1,217,093	$1,297,419
Miscellaneous	77	$2,601,037	$485,391
Residential	722	$258,288,506	$183,733,483
Rural	208	$24,714,915	$9,948,951
No Data	44	$2,648,572	$717,518
Total	**1,168**	**$325,820,426**	**$229,427,907**

Source: The County of Mendocino Assessor's Office and GIS Department

4.5.6.4 Natural, Historic, and Cultural Resources

Most coastal ecosystems in Mendocino County, like wetlands and beaches, can recover quickly from individual flooding events with minor impacts. However, sea-level rise and long-term erosion can force these ecosystems to migrate inland. When migration is blocked by development, shoreline armoring, or limited sediment, these habitats may be permanently lost or degraded by saltwater intrusion. This loss leads to reduced habitat for fish and wildlife, decreased recreational and commercial opportunities, and the disappearance of vital ecosystem services such as flood buffering, groundwater recharge, and water quality protection. While inland migration of wetlands can help maintain their overall area, it often replaces other valuable inland habitats.

4.5.6.5 Local Vulnerability

- Coastal communities are vulnerable to coastal hazards and the resulting evacuation challenges.
- Hazards could potentially strand residents or visitors and could cut off access to Manchester.
- Coastal erosion can impact infrastructure and buildings located in coastal areas of the County. Specific vulnerabilities relate to communications infrastructure and the following locations (Pudding Creek Mobile Home Park, Anchor Bay Campground, Noyo Harbor, and Albion Harbor).
- A sea level rise plan, focused on public recreation, is in development and will assist in identifying additional future vulnerabilities.
- The Noyo Harbor area experiences flooding from high river flows and high tides accompanied by storm surges that can impact county roads and infrastructure.

4.5.7 Future Trends in Development

Future growth is anticipated to increase the number of residents along the coast. No increases in vulnerability are expected as future development is well-regulated and adequate mitigation will be implemented.

4.5.8 Probability of Future Occurrences

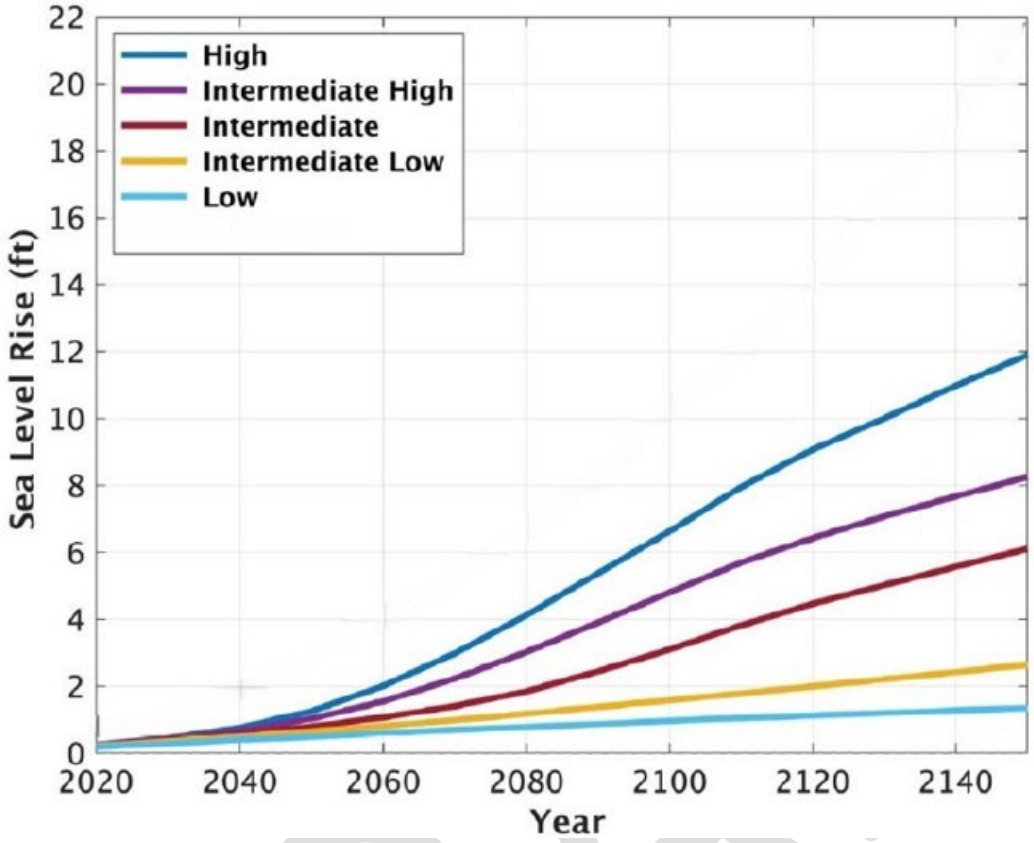
The probability of coastal hazards occurring in the County of Mendocino are highly likely, with an expected rate of 1 to 10 years. The Mendocino County Sea Level Rise Resilience Strategy shows that sea levels are rising statewide in California. Arena Cove projections estimate Mendocino could see up to one foot of rise by 2050 and over six feet by 2100 under high-emission scenarios, increasing risks of coastal flooding and erosion[7]. The CA E-SHMP notes that rising seas, combined with high tides and storms, will lead to more frequent flooding, even during normal tides, and greater damage to shoreline developments. Flooding events, once limited to major storms, are expected to become regular occurrences.

4.5.9 Climate Change Impacts

The California Enhanced State Hazard Mitigation Plan (CA E-SHMP) identifies climate change as a primary driver of sea-level rise due to the melting of polar ice and the thermal expansion of ocean water. Additionally, California's Fourth Climate Change Assessment notes that along the California coast (south of Cape Mendocino), sea levels rose 4–8 inches during the 20th century. Continued warming will lead to more flooding, permanent inundation of low-lying areas, and increased coastal erosion, posing growing risks to communities and infrastructure.

The Mendocino County Sea Level Rise Resilience Strategy provides the following sea level rise scenarios for Arena Cove.

Figure 12 Sea Level Rise Projections for Arena Cove, 2020-2150



Source: State of California Sea Level Rise Guidance Document, 2024; Existing Conditions Analysis for County of Mendocino Sea Level Rise Resiliency Strategy (ESA Ref. D202300556.00)

In addition to sea-level rise, climate change is intensifying coastal erosion through heightened storm activity and increased wave energy. Without targeted adaptation strategies, it is estimated that between 31 and 67 percent of California's beaches could be lost by the end of the century.

4.6 Dam & Levee Incidents

4.6.1 General Background

Dam Incidents

A dam is an artificial barrier that stores water, wastewater, or other liquid-borne material for purposes such as flood control, water supply, irrigation, livestock water supply, energy generation, recreation, and pollution control.

A dam incident refers to any event that affects the normal operation or safety of a dam, such as minor structural issues, unusual seepage, or equipment malfunctions. These incidents often trigger inspections, repairs, or emergency responses but do not necessarily lead to catastrophic consequences. In contrast, a dam failure occurs when a dam loses its ability to hold back water, resulting in an uncontrolled release that can cause severe flooding, property damage,

environmental harm, and threats to human life. While incidents serve as warning signs that help prevent failures, dam failures represent critical emergencies with potentially devastating impacts downstream. The Association of State Dam Safety Officials lists common causes of dam failures:

- Overtopping from excessive water flow
- Foundation defects like settlement and slope instability
- Cracking from movement
- Poor maintenance
- Unfiltered seepage forming sinkholes

Many dam failures in the United States have been secondary results of other disasters, such as earthquakes, landslides, extreme storms, massive snowmelt, equipment malfunction, structural damage, foundation failures, and sabotage.

Levee Incidents

A levee is a structural barrier designed to protect areas from flooding. Similar to dams, levee incidents and failures involve different levels of structural problems with varying impacts. A levee incident refers to conditions like seepage, erosion, or cracks that weaken the levee but do not immediately cause flooding, requiring careful monitoring and repairs to prevent escalation. In contrast, a levee failure happens when the levee is breached or collapses, leading to uncontrolled flooding that can cause extensive property damage, environmental harm, and threaten human safety. While incidents act as warning signs to address vulnerabilities, failures result in serious emergencies with potentially devastating effects on communities.

4.6.2 Past Events

Dam Incidents

Mendocino County has not had any dam failures to date; however, some reported dam incidents have interrupted normal operations. These events have led to inspections and maintenance to address safety concerns and reduce the risk of further issues. Although the Association of State Dam Safety has not documented any dam incidents in Mendocino County, event narratives were collected from the previous HMP and the Core Planning Team.

- **New Year's Eve 2005–2006 – Mendocino 3 Upper Dam**: During a powerful winter storm on New Year's Eve, storm runoff reached such high levels that it spilled over the entire crest of the Mendocino 3 Upper Dam. This occurred even though the standpipe and filter valves, which are designed to relieve pressure and release excess water, were fully open. The event revealed how extreme weather conditions can quickly overwhelm dam infrastructure, especially during high-intensity, short-duration storms.
- **December 2016 – Pudding Creek Dam, Fort Bragg**: In December 2016, an atmospheric river system delivered widespread and intense rainfall across Northern California's coastal regions. The deluge caused the Pudding Creek Dam near Fort Bragg to overtop,

which in turn damaged the dam itself and a primary water main that supplies the city. This incident demonstrated the vulnerability of older dams to extreme precipitation events and underscored the potential for dam failures to impact not just flood risk but also critical infrastructure like municipal water systems.

Levee Incidents

There have been no documented levee failures in Mendocino County, California. However, neighboring Lake County has raised concerns about the integrity of its levee system in the Upper Lake area. A feasibility study released by the County of Lake last year examined the Middle Creek and Clover Creek diversion levees and identified the potential for catastrophic failure under certain conditions. This has heightened awareness of the risks posed to the Upper Lake community but is not likely to impact communities directly in Mendocino County.[8]

4.6.3 Location

Dams

Mendocino County is home to 28 dams, classified based on the potential consequences of failure. Of these, 15 are designated as high-hazard, 6 as significant-hazard, and 7 as low-hazard. The high- and significant-hazard classifications indicate the potential for substantial impacts to downstream communities in the event of a dam incident or failure. A summary of these dams, along with the communities that could be affected, is provided in **TABLE 8** and shown in **FIGURE 13** below.

Dams outside Mendocino County can also affect the area's buildings and residents, not just those within county limits. For example, Scott Dam, a high hazard dam that can impact the Potter Valley region, could impact Mendocino County.

Table 8 Dams in Mendocino County

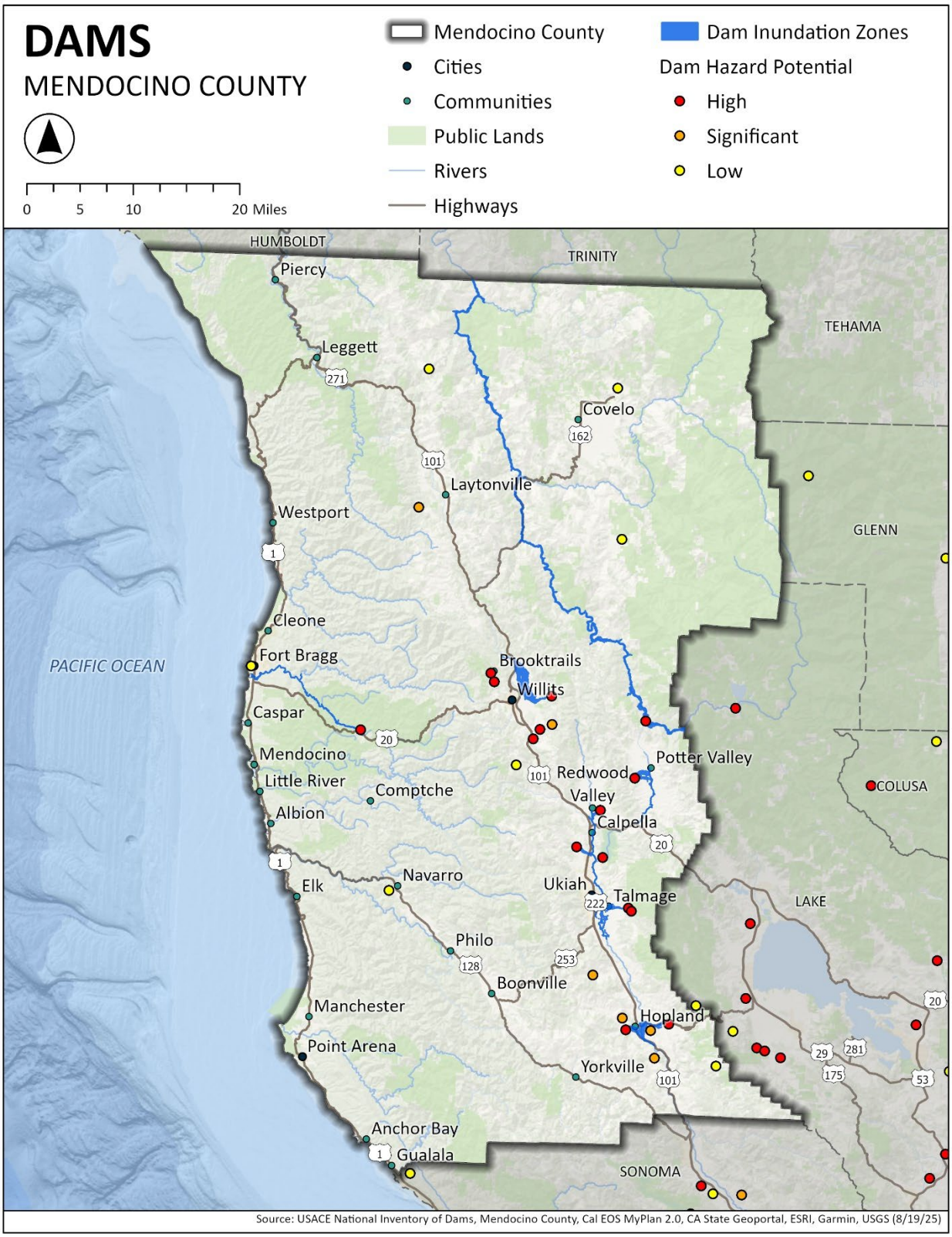
Hazard Potential	Federal ID	Dam Name *(Other Name)*	Owner Type	Downstream Community	Condition
High	CA10201	Coyote Valley Dam *(Lake Mendocino)*	Federal	Ukiah	Not Available
High	CA00563	Scout Lake	Private	Willits	Satisfactory
High	CA00001	Mendocino Middle	Local Government	Talmage	Fair
High	CA00871	Lake Ada Rose	Public Utility		Satisfactory
High	CA00406	Morris	Local Government	Willits	Satisfactory

[8] FEASIBILITY STUDY EXPLORES POTENTIAL FOR CATASTROPHIC FAILURE OF UPPER LAKE LEVEES - LAKE COUNTY NEWS,CALIFORNIA

Hazard Potential	Federal ID	Dam Name *(Other Name)*	Owner Type	Downstream Community	Condition
High	CA01479	Johnson Ranch	Private	Hopland	Fair
High	CA00974	Round Mountain	Private	The Forks	Satisfactory
High	CA00399	Cape Horn *(Van Arsdale)*	Private	None	Fair
High	CA00977	Crawford Ranch	Private	Hopland	Satisfactory
High	CA00976	Mcguire	Private		Satisfactory
High	CA01423	Lolonis Vineyards	Private	Calpella	Satisfactory
High	CA01246	Centennial	Local Government	Fair Oaks and Willits	Satisfactory
High	CA00002	Mendocino 3 Upper	Local Government	Talmage	Satisfactory
High	CA00562	Bevans Creek	Private		Satisfactory
High	CA00872	Lake Emily	Public Utility		Satisfactory
Significant	CA01610	Feliz North Lake	Private	Hopland	Fair
Significant	CA00561	Mcnab	Private	Largo	Satisfactory
Significant	CA01263	Bradford	Private	Pieta	Satisfactory
Significant	CA00972	Mast	Private		Satisfactory
Significant	CA00975	Chinquapin	Local Government	Willits	Satisfactory
Significant	CA01118	Cornett	Private	None	Satisfactory
Low	CA10385	Codding Reservoir	Private	Pieta	Fair
Low	CA01261	Perry Gulch	Private		Satisfactory
Low	CA01139	Mill Pond	Private		Fair
Low	CA01262	Jayne'S Lake	Private		Satisfactory
Low	CA01323	Schwindt	Private		Not Rated
Low	CA00560	Ridgewood	Private		Satisfactory
Low	CA00973	Williams Valley	Private		Satisfactory

Source: USACE National Inventory of Dams (NID)

Figure 13 Dams and Inundation Areas in the County of Mendocino

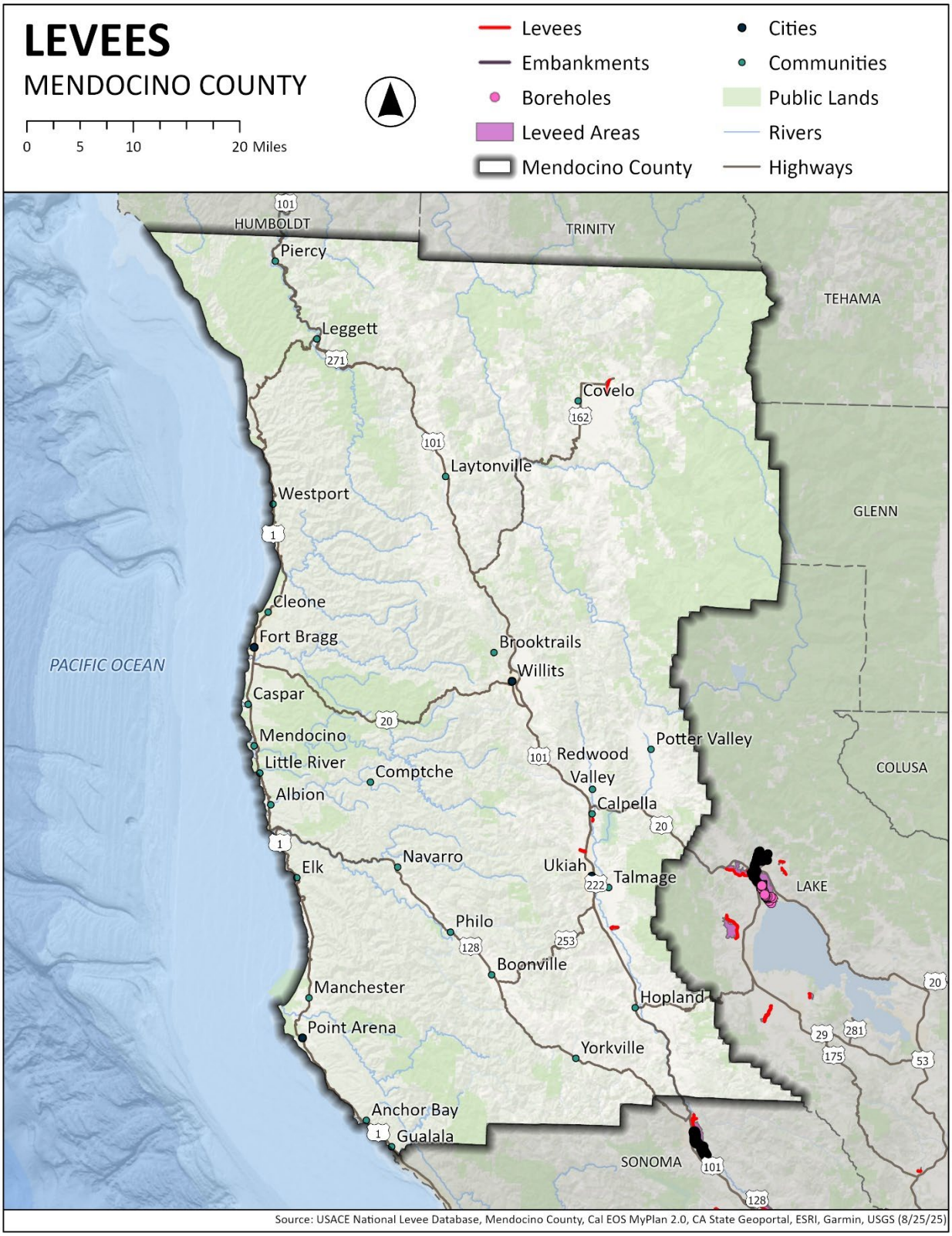


Levees

The U.S. Army Corps of Engineers (USACE) maintains the National Levee Database, which identifies five levee systems located within Mendocino County, along with the communities they are designed to protect. A summary of these levees is provided below and shown in **FIGURE 14**:

- Mendocino County Levee 1 – Ukiah, Morrison Creek
- Mendocino County Levee 2 – Ukiah, Morrison Creek
- Mendocino County Levee 3 – Covelo, Short Creek
- Mendocino County Levee 4 – Calpella, Russian River
- Pinoleville Rancheria Levee System – Ukiah, Ackerman Creek

Figure 14 Levees in the County of Mendocino



4.6.4 Severity

Dam Incidents

Dams are classified by their potential consequences if the dam fails, not the likelihood of failure. Factors that determine hazard class include the number of people living and working in potential inundation zones, and the type and density of structures downstream. Downstream development of a significant hazard dam can result in a reclassification to a high hazard dam, as the potential consequences of a dam failure increase. The California Enhanced State Hazard Mitigation Plan (CA E-SHMP) describes the details of these hazard categories:

- Low: No probable loss of human life and low economic and environmental losses. Losses are expected to be principally limited to the owner's property.
- Significant: No probable loss of human life but can cause economic loss, environmental damage, impacts to critical facilities, or other significant impacts
- High: Expected to cause loss of at least one human life.
- Extremely High: Expected to cause considerable loss of human life or would result in an inundation area with a population of 1,000 or more.

Levee Incidents

Levee incidents have the potential to result in significant flooding in densely populated areas that contain vital infrastructure. In Mendocino County, levees serve to safeguard residents and property in Covelo and the City of Ukiah. Consequently, a failure of Mendocino County Levee 1, Mendocino County Levee 3, or the Pinoleville Rancheria Levee System may lead to severe consequences.

4.6.5 Secondary Hazards

Dam and levee incidents can trigger secondary hazards, including mass earth movements and soil instability hazards. Heavy flooding from a flash flood or a dam/levee failure can saturate soils, reducing their stability and triggering landslides on steep slopes. Floodwaters can also result in erosion, especially floodwaters with high force, such as those from a dam or levee failure, which can remove topsoil and sediment from riverbanks and floodplains. Prolonged flooding that saturates the soil can make it heavier and result in sudden collapse, or ground subsidence.

4.6.6 Exposure and Vulnerability

4.6.6.1 Lifelines

Dam and levee incidents can significantly impact critical infrastructure by disrupting essential services and damaging key systems. A breach or malfunction may lead to widespread flooding, which can inundate roads, bridges, utilities, and communication networks, cutting off access to emergency services and isolating communities. Electrical substations, water treatment plants, and wastewater systems located downstream are particularly vulnerable, which can potentially

result in power outages, water supply disruptions, and environmental contamination. Even without a full failure, incidents such as seepage or structural instability can require emergency response measures, temporary shutdowns, and costly repairs.

Dams

A summary of the community lifeline analysis for dam inundation areas is presented below:

- Safety and Security: 0 locations
- Food, Hydration, Shelter: 0 locations
- Health and Medical: 0 locations
- Energy: 0 locations
- Communications: 0 locations
- **Transportation: 29 locations**
- Hazardous Materials: 0 locations
- Water Systems: 0 locations

Additionally, the community lifeline system analysis identified approximately **42.4 miles** of assets located in dam inundation areas, broken down by system type below. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0 miles)
- Railroad (31.9 miles)
- Highway (4.6 miles)

Energy:

- Powerline (1.9 miles)
- Transmission Line (3.6 miles)
- Natural Gas Pipelines (0.4 miles)

Levees

According to the USACE and the community lifeline analysis, no critical facilities are located within areas protected by levee systems in the county.

4.6.6.2 People

Dam and levee incidents can threaten public health and safety by causing sudden flooding, which may lead to injuries, fatalities, and displacement. Floodwaters can carry contaminants and sewage, increasing the risk of illness. Vulnerable populations, such as older adults and those without reliable transportation, are especially at risk during these emergencies.

Levees

The USACE provides estimates of the population living within levee-protected areas who could be affected in the event of a levee incident, summarized below.

- Mendocino County Levee 1 – Ukiah, Morrison Creek
  - 14 people
- Mendocino County Levee 2 – Ukiah, Morrison Creek
  - No people at risk
- Mendocino County Levee 3 – Covelo, Short Creek
  - 5 people
- Mendocino County Levee 4 – Calpella, Russian River
  - No people at risk
- Pinoleville Rancheria Levee System – Ukiah, Ackerman Creek
  - 41 people

4.6.6.3 Structures

Dam and levee incidents can cause significant damage to structures located downstream or within inundation areas. Flooding from a breach or failure can lead to the destruction of buildings, loss of personal property, and costly repairs. Even minor incidents, such as overtopping or seepage, can result in water intrusion, foundation damage, and mold growth. Businesses may face extended closures, leading to economic losses and disruptions in local services. In many cases, recovery can take months or years, placing financial strain on property owners and communities.

Dams

TABLE 9 summarizes the total parcel value and count exposed to dam inundation areas in the County of Mendocino.

Table 9 Parcels Exposed to Dam Incidents

Use Type	Parcel Count	Land Value	Improved Value
Commercial	55	$16,800,730	$18,535,422
Industrial	55	$9,761,396	$12,255,484
Institutional	11	$1,359,763	$7,582,679
Miscellaneous	61	$892,924	$12,852
Residential	626	$58,774,217	$64,900,254
Rural	613	$54,173,602	$65,645,993
No Data	154	$6,133,995	$4,397,975
Total	**1,575**	**$147,896,627**	**$173,330,659**

Source: The County of Mendocino Assessor's Office and GIS Department

Levees

TABLE 10 summarizes the total parcel value and count exposed to levee-protected areas in the County of Mendocino.

Table 10 Parcels Exposed to Levee Incidents

Use Type	Parcel Count	Land Value	Improved Value
Commercial	0	$0	$0
Industrial	8	$2,085,716	$690,962
Institutional	1	$0	$0
Miscellaneous	2	$119,877	$0
Residential	22	$901,222	$1,091,254
Rural	16	$1,430,800	$2,280,001
No Data	7	$628,663	$224,137
Total	**56**	**$5,166,278**	**$4,286,354**

Source: The County of Mendocino Assessor's Office and GIS Department

Additionally, the USACE estimates the number of structures and property value within levee-protected areas, summarized below.

- Mendocino County Levee 1 – Ukiah, Morrison Creek
  - 1 building
  - $410k in property value
- Mendocino County Levee 2 – Ukiah, Morrison Creek
  - No structures at risk
- Mendocino County Levee 3 – Covelo, Short Creek
  - 3 buildings
  - $20 million in property value
- Mendocino County Levee 4 – Calpella, Russian River
  - No structures at risk
- Pinoleville Rancheria Levee System – Ukiah, Ackerman Creek
  - 43 buildings
  - $91 million in property value

4.6.6.4 Natural, Historic, and Cultural Resources

Severe dam and levee incidents can result in significant downstream flooding and the movement of large volumes of sediment and debris, causing widespread environmental disruption. Additional impacts may include contamination from failing septic systems, pollution

of drinking water sources, altered stream channels, loss of wildlife habitat, and the degradation of wetlands

4.6.6.5 Local Vulnerability

The Coyote and Scott Dams are the top concerns should an incident occur. The valley downstream from the Coyote Dam, the East Fork Russian River corridor, including the City of Ukiah and other towns/settlements in the Russian River Valley could be impacted. Infrastructure, including roads, bridges, and utilities lying along the river corridor would be at risk in addition to residential homes, businesses, and agricultural land.

4.6.7 Future Trends in Development

The county would prefer that any new development be located outside of mapped inundation areas, to ensure the county's collective risk to incidents is not increased. The California Department of Water Resources (DWR), via its Division of Safety of Dams (DSOD), requires dams classified as "significant", "high", or "extremely high" downstream hazard to have inundation maps and emergency action plans. This requirement for inundation mapping means that land use authorities have data on hazard zones to inform planning.

The county's land-use regulation (Title 17) explicitly mentions: "The creation of building sites in areas where topography, flooding, or other factors will prevent safe, orderly, and beneficial land development." Restricting or regulating development in identified inundation areas is a capability that the county has.

4.6.8 Probability of Future Occurrences

The probability of a significant dam or levee incidents occurring in the County of Mendocino are unlikely, with an expected rate of intervals of over 50 years. However, small disruptions to normal operations could occur more frequently. Dam and levee incidents in Mendocino County are infrequent and typically occur in conjunction with triggering events such as earthquakes, landslides, heavy rainfall, or rapid snowmelt. While no complete failures of dams or levees have been recorded in the county to date, three dam incidents have been reported, indicating that future occurrences remain a possibility.

4.6.9 Climate Change Impacts

Climate change is expected to increase the risks associated with dam and levee incidents by intensifying the conditions that contribute to their failure. According to the CA E-SHMP, more frequent and severe storms, prolonged droughts followed by heavy rainfall, and increased snowmelt due to warmer temperatures can all stress dam and levee infrastructure. These changing climate patterns may lead to overtopping, increased seepage, or structural instability. In particular, aging infrastructure may not be equipped to handle the increased volume and intensity of future runoff events, raising the likelihood of incidents.

4.7 Drought

4.7.1 General Background

Drought, the prolonged absence of precipitation, is a regular feature of the county's climate. Periods of drought cycles and water resource overuse have impacted every California community, including Mendocino County.

Drought first affects those who rely on annual rainfall, including wildfire agencies, dryland ranchers, rural residents with low-yield wells, and small water systems without reliable sources. Within the county, water suppliers and water users obtain water from both surface and groundwater resources. The county overlays 22 groundwater basins; 68% of the county's water supply is sourced from groundwater.[9] Surface water accounts for 32% of the county's water supply, with the primary sources being the Russian River and Eel River, along with their tributaries. [10]

Typically, a single dry year does not constitute a drought in California. Drought is a gradual phenomenon that develops over a prolonged period. Although often characterized as emergencies, droughts can make it difficult to quantify when they begin and end. Drought can usually be defined regionally based on its effects:

- Meteorological drought is usually defined as a period of below-average precipitation.
- Agricultural drought occurs when there is an inadequate water supply to meet the needs of the county's crops and other agricultural operations, such as livestock.
- Hydrological drought is defined as a deficiency in surface and subsurface water supplies. It is generally measured in terms of stream flow, snowpack, lake levels, reservoir levels, and groundwater levels.
- Socioeconomic drought occurs when a drought impacts health, well-being, and quality of life or when a drought starts to have an adverse economic impact on a region.

4.7.2 Past Events

As shown in **TABLE 2** and **TABLE 3** Mendocino County has received 21 disaster designations and one emergency declaration for drought between 1977 and 2024.

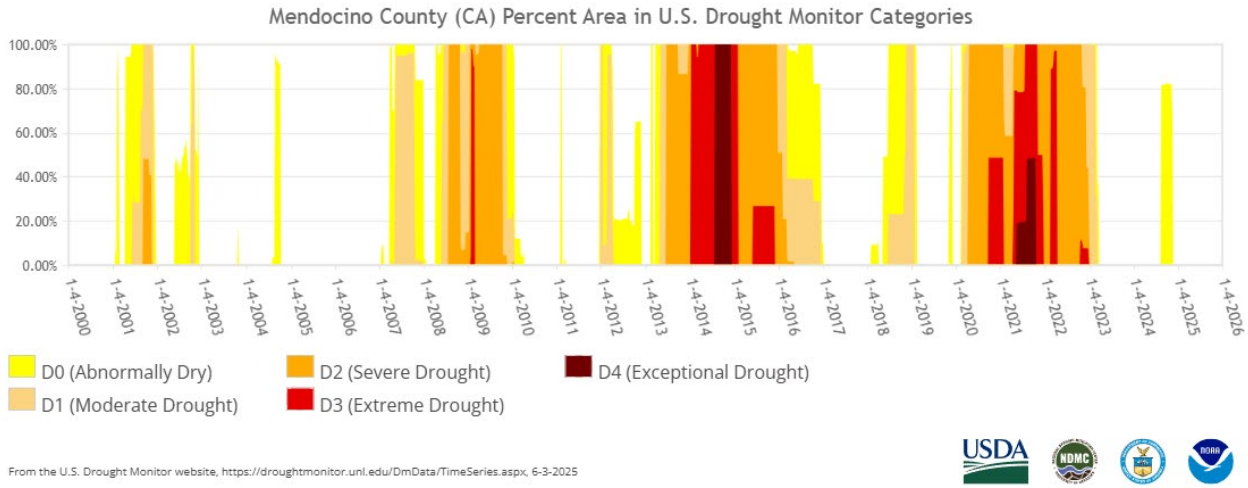
According to the 2025 Mendocino County Drought Resilience Plan, the county has experienced drought conditions over the last twenty years, including multi-year droughts from 2007 to 2009, 2012 to 2016, and 2020 to 2022.

According to records from the U.S. Drought Monitor, during the 1,305-week period from January 1, 2000, through January 1, 2025, all or portions of Mendocino County spent 718 weeks (55% of the time period) in some level of drought, defined as Abnormally Dry (D0) or worse conditions. This period includes 386 weeks of Severe Drought (D2), 187 weeks of Extreme

[9] Mendocino County Drought Resilience Plan, May 2025.
[10] Mendocino County Drought Resilience Plan, May 2025.

Drought (D3), and 43 weeks of Exceptional Drought (D4). **FIGURE 15** illustrates these periods of extreme and exceptional drought, including the duration of these occurrences and the range of affected county percentages.

Figure 15 Periods of Drought in Mendocino County, 2000-January 2025



4.7.3 Location

Drought is a significant hazard that has the potential to affect the entire population of Mendocino County, either directly or indirectly. This can occur through water restrictions, increased costs for water and food, diminished air or water quality, or limited access to recreational areas. No area within the county is exempt from experiencing drought conditions.

The State Water Resources Control Board 2024 Aquifer Risk Assessment estimates that 1,721 domestic wells in the county are considered “high risk” for water quality, and no State Small Water Systems are considered “high risk” for water quality. According to the 2025 Drought Resilience Plan the following communities are at high-risk for degraded water quality: the City of Fort Bragg, Anderson Valley, Redwood Valley, Laytonville, Talmage, and the City of Willits, and its surrounding areas.

Additionally, the Town of Mendocino has individual supply wells in fractured rock, which may make it more susceptible to household water outages during drought conditions.[11] Fractured rock aquifers allow water to flow through it quickly but have higher rates of depletion, making these types of aquifers sensitive to drought conditions.

According to the 2025 Drought Resilience Plan and the California Division of Water Resources statewide Water Shortage Vulnerability Scoring, there are 6,654 domestic wells in the county (84%) and 25 State Small Water Systems (93%) are high risk of drought and water shortage impacts. The 2025 Drought Resilience Plan lists the following locations as having the highest density of these at-risk domestic wells.

[11] Mendocino County Drought Resilience Plan, May 2025.

- City of Fort Bragg
- Calpella Census Designated Place (CDP)
- Talmage CDP
- Brooktrails CDP
- Covelo CDP
- Boonville CDP
- Philo CDP
- Manchester CDP
- Laytonville CDP
- Redwood Valley CDP
- Potter Valley CDP
- Town of Mendocino
- Caspar
- Whitesboro
- Navarro
- Fish Rock
- The Oaks
- Yorkville
- Redwood Valley Rancheria
- Pinoleville Rancheria
- Coyote Valley Reservation
- Yokayo Tribe of Indians
- Sherwood Valley Band of Pomo Indians

The Department of Water Resources classifies the Ukiah Valley Groundwater Basin as a medium-priority subject to the Sustainable Groundwater Management Act. The Ukiah Valley Groundwater Basin underlies the Ukiah Valley and the Redwood Valley, and the Russian River runs the entire length of the Basin.

4.7.4 Severity

Drought severity depends on the degree of moisture deficiency, its duration, and the size of the affected area. Severity categories are based on possible impacts. As shown in **FIGURE 16** Mendocino County has experienced drought in each of these categories in the past.

Figure 16 Drought Categories and Possible Impacts

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: • short-term dryness slowing planting, growth of crops or pastures Coming out of drought: • some lingering water deficits • pastures or crops not fully recovered
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

The 2025 Drought Resilience Plan outlines the drought stage trigger conditions that address varying levels of water shortages and are structured into stages of increasing severity. The following are the countywide triggers. **FIGURE 17** shows the differences in triggers between the coastal and inland areas of the county. This is due to the differences in precipitation patterns, groundwater resources, surface water availability, and overall water resources management practices between the coastal and inland areas of the county.

Stage 1 – Water Shortage Monitoring:

The Stage 1 drought response stage reflects non-drought conditions, in which the county is experiencing no significant water shortages or drought-related stress. Response actions associated with Stage 1 include routine monitoring and the ongoing activities of the County Drought Task Force (CDTF). Unless Stage 2 or Stage 3 are enacted, the county remains in Stage 1.

Stage 2 – Water Shortage Warning:

The Stage 2 drought response stage reflects light to moderate drought conditions within the county and triggers increased monitoring and drought response activities, in addition to the routine activities outlined in Stage 1.

Stage 3 – Severe and Emergency Water Shortage:

The Stage 3 drought response stage reflects extreme drought conditions within the county, during which water users may face severe water shortages. The enactment of a Stage 3 response triggers emergency-related actions, in addition to the monitoring and mitigation activities associated with Stages 1 and 2.

The drought stage triggers for the coastal region include the number of dry well reports and two-year precipitation totals, while the drought stage triggers for the inland region include the number of dry well reports and reservoir storage levels

Figure 17 Drought Response Triggers by County Region

Table 8. Drought Response Triggers

Drought Stage	COASTAL REGION		INLAND REGION		COUNTYWIDE
	Dry Well Reports[1]	Current Year Hydrology[2]	Dry Well Reports[1]	Current Year Hydrology[3]	U.S. Drought Monitor[4]
1 – Water Shortage Monitoring	Less than 4 reports over any three-month period	Two-year precipitation total is greater than 80% of average	Less than 4 reports over any three-month period	Lake Mendocino total storage is greater than 70% of total target water supply curve	None; **OR** D0 Abnormally Dry
2 – Water Shortage Warning	4 – 12 reports over any three-month period	Two-year precipitation total is 50 – 80% of average	4 – 6 reports over any three-month period	Lake Mendocino total storage is 45 - 70% of total target water supply curve	D1 Moderate Drought; **OR** D2 Drought-Severe for less than 8 consecutive weeks
3 – Severe and Emergency Water Shortage	More than 12 reports over any three-month period	Two-year precipitation total is less than 50% of average	More than 6 reports over any three-month period	Lake Mendocino total storage is less than 45% of total target water supply curve	D2 Drought-Severe for 8 or more consecutive weeks; **OR** D3 Drought-Extreme; **OR** D4 Drought-Exceptional

Notes:

(1) Dry well information for wells within the County is available through DWR's Dry Well Reporting System database (https://data.cnra.ca.gov/dataset/dry-well-reporting-system-data).

(2) Current year hydrology within the County's coastal region is assessed using two-year precipitation totals for the Big-Navarro-Garcia Watershed (HUC 18010108), available through DWR's California Water Watch dashboard (https://cww.water.ca.gov/).

(3) Current year hydrology within the County's inland region is assessed by comparing the reservoir storage level of Lake Mendocino to the total target water supply curve. Storage levels are updated daily and are available through DWR's CDEC (https://cdec.water.ca.gov/).

(4) Countywide triggers are defined as the USDM's drought monitor intensity classifications for any portion of the County, consistent with CFR § 759.5 (https://droughtmonitor.unl.edu/).

Source: Mendocino County Drought Resilience Plan, May 2025.

4.7.5 Secondary Hazards

Drought conditions can cause soil compaction, reducing its ability to absorb water and increasing susceptibility to flash flooding and erosion. As droughts lengthen, their impacts

intensify, leading to the depletion of reservoir supplies and declining water levels in groundwater basins. A recent study funded by NOAA's National Integrated Drought Information System found that dry soils decrease evapotranspiration rates, the combined process of water moving from the earth's surface to the atmosphere, and cause soil to retain more heat. This combination of reduced evapotranspiration and warmer soils allows heat to escape into the atmosphere, leading to warmer air temperatures. [12]

Wildfires are frequently linked to drought as a secondary hazard. Extended periods without precipitation dry out vegetation, making it increasingly prone to ignition as the drought continues. Drought can accelerate the drying of dead and fallen trees, making them more effective fuel sources for wildfires. This was experienced in 2020, where a combination of drought conditions and lightning led to the August Complex Fire, which burned over a million acres, including eastern portions of Mendocino County.

4.7.6 Exposure and Vulnerability

4.7.6.1 Community Lifelines

The community lifelines most impacted by drought are food, water, and shelter, which include agriculture and water systems. Droughts can affect people and their livelihoods in numerous ways. Most critically, they can be detrimental to the supply of drinking water and the availability of water. Analysis in the 2025 Drought Resilience Plan shows a significant portion of the county and its domestic wells (84%) and State Small Water Systems (93%) are at high risk of being impacted by drought and water shortage events in the future.[13]The most significant effects involve water-intensive activities like agriculture, wildfire protection, municipal use, commerce, tourism, recreation, and wildlife preservation. Reduced power generation and deteriorated water quality are also potential effects.

4.7.6.2 People

The primary concern during a drought is the impact of water availability and quality on public health. A significant issue is the provision of safe drinking water, which affects all residents in the county. Dry soil combined with strong winds can deteriorate air quality by increasing the number of dust particles, potentially affecting individuals with respiratory issues.

Financially, certain groups, such as those working in agriculture, landscaping, or water recreation, may face challenges due to income loss. Recovery from this loss can be difficult. Those dependent on groundwater are particularly vulnerable to the effects of drought.

[12] NOAA/NIDIS. Drought Brings the Heat: New Research Finds Drought Lengthens Heat Waves. May 14, 2025. https://www.drought.gov/news/drought-brings-heat-new-research-finds-drought-lengthens-heat-waves-2025-05-14#:~:text=It%20is%20understood%20that%20dry,atmosphere%2C%20driving%20warmer%20air%20temperatures.

[13] Mendocino County Drought Resilience Plan, May 2025.

4.7.6.3 Structures

Drought generally does not directly impact buildings. While water, irrigation systems, and sewer systems may be influenced by drought, other essential facilities are usually unaffected. However, secondary effects from drought, such as wildfires and erosion, can have a significant impact on structures and municipal infrastructure.

4.7.6.4 Natural, Historic, and Cultural Resources

The geographic reach of a drought can vary widely. Even brief droughts during the plant growth period can harm agricultural production. In regions with prolonged low precipitation, ecosystems face significant stress. Decreased waterways impact fish and aquatic plants, while vegetation loss affects animal food sources and soil stability. Wildlife may have to travel farther in search of resources, disrupting migration and breeding patterns. Wetlands, vital for environmental health, can be destroyed if water levels drop. The risk of wildfire increases as dry vegetation becomes more easily ignited, and soil erosion can degrade air quality through the release of dust.

4.7.6.5 Local Vulnerability

- Groundwater pumping and well construction during drought years can increase the possibility of aquifer overdraft.
- Water wells in Mendocino County have run dry in the late fall months, especially in drought years.
- County buildings and facilities have irrigated landscaping, including turf grass.
- There is an opportunity for the County Land Use Code to include incentives for new development to implement drought-tolerant landscaping that requires less water.

4.7.7 Future Trends in Development

Any future growth will lead to increased water demand and will heighten vulnerability to drought. Proactive water conservation measures are crucial to ensure long-term resilience and sustainability, even during non-drought periods.

4.7.8 Probability of Future Occurrences

The probability of future drought occurrences in Mendocino County is significant, as data from January 2000 to January 2025 indicate that drought conditions were present for 718 weeks out of a 1,305-week period. Drought is likely to occur Annually (with a 100% annual occurrence), although its impact may not be equally felt across the county. This steady pattern is further reinforced by the consistent issuance of USDA disaster declarations between 2000 and 2024, indicating that droughts of sufficient severity to require aid are likely to continue in the future. This suggests that drought remains a persistent hazard for the county.

4.7.9 Climate Change Impacts

Drought is a frequent phenomenon in California. The Fourth Climate Change Assessment for California, specifically the Regional Report for the North Coast Region, indicates that recent climate change studies have determined that rising temperatures, regardless of precipitation levels, will increase the likelihood of more severe and prolonged drought throughout the state. The North Coast Region is expected to experience increasing water deficits, exacerbating drought stress on soils and vegetation. Additionally, the higher frequency and intensity of drought conditions in this area are anticipated to diminish streamflows. This situation is likely to affect agricultural production in Mendocino County adversely and consequently impact the local economy. According to the 2025 Drought Resilience Plan, it is projected that multi-year droughts will become more frequent statewide, and Mendocino County will continue to experience similar or more severe drought conditions that have been experienced in the previous 20 years into the future.

4.8 Earthquake

4.8.1 General Background

An earthquake is a sudden and rapid shaking of the ground caused by the movement of tectonic plates beneath the Earth's surface, often resulting in significant geological and structural impacts. The North Coast Region is considered one of the most earthquake-prone areas in the United States. This is due to the location of three plates (Gorda, Pacific, and North American) and three fault systems known as the Mendocino triple junction that meet near Cape Mendocino. The following descriptions of active or potentially active faults and fault zones are from the Mendocino County General Plan.

- **San Andreas Fault** – Capable of very strong earthquakes. This fault crosses the county in the southwest corner and continues offshore north of Manchester. The last major earthquake on this portion of the fault was the 1906 San Francisco earthquake (magnitude 7.9). An earthquake of this magnitude on the fault would cause severe shaking and extensive structural damage along the south coast of the county. It was reported that the 1906 earthquake caused ground rupture from Santa Cruz to Manchester and offshore. The lateral displacement across the fault was 25 feet at Manchester.
- **Whale Gulch Fault** – Associated with the San Andreas Fault and located a few miles west of the offshore San Andres Fault. Extends from Shelter Cover southward into the northwesternmost corner of the county.
- **Maacama Fault** – Extends from northern Sonoma County to north of Laytonville. Historically, it has only generated a few minor earthquakes, but has generated several smaller magnitude events (less than 3 magnitude). Surface fault creep, very slow movements across known fault locations, has been documented along the fault at

locations east of Willits and Ukiah. The slip rate for this fault is estimated between 5-8 millimeters per year.

- **Round Valley Fault** – Considered potentially active, this fault traverses the northern corner of the county. No activity has been found for more than 1.6 million years. Small earthquakes with less than 3 magnitude have been recorded in the vicinity of the fault in the southern end.
- **Cascadia Subduction Zone** – The most significant seismic source located offshore and 30 miles northwest of Mendocino County in an area where several tectonic plates converge. Capable of generating more significant earthquakes than any other seismic source in the western U.S.

Liquefaction is a phenomenon where saturated soil loses its strength and stiffness due to an applied stress, such as shaking during an earthquake, causing it to behave like a liquid. There are several alluvial basins in Mendocino County where the subsurface conditions are locally conducive to liquefaction. These include the alluvial basins in the Willits, Ukiah, and Covelo areas. Fine-grained alluvial deposits along river systems (e.g., the mouth of the Garcia River at Manchester) also are susceptible to liquefaction. Other, smaller alluvial deposits in the county may also have conditions conducive to liquefaction.

The Cal OES Earthquake Early Warning California application, also known as MyShake, is a statewide warning system that provides a few seconds or tens of seconds to take cover or other preventive measures before shaking occurs, depending on the location of the event. The application was developed in partnership with the University of California, Berkeley, and US Geological Survey (USGS) ShakeAlert. The system uses data from motion sensors and the Global Navigation Satellite System across the state to detect earthquakes before they can be felt and to notify residents of impending earthquakes. Individuals can download the MyShake App on their phones to receive earthquake warnings.[14]

4.8.2 Past Events

Several earthquakes, each 4.0 magnitude or greater, have occurred in and near Mendocino County over the last twenty years. **TABLE 11** lists earthquake events of 4.0 magnitude or higher since 2004. Two neighboring areas, especially between Healdsburg and Ukiah, experienced 5.0 and 5.1 earthquakes in 2016. The August 2016 quake caused minimal damage to homes. This region typically experiences an earthquake roughly every 15 years. The December 2016 quake had an epicenter just 24 miles from Ukiah.[15]

On December 5, 2024, a magnitude 7.0 earthquake occurred offshore of Cape Mendocino near Humboldt County. Following the earthquake, a tsunami warning was sent for all areas on the coastline between Santa Cruz up to central Oregon. This was the largest earthquake to impact

[14] 2023 California Enhanced State Hazard Mitigation Plan
[15] KTLA Local News, 2016

the North Coast since the magnitude 7.2 Cape Mendocino earthquake in 1992. The event resulted in a Proclamation of State of Emergency, which included Mendocino County.

Table 11 Earthquakes in or near Mendocino County Magnitude 4.0 or Greater

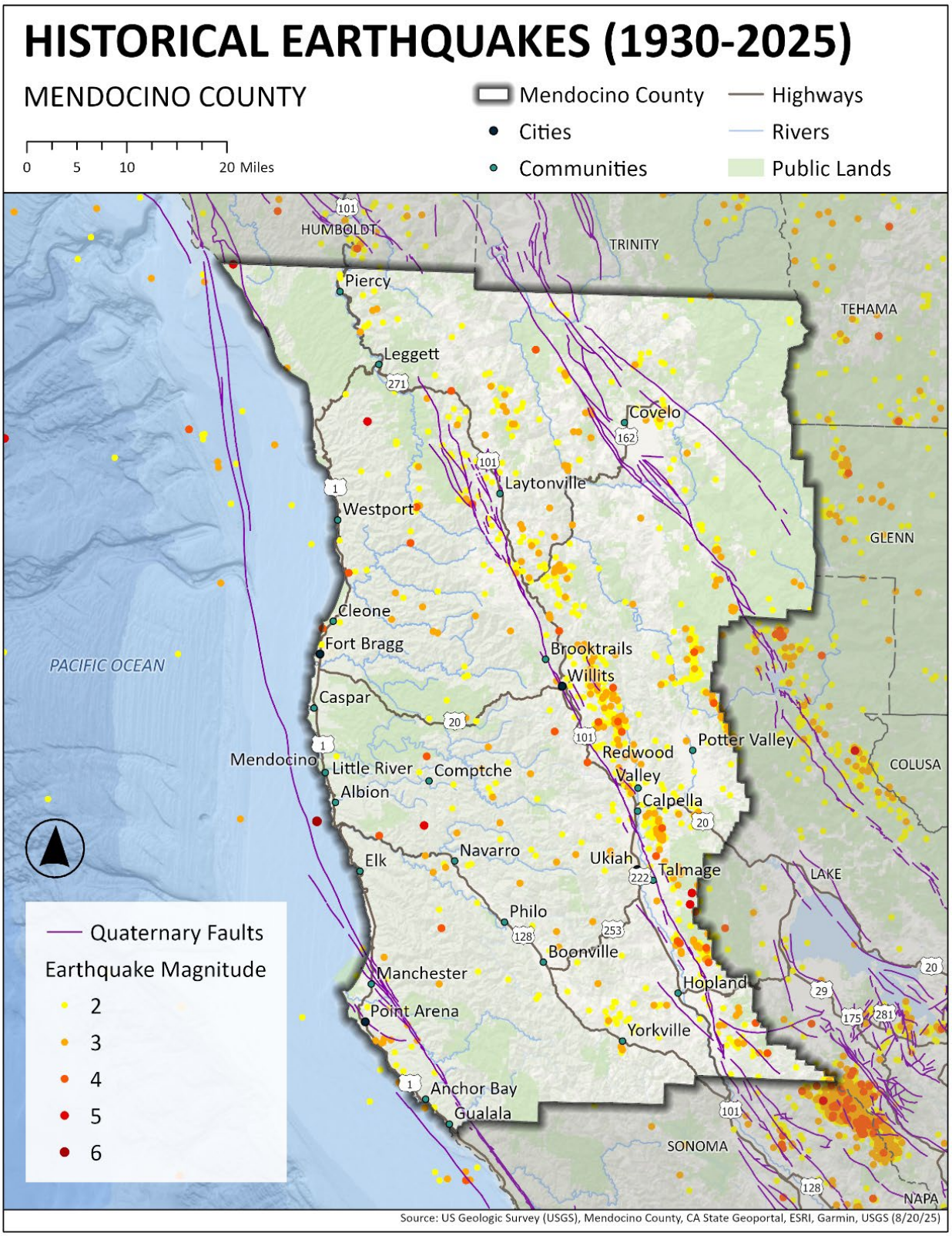
Date	Location	Magnitude
2/18/2004	Northern California	4.6
5/12/2006	Northern California	4.7
10/20/2006	Northern California	4.6
4/18/2007	Northern California	4.8
9/25/2012	Northern California	4.5
1/12/2014	Northwest of the Geysers,	4.5
8/10/2016	Northeast of Upper Lake, Ca	5.1
12/14/2016	Northwest of the Geysers, Ca	5.0
6/24/2017	Near the coast of Northern California	4.0
12/14/2017	17km WSW of Laytonville, CA	4.3
8/19/2020	11km ESE of Willits, CA	4.2
3/24/2021	21km SSW of Willits, CA	4.0
4/20/2021	20km ENE of Redway, CA	4.0
11/4/2021	19km NW of Covelo, CA	4.1
9/20/2022	5km E of Covelo, CA	4.0
6/22/2024	5 km WSW of Laytonville, CA	4.3
9/7/2024	1 km ESE of The Geysers, CA	4.3
12/5/2024	9 km WNW of Cobb, CA	4.3
12/17/2024	20 km NE of Redway, CA	4.1
1/2/2025	4 km NW of Cobb, CA	4.7
3/17/2025	9 km NNE of Lake Pillsbury, CA	4.2

Source: USGS

4.8.3 Location

It is important to recognize that earthquakes with epicenters outside of the county can still impact the area, as seismic waves from large earthquakes can travel significant distances. **FIGURE 18** displays historical earthquakes that have occurred in the region, along with the locations of known faults.

Figure 18 Historical Epicenters and Faults



4.8.4 Severity

The primary method for measuring earthquakes is by their magnitude, which indicates how strong an earthquake is. Scientists often use the Moment Magnitude (Mw) Scale for this purpose, though the widely known Richter (M) Scale is also common. An earthquake's magnitude is calculated based on the total fault area that ruptures and the displacement across it. **TABLE 12** lists seven earthquake magnitude categories on the Mw scale, from great to micro. Earthquakes that fall into the Catastrophic intensity can cause severe damage to infrastructure, while micro earthquakes usually cause only minor harm.

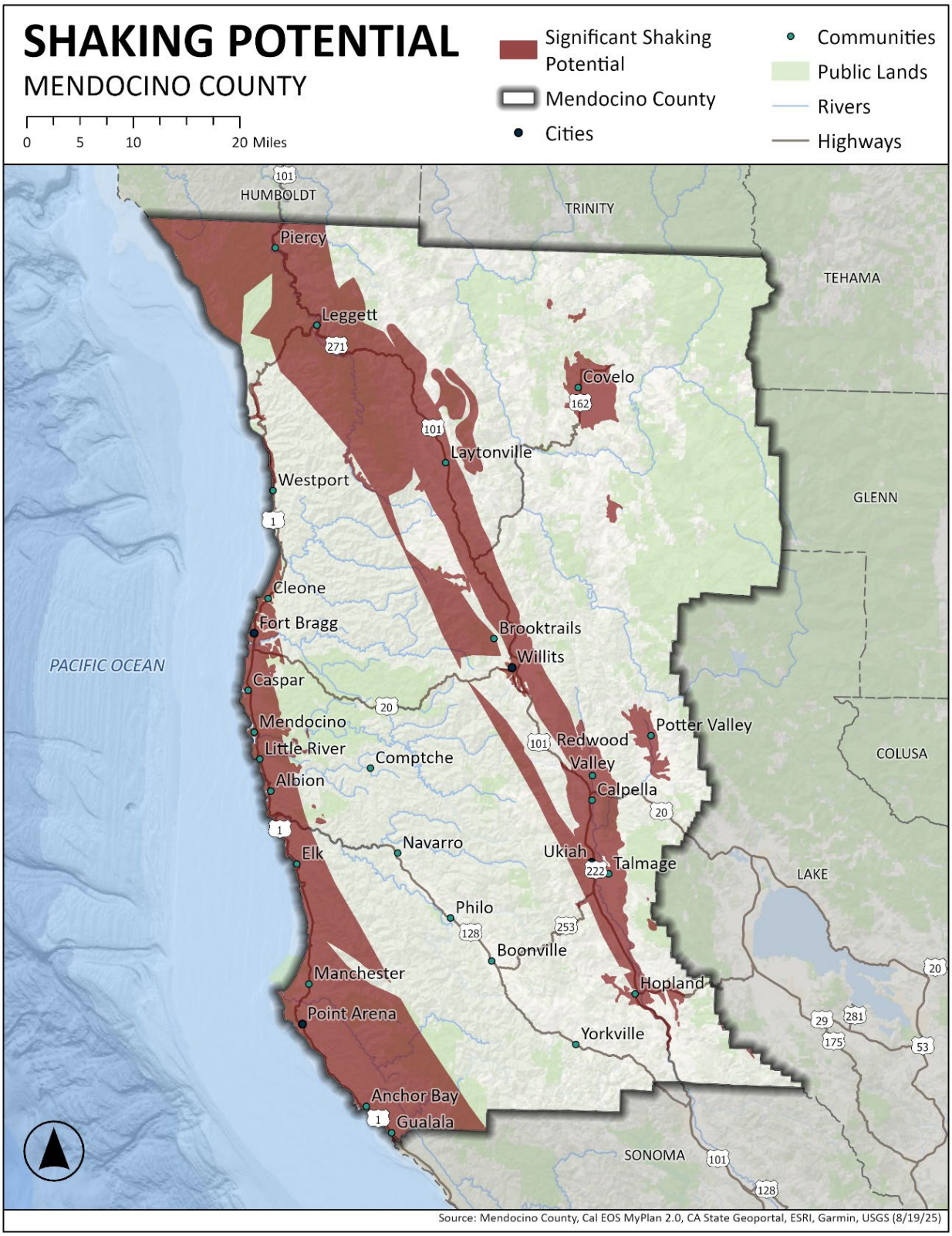
Table 12 Earthquake Magnitude and Intensity Scale

Scale	Intensity	Description of Effects	Richter Scale Magnitude
I	Not Felt	Detected only on seismographs.	
II	Weak	Some people feel it.	< 4.2
III	Weak	Felt by people resting; like a truck rumbling by.	
IV	Light	Felt by people walking.	
V	Moderate	Sleepers awake; church bells ring.	< 4.8
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves.	< 5.4
VII	Very strong	Mild alarm; walls crack; plaster falls.	< 6.1
VIII	Severe	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged.	
IX	Violent	Some houses collapse; ground cracks; and pipes break open.	< 6.9
X	Extreme	Ground cracks profusely; many buildings are destroyed; liquefaction and landslides are widespread.	< 7.3
XI	Disastrous	Most buildings and bridges collapse; roads, railways, pipes, and cables are destroyed; general triggering of other hazards.	< 8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves.	> 8.1

Source: USGS

FIGURE 19 illustrates the potential seismic shaking from future earthquakes. The ground motion level determines the shaking potential with a 2% chance of being exceeded in 50 years, corresponding to a 2,500-year average recurrence interval. The figure shows relatively long-period (1.0 second) earthquake shaking. Long-period shaking primarily affects tall, flexible buildings but correlates well with overall earthquake damage. Although the highest hazard is in areas with the greatest intensity, no region is entirely immune to the potential impacts of earthquake damage.

Figure 19 Shaking Potential in Mendocino County



4.8.5 Secondary Hazards

In Mendocino County, a major earthquake can trigger a cascade of secondary hazards that compound the initial destruction. Among the most significant are mass earth movements, which may sweep down steep hillsides destabilized by shaking and liquefaction, where saturated ground behaves like a liquid, undermining building foundations and critical infrastructure. Ground shaking can also lead to dam or levee failures or affect the performance of the structures. Tsunamis pose a risk along the coastal areas, threatening both marine and inland environments.

4.8.6 Exposure and Vulnerability

This updated HMP utilized FEMA's Hazus 6.1 software to estimate losses from future seismic events. As in the previous HMP, this analysis focused on two scenarios with the highest likelihood of producing a large earthquake in the next 30 years. The Maacama Garberville (7.4 magnitude) and the North San Andreas (7.8 magnitude) ShakeMap scenarios, developed by the USGS, provided data relating to peak ground velocity, peak ground acceleration, and peak spectral accelerations.

FIGURE 20 and **FIGURE 21** summarize the total direct economic losses modeled for these scenarios. These losses include all structural and non-structural damages, such as building damage, content and inventory loss, relocation costs, income, rental income, and wages. Although the magnitude 7.8 San Andreas scenario has a higher magnitude than the magnitude 7.4 Maacama event, the scenario shows considerably less structural, economic, and social damage in this case. This is mainly because the region's main population centers are located farther from the fault rupture, resulting in weaker shaking during the earthquake.

Figure 20 Maacama Garberville Fault 7.4 Magnitude Earthquake

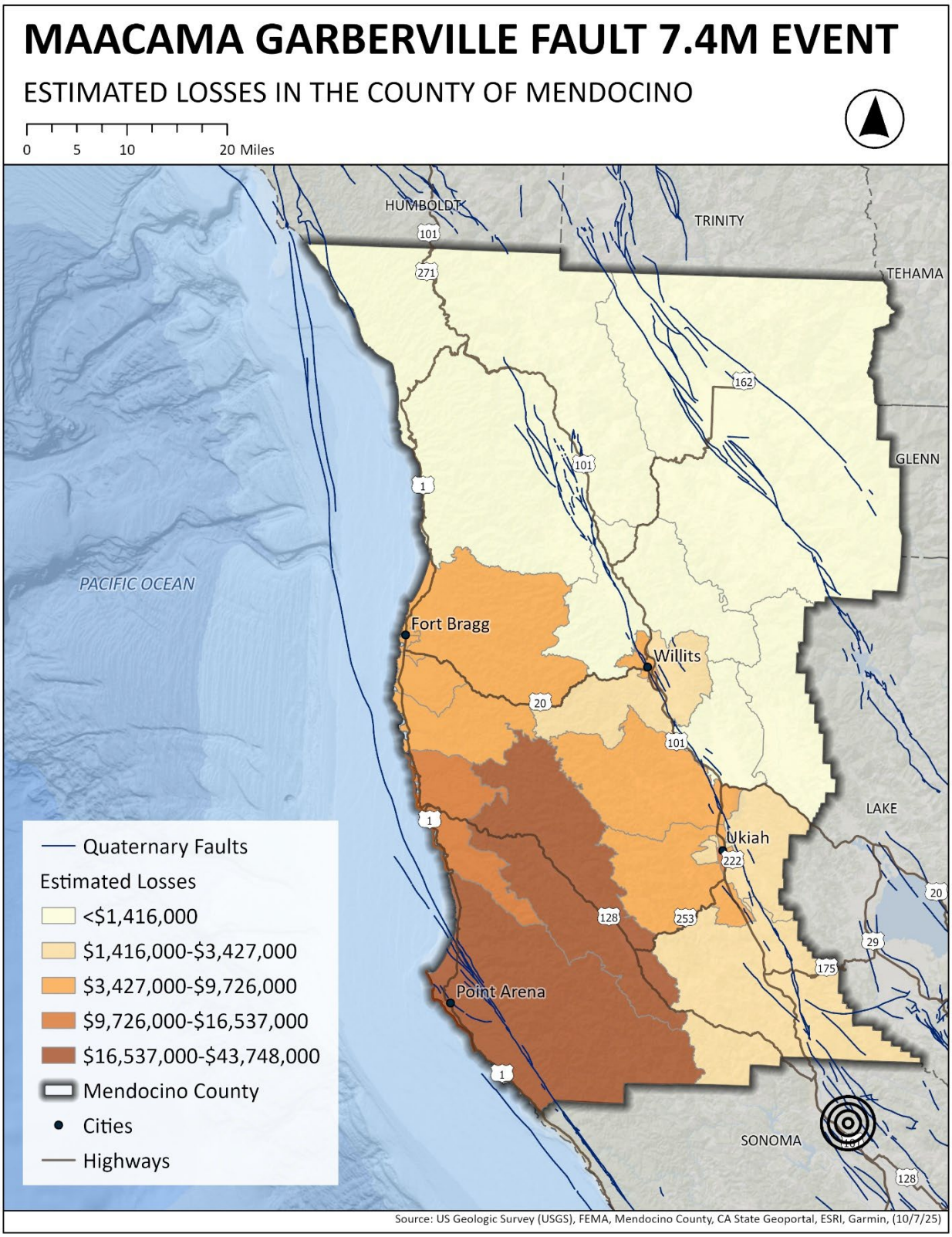
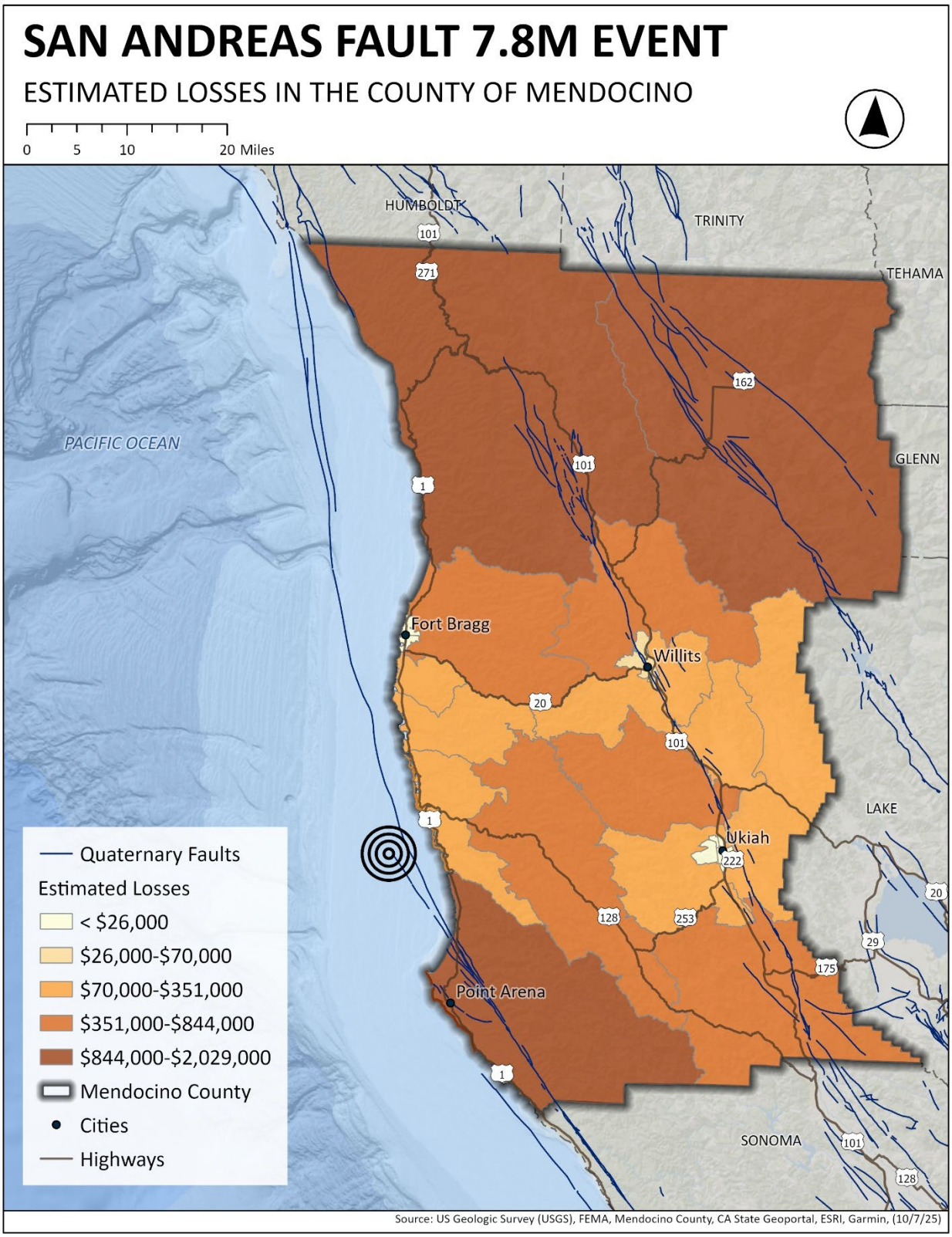


Figure 21 North San Andres Fault 7.8 Magnitude Event



4.8.6.1 Community Lifelines

A major earthquake in Mendocino County could threaten essential lifelines. It may damage water, wastewater, electricity, and telecommunications infrastructure, leaving communities without access to water, power, or communication. Roads, bridges, and railways could become impassable due to collapse or debris, isolating areas and delaying emergency responses. Disruption of these services hampers rescue efforts, prolongs recovery, and exacerbates the disaster's impact on residents and businesses. Fires often erupt from ruptured gas lines and damaged electrical systems, while hazardous material spills may occur if industrial facilities or transport routes are compromised. Additionally, the disruption of water, sewer, and transportation systems can hinder emergency response and recovery efforts, amplifying the long-term impacts on the community.

Based on the ShakeMap scenarios of a 7.4 magnitude earthquake on the Maacama Fault and a 7.8 magnitude on the North San Andres Fault, losses are expected in both scenarios. The full reports are provided in **APPENDIX E – HAZUS EARTHQUAKE SUMMARY REPORTS**, with a summary listed below.

- **Total Economic Losses:**
  - Maacama Fault 7.4M - $1.07 billion
  - North San Andres Fault 7.8 M - $263.7 million
- **Safety and Security:**
  - Maacama Fault 7.4 M – All lifelines will be at 88% functionality or greater after one week. 100% operational after 30 days.
  - North San Andres Fault 7.8 M - All Lifelines will be at 100% functionality or greater after one week. 100% operational after 30 days
- **Transportation (Highway, Railway, Bus, Port, and Airport):**
  - Maacama Fault 7.4 M - Approximately $44.83 million in estimated economic losses to transportation systems.
  - North San Andres Fault 7.8 M – Approximately $10 million in estimated economic losses to transportation systems.
- **Utility Systems (Potable and Wastewater, Natural Gas, Electrical Power, and Oil Systems, Communication):**
  - Maacama Fault 7.4 M – Approximately $162.13 million in estimated economic losses to utility systems.
  - North San Andres Fault 7.8 M- Approximately $91 million in estimated economic losses to utility systems.

4.8.6.2 People

An earthquake can significantly affect people's lives, both immediately and long-term. Strong ground shaking may cause buildings to collapse, injuring or killing those inside and displacing families from their homes. Essential services like water, electricity, and transportation can be

interrupted, making it hard for communities to access basic needs and emergency assistance. Even minor earthquakes can cause emotional stress, financial difficulties, and lengthy recovery periods, especially for vulnerable populations.

The Hazus models estimate impacts to people, including shelter needs and casualties. The following is a summary of each scenario from the most severe times for events to happen: a 5:00 p.m. event on the Maacama Fault and a 2:00 p.m. event on the North San Andres Fault.

- **Displacement and Shelter Needs:**
  - Maacama Fault 7.4 M – 41 displaced households; 25 individuals seeking temporary public shelter
  - North San Andres Fault 7.8 M – No households are estimated to be displaced, and no individuals will be seeking temporary public shelter.
- **Casualty Estimates:**
  - Maacama Fault 7.4 M – 30 individuals have injuries that require medical attention but no hospitalization; 5 individuals have injuries requiring hospitalization (non-life threatening); 4 individuals have injuries requiring hospitalization and potentially life-threatening if not treated promptly; 1 fatality.
  - North San Andres Fault 7.8 M – 4 individuals will have injuries that require medical attention but no hospitalization.

4.8.6.3 Structures

Many elements contribute to earthquake-related property damage, including a building's age, design, and construction materials. Older or historic buildings face greater risks. Earthquake impacts can range from small cracks to making structures unsafe to occupy, and predicting the amount of damage is challenging due to numerous influencing factors. While modern and retrofitted buildings generally endure seismic events better, they can still suffer considerable harm during powerful earthquakes. In contrast, buildings constructed before updated safety codes are especially susceptible.

Unreinforced masonry (URM) buildings are made of brick, stone, or concrete blocks without steel reinforcement and do not provide the strength or flexibility required to withstand earthquakes. As a result, these structures are highly vulnerable to cracking, partial destruction, or even total collapse when an earthquake strikes. Most URM buildings predate current seismic standards, posing serious dangers to those inside and nearby during significant ground movement. **FIGURE 22** shows an earthquake warning sign in a restaurant in the City of Ukiah, warning customers that the building is unreinforced and may not be safe in the event of an earthquake.

Figure 22 Earthquake Warning Sign, City of Ukiah

Source: Synergy Disaster Recovery

According to the FEMA Hazus models, both events estimate damages to buildings. The following is a summary of each scenario results.

- **Debris Generated:**
  - Maacama Fault 7.4 M – Estimated 83,000 tons of debris generated.
  - North San Andres Fault – Estimated 7,000 tons of debris generated.
- **Building-Related Losses:**
  - Maacama Fault 7.4 M – $863 million estimated in building-related economic losses. 41% of the total loss is due to residential occupancies, and 12% is due to business interruptions.
  - North San Andres Fault - $162 million estimated in building-related economic losses. 49% of the total losses are to residential occupancies, and 4% due to business interruptions.
- **Building Damages:**

- Maacama Fault – 3,049 buildings with at least moderate damage (8% of total buildings in the region). 8 buildings will incur damage beyond repair. Multi-family dwellings and single-family homes are the most vulnerable to impacts.
- North San Andres Fault - 462 buildings with at least moderate damage (1% of total buildings in the region). No buildings will incur damage beyond repair. Single-family homes and commercial buildings are the most vulnerable to impacts.

4.8.6.4 Natural, Historic, and Cultural Resources

Mendocino County's natural, historic, and cultural resources are highly vulnerable to earthquake damage, with effects that go far beyond just structural harm. Landslides and ground shaking can destroy forests, rivers, and delicate coastal habitats, disrupt ecosystems and threaten rare species. Historic buildings and landmarks, many of which were built before modern seismic standards, face an increased risk of collapse or permanent damage, erasing irreplaceable links to the region's history. Cultural sites, including indigenous heritage locations, museums, and community gathering places, may also be damaged or lose artifacts, weakening the shared identity and traditions of local communities. The combined impact of these issues not only diminishes the county's environmental and historical richness but also makes it more challenging to preserve and honor Mendocino's unique legacy for future generations.

4.8.6.5 Local Vulnerability

- Power outages and loss of communication are significant concerns.
- Lack of seismic shut-off valves on gas meters in some county-owned facilities.
- Older construction and specifically unreinforced masonry (URM) buildings.
- There is a need to retrofit or replace older county bridges and critical infrastructure.
- Buildings permitted as "Class K" structures under the building code are at high risk from a seismic event.
- Unknown vulnerabilities exist within county buildings related to unsecured contents and non-structural elements.

4.8.7 Future Trends in Development

Future development is not anticipated to increase vulnerability to this hazard. As all new development is required to meet the latest state codes, growth will reduce the overall vulnerability exposure ratio to seismic events.

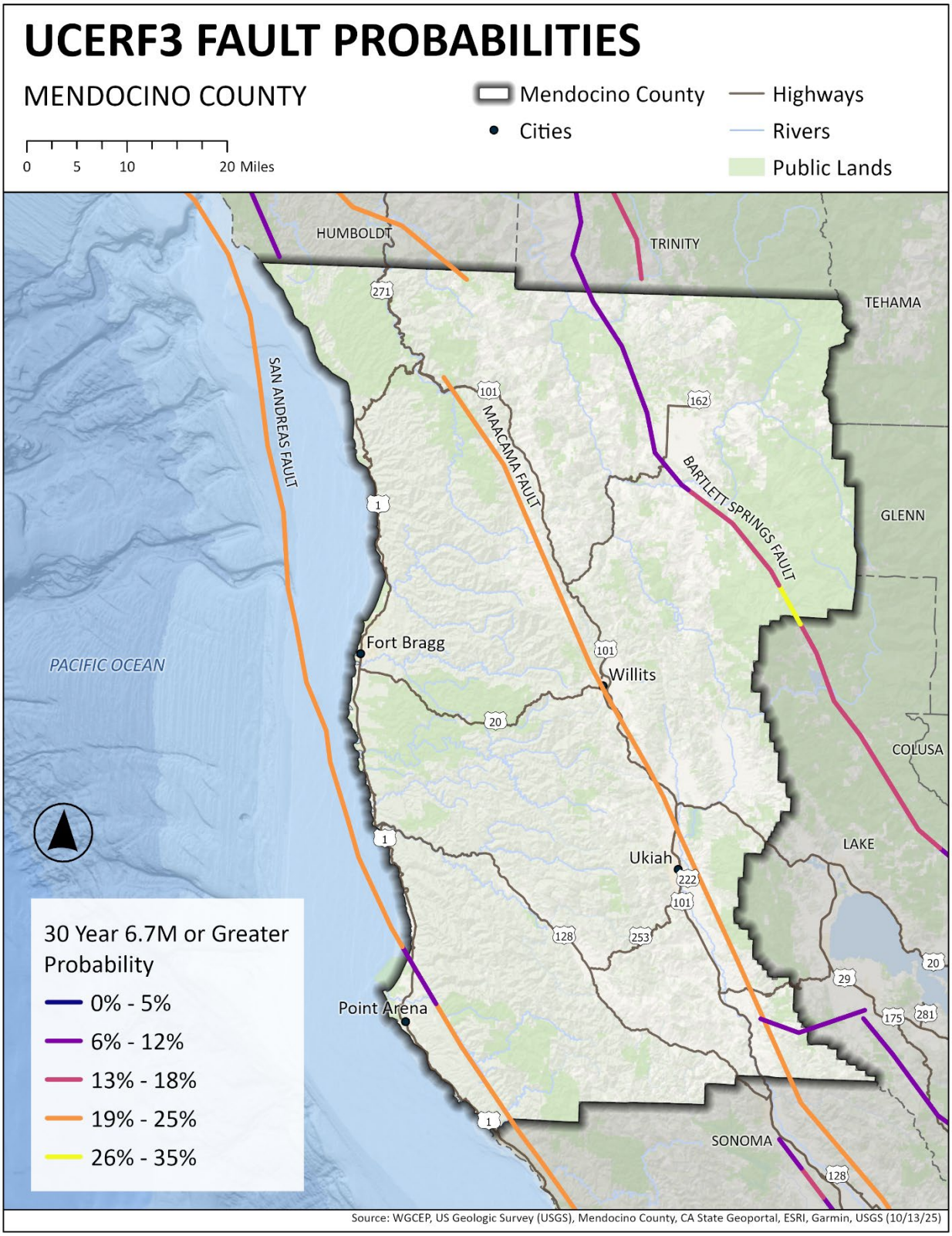
4.8.8 Probability of Future Occurrences

Mendocino County is situated along the active boundary between the Pacific and North American tectonic plates, making future earthquakes highly probable. It is intersected by several key fault lines, such as the San Andreas Fault, increasing the risk of both moderate and severe quakes. While predicting the exact timing or strength of specific earthquakes remains difficult, historical records and geological studies indicate that Mendocino County will continue

to face a recurring earthquake threat. According to the CA E-SHMP, earthquakes large enough to cause moderate damage to structures, those of 5.5 magnitude or larger, occur three to four times a year statewide. Strong earthquakes of 6 to 6.9 magnitude strike on average once every two to three years. Major earthquakes of 7 to 7.9 magnitude occur in California about once every 10 years.

The probability of earthquake events is based on the approximate location of earthquake faults within and outside the Mendocino County region. According to USGS data, and shown in **FIGURE 23**, both the San Andreas Fault and the Maacama Fault have a 19% to 25% probability of occurrence of a 6.7 magnitude event within 30 years. The probability of a future earthquake event is highly likely.

Figure 23 30-Year Earthquake Probability



4.8.9 Climate Change Impacts

Earthquakes result from the movement of tectonic plates and are unaffected by surface weather or climate. Therefore, climate change is unlikely to influence future earthquakes' frequency, location, or severity. National Aeronautics and Space Administration (NASA) states, "most quakes occur deep beneath Earth's surface, well out of reach of surface temperature and conditions. Moreover, the statistical distribution of earthquakes remains roughly consistent across different weather conditions."[16] However, according to the CA E-SHMP, climate change can increase the risk of secondary or cascading earthquake-related hazards. In particular, landslide hazards will be affected by rising temperatures that can cause soil breakdown, allowing more water to enter soils and impacting erosion rates and sediment control, thus increasing the likelihood of landslides. Climate change studies also indicate the possibility of more frequent heavy, intense rainstorms, leading to erosion and a higher probability of landslides.

4.9 Extreme Cold or Freeze

4.9.1 General Background

According to the 2023 California Enhanced State Hazard Mitigation Plan (CA E-SHMP), extreme cold events occur when temperatures drop well below the normal range in an area. Depending on what is normal, this may mean temperatures around the freezing point (32°F) or below 0°F. Freeze events occur when temperatures remain below freezing for a sustained period.

4.9.2 Past Events

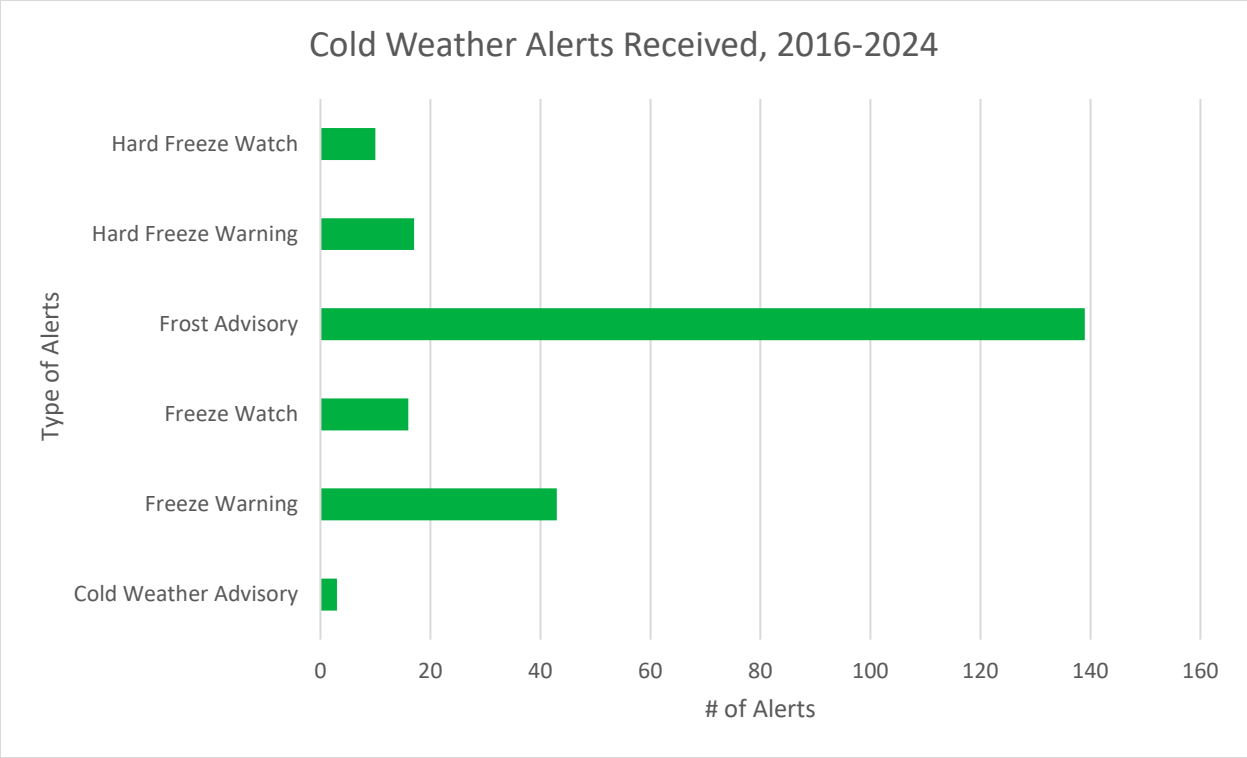
Since 1970, Mendocino County has been included in one state emergency proclamation and one federal disaster declaration for freeze events. In addition to these declarations, the county has been included in six USDA Secretary of Agriculture Designations for freezing temperatures.

Between 2016 and 2024, the county received 228 advisories, warnings, and watches for cold weather, freeze, or frost (**FIGURE 24**). The most common cold weather alert received is a Frost Advisory (139 alerts), which means areas of frost are expected or occurring, posing a threat to sensitive vegetation (**FIGURE 25**).[17] The County received the most alerts in 2022, with 60 specific to cold weather.

[16] NASA Science. "Can Climate Affect Earthquakes, Or Are the Connections Shaky?". HTTPS://SCIENCE.NASA.GOV/EARTH/CLIMATE-CHANGE/CAN-CLIMATE-AFFECT-EARTHQUAKES-OR-ARE-THE-CONNECTIONS-SHAKY/ . October 29, 2019

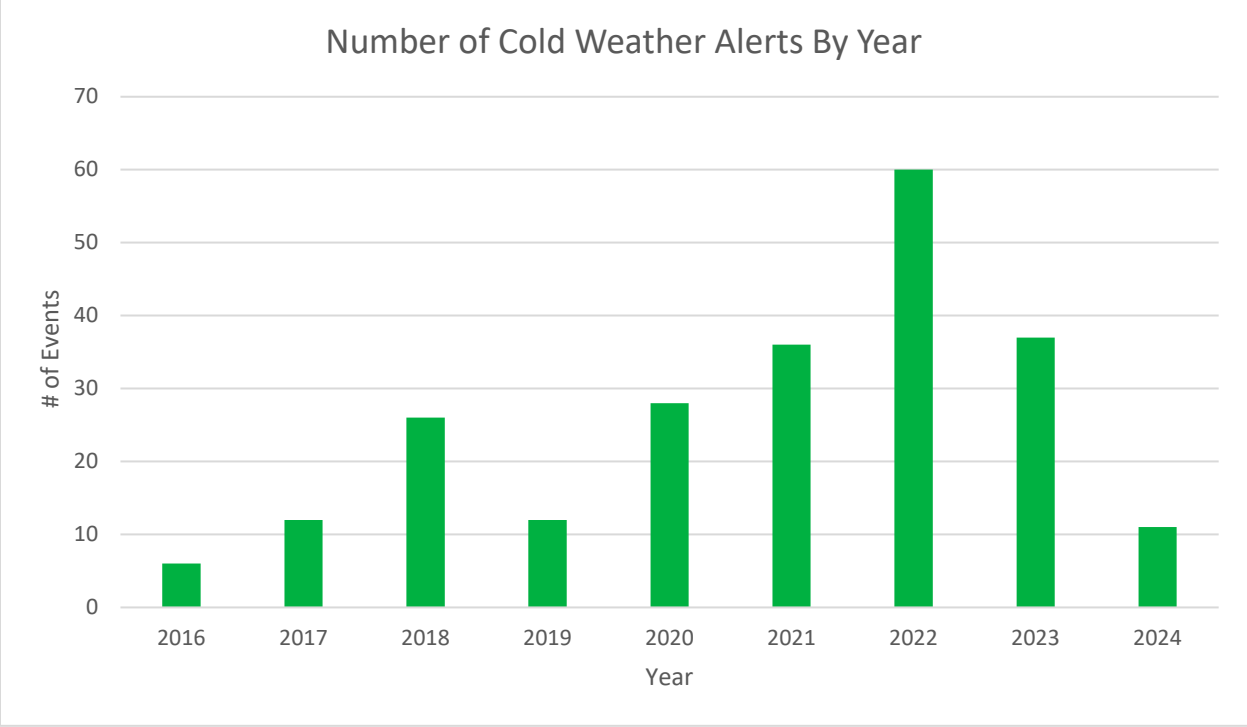
[17] National Weather Service, Understanding Cold Weather Alerts, HTTPS://WWW.WEATHER.GOV/SAFETY/COLD-WW#:~:TEXT=A%20FROST%20ADVISORY%20MEANS%20AREAS%20OF%20FROST,OCCURRING%2C%20POSING%20A%20THREAT%20TO%20SENSITIVE%20VEGETATION.

Figure 24 Type of Cold Weather Alerts Received 2016-2024



Source: Iowa Environmental Mesonet (IEM) NWS Watch/Warning/Advisory Database

Figure 25 Number of Cold Weather Alerts Received, 2016-2024

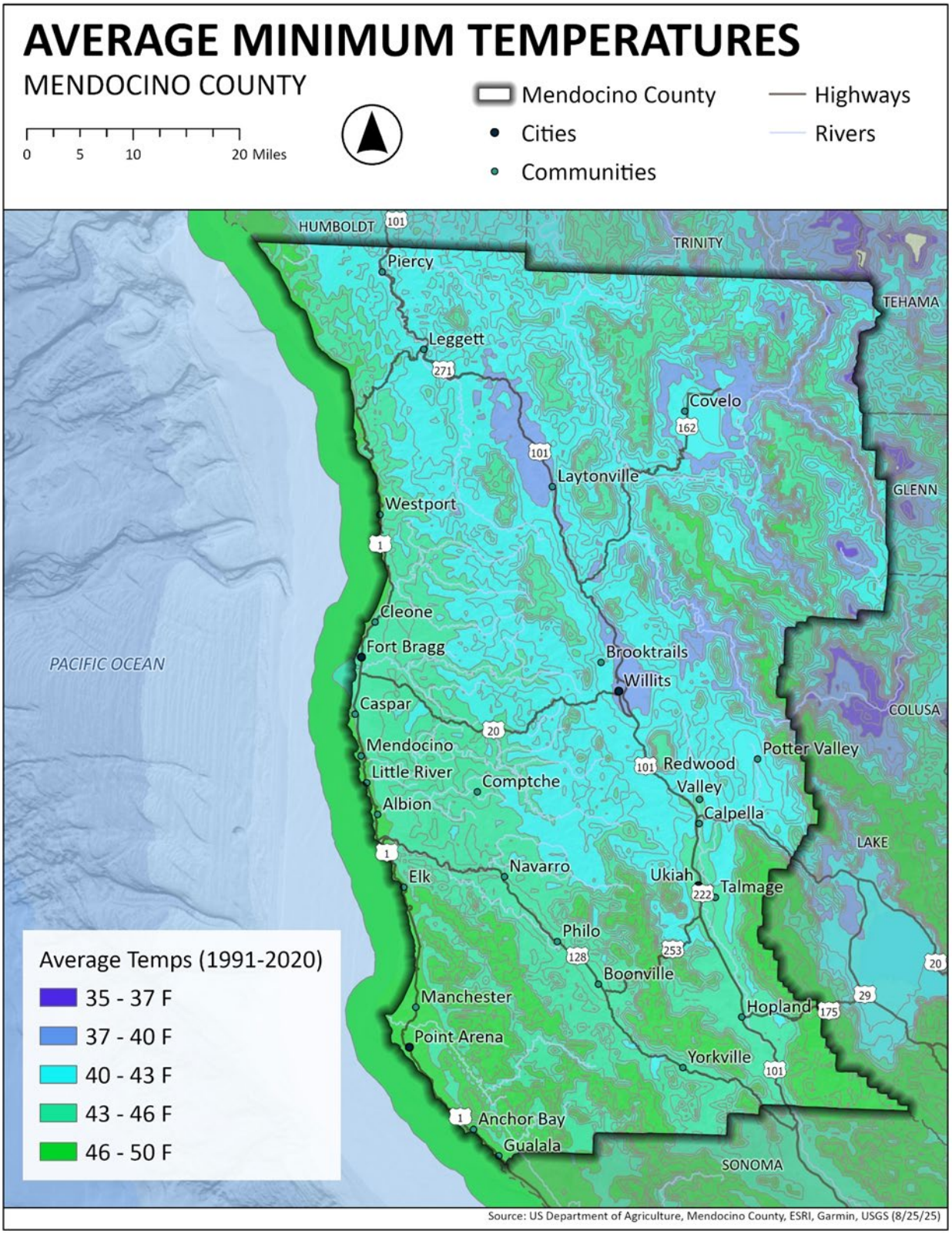


Source: Iowa Environmental Mesonet (IEM) NWS Watch/Warning/Advisory Database

4.9.3 Location

Mendocino County is diverse in topography and elevation, so extreme cold events differ between the coastal and inland communities. Overall, the county's annual minimum temperature is 44°F. **FIGURE 26** shows the varying average minimum temperatures countywide.

Figure 26 Average Minimum Temperatures



4.9.4 Severity

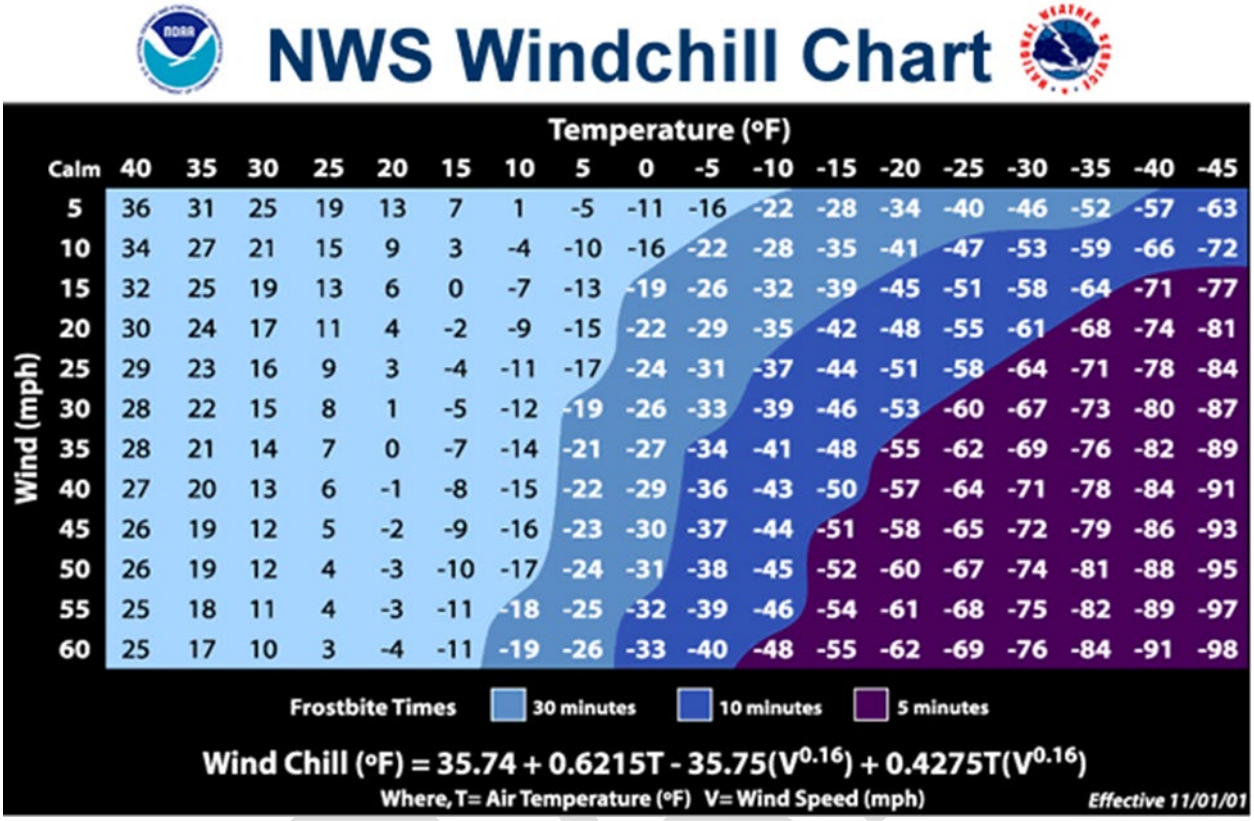
The National Weather Service (NWS) issues various types of cold-weather alerts.

- **Extreme Cold Warning:** An Extreme Cold Warning is issued when extremely dangerous cold conditions or wind chill values are expected or occurring.
- **Freeze Warning:** A Freeze Warning is issued when temperatures are forecasted to go below 32°F for a long period of time. This temperature threshold kills certain types of commercial crops and residential plants, while temperatures below 28°F for an extended period can also kill most types of commercial and residential plants.
- **Extreme Cold Watch:** Be Prepared. An Extreme Cold Watch is issued when extremely dangerous cold conditions or wind chill values are possible, but the occurrence, location, and/or timing is still uncertain.
- **Freeze Watch:** A Freeze Watch is issued when there is a potential for significant, widespread freezing temperatures within the next 24-36 hours. A Freeze Watch is issued in the autumn until the end of the growing season and in the spring at the start of the next growing season.
- **Cold Weather Advisory:** Be Aware. A Cold Weather Advisory is issued for dangerously cold conditions that are not expected to reach warning criteria.
- **Frost Advisory:** A Frost Advisory means areas of frost are expected or occurring, posing a threat to sensitive vegetation.

Past events show that Mendocino County has received cold-weather alerts and can expect future occurrences.

In 2001, the National Weather Service (NWS) implemented an updated Wind-Chill Temperature index (**FIGURE 27**). The wind chill is not a direct temperature measurement; this index was developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, lowering skin temperature and internal body temperature, thereby increasing the likelihood of severe injury or death to exposed persons and animals.

Figure 27 NWS Wind Chill Temperature Index



4.9.5 Secondary Hazards

Although extreme cold or freeze events are rare in Mendocino County, they can still cause freeze-thaw cycles that may lead to large-scale earth movements, especially along the 101 and the 1. Occasionally, these cold events are accompanied by winter weather precipitation, such as snow in higher elevations and heavy rain in lower areas of the county.

4.9.6 Exposure and Vulnerability

4.9.6.1 Community Lifelines

Extreme cold and freeze events can significantly impact community lifelines and critical facilities throughout Mendocino County. Prolonged periods of subfreezing temperatures may cause water lines to freeze and burst, disrupt power supply due to increased energy demand, and potentially damage energy infrastructure, and hinder transportation networks through icy roads or hazardous driving conditions. Emergency services can face delays as response times are affected by poor road conditions and increased incident rates. At the same time, healthcare facilities may experience increased admissions related to cold exposure, especially among vulnerable populations. Even brief freeze events can threaten the functionality of essential services.

4.9.6.2 People

Extreme cold and freeze events pose considerable risks to the health and well-being of people across Mendocino County. Prolonged exposure to low temperatures can lead to hypothermia and frostbite, particularly among vulnerable groups such as older adults, young children, and those experiencing homelessness or inadequate heating in their homes. Individuals with chronic health conditions may find their symptoms exacerbated, while those who rely on medication stored at specific temperatures could be at additional risk if power outages occur. Disruptions to transportation and emergency services may delay medical care, intensifying health outcomes for those in need. Furthermore, cold snaps often coincide with increased energy usage as households strive to maintain safe indoor temperatures, potentially resulting in higher utility costs and energy insecurity for lower-income residents. Social isolation can also become a concern, as hazardous travel conditions keep people indoors and reduce access to community resources or support networks.

4.9.6.3 Structures

Extreme cold and freeze events can cause significant damage to buildings and infrastructure. Water pipes, especially those located in uninsulated or poorly heated areas, are susceptible to freezing and bursting, leading to costly repairs and water loss. Roofs and exterior walls may experience added stress from ice accumulation, while energy systems can be overwhelmed as buildings require increased heating to maintain safe indoor temperatures. Repeated freeze-thaw cycles can weaken structural materials such as concrete, brick, and asphalt, resulting in cracks, potholes, and deterioration of roads, bridges, and foundations. In addition, the strain on electrical systems from heightened demand may put older or poorly maintained structures at greater risk for outages or fire hazards.

4.9.6.4 Natural, Historic, and Cultural Resources

Extreme cold and freeze events can profoundly affect Mendocino County's natural, historic, and cultural resources. Sensitive ecosystems may experience disruption as native plants and wildlife struggle to survive in subfreezing temperatures, with frost capable of damaging delicate vegetation, impacting pollinators, and altering habitats. Waterways may experience reduced flow or even freezing, affecting aquatic life and the broader ecological balance. Historic buildings and cultural landmarks, often constructed with materials vulnerable to freeze-thaw cycles, can suffer from accelerated deterioration—cracks in masonry, shifting foundations, and water intrusion—threatening the preservation of irreplaceable sites that embody the region's heritage.

The county's agricultural industries are also particularly susceptible to the impacts of extreme cold, with vineyards and wine grape production facing significant risks. Grapevines, while resilient to some degree, are highly vulnerable to late spring frosts that can damage emerging buds or shoots, drastically reducing yields and, in severe cases, threatening the long-term viability of the vines. Sudden freezes during the growing season can compromise fruit quality,

leading to uneven ripening or loss of entire crops. Cold snaps can disrupt soil health, affect irrigation systems, and increase the costs and complexity of frost protection measures, such as wind machines or heaters. These agricultural impacts ripple through the local economy, as wine production is both a cultural touchstone and an economic driver for the county, making resilience to extreme cold a priority for sustaining both livelihoods and the region's cultural identity.

4.9.6.5 Local Vulnerability

- Crop losses and impacts to the agricultural sector and regional economies.
- The county has observed freeze events occurring during more inopportune seasons than were previously experienced.

4.9.7 Future Trends in Development

Future development is not anticipated to impact vulnerability to this hazard.

4.9.8 Probability of Future Occurrences

It is important to recognize that Mendocino County's coastal areas typically experience fewer extreme cold days than its inland communities. Inland regions, which are farther from the ocean's moderating influence, tend to experience greater temperature fluctuations and more frequent and severe freeze events, whereas coastal zones generally benefit from milder conditions year-round. The probability of extreme cold or freeze events for the county overall is Highly Likely (events occurring every 1-10 years).

4.9.9 Climate Change Impacts

Climate change can make extreme cold and freeze events in Mendocino County more unpredictable. Shifts in atmospheric patterns may bring sudden cold spells to Northern California, even after warmer weather. These unexpected freezes can damage crops like grapevines and fruit trees if they bud early, affecting local agriculture and the economy.

Freeze events, especially during winter droughts, stress native plants and increase wildfire risk. Historic buildings and cultural sites are more vulnerable to damage from erratic temperature swings and freeze-thaw cycles.

Overall, climate change increases uncertainty and risk from cold extremes.

4.10 Extreme Heat

4.10.1 General Background

Extreme heat is defined as temperatures that are 10 degrees Fahrenheit (F) or more above the average high temperatures for a region for several days or weeks.[18] Different high temperatures indicate extreme heat for the different regions of the county. Coastal

[18] 2023 California Enhanced State Hazard Mitigation Plan

communities tend to be cooler compared to the inland communities. Ukiah's average maximum temperature during the summer months (June, July, August) is 92°F, while Fort Bragg on the coast has an average maximum temperature of 65°F during the summer. An extreme heat day for Mendocino on the coast is 86°F, while inland communities such as Covelo and Redwood Valley have it at 102°F.[19] Although coastal areas experience less extreme heat than inland regions, any above-average temperature can still threaten unprepared residents and infrastructure.

4.10.2 Past Events

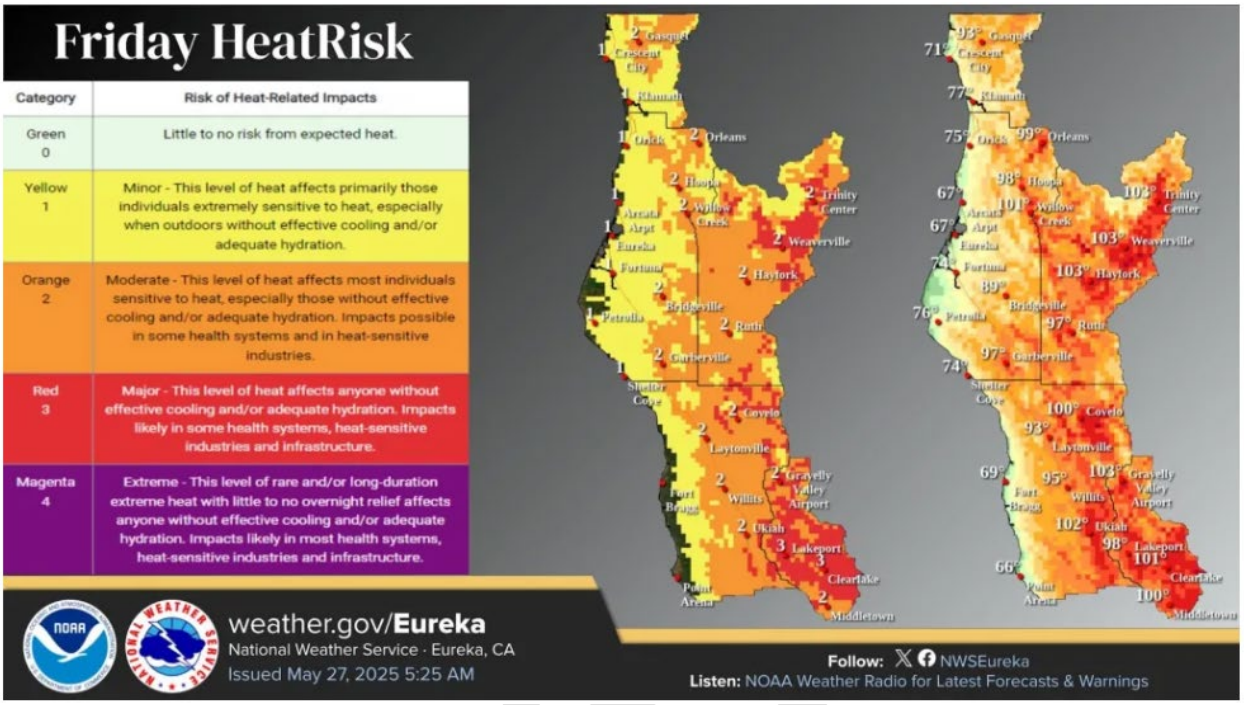
The NCEI Storm Events Database has only one record of a past excessive heat event in July 2002. The event is described as a record-setting heat over three consecutive days. Ukiah set a record on July 10th of 110°F, and Laytonville recorded 111°F during the same event.

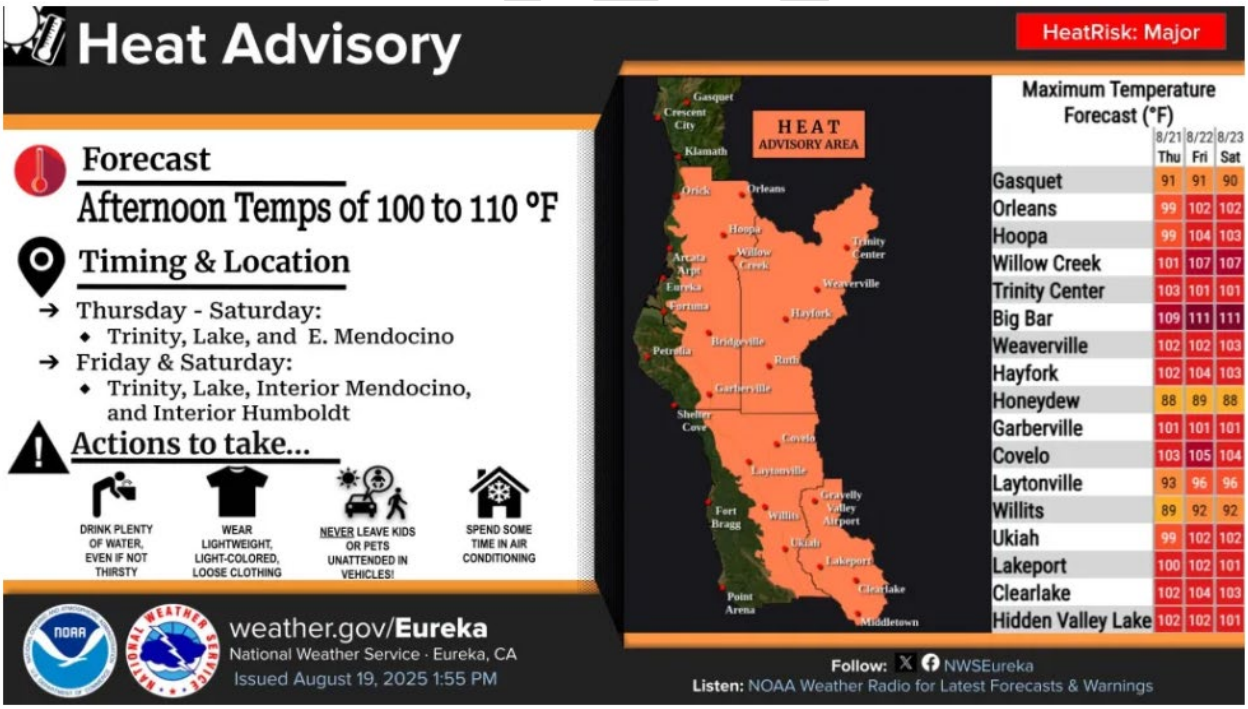
The county has an average of four extreme heat days per year.[20] According to temperatures recorded at the Ukiah Municipal Airport, the longest heat wave was 58 consecutive days with a maximum temperature above 90°F recorded between June 24, 2021, and August 20, 2021. Ukiah's daily extreme high temperature was 117°F on July 6, 2024. The City of Fort Bragg on the coast reached 91°F on October 5, 1987, the city's highest daily extreme high temperature, which is significantly higher than the average high temperature for the same time of year, which is 55°F.

During the plan update process, multiple heat advisories were issued for Mendocino County in May and August of 2025 for temperatures over 100 degrees for the inland communities (**FIGURE 28**).

[19] Mendocino County Climate Vulnerability Assessment, March 2021
[20] Mendocino County Climate Vulnerability Assessment, March 2021

Figure 28 May 2025 and August 2025 Heat Advisories[21]





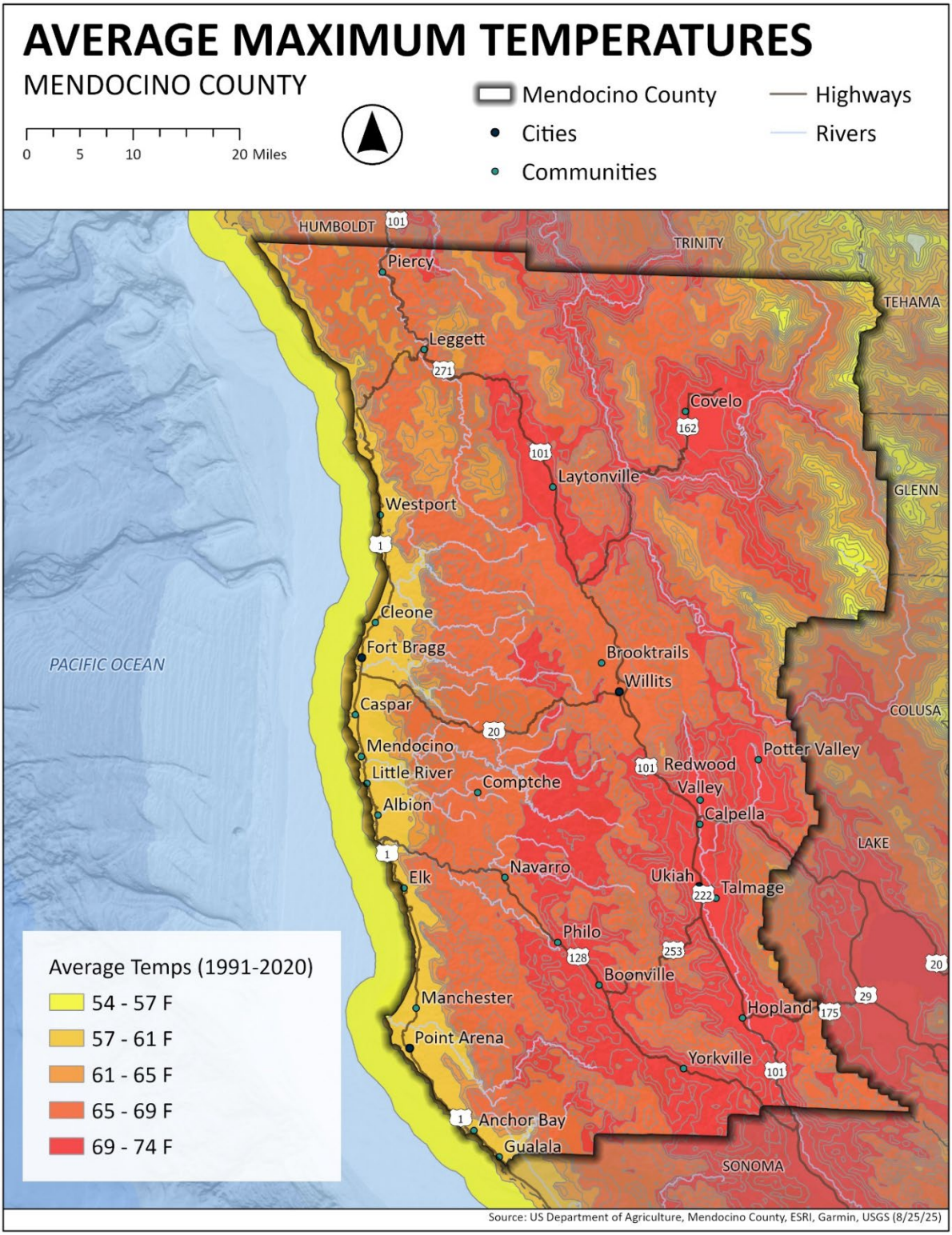
Source: Mendocino Voice, National Weather Service

[21] HTTPS://MENDOVOICE.COM/2025/05/HEAT-ADVISORY-MAY-28-2025/
HTTPS://MENDOVOICE.COM/2025/08/HEAT-ADVISORY-ISSUED-FOR-INLAND-MENDOCINO-COUNTY/

4.10.3 Location

The whole county is at risk of extreme heat events. Urbanized areas may experience even more intense heat due to limited airflow, reduced vegetation, and increased waste heat, resulting in temperatures several degrees higher than those in rural or less developed regions. This phenomenon is known as the urban heat island effect. **FIGURE 29** shows the varying average maximum temperatures throughout the county.

Figure 29 Average Maximum Temperatures

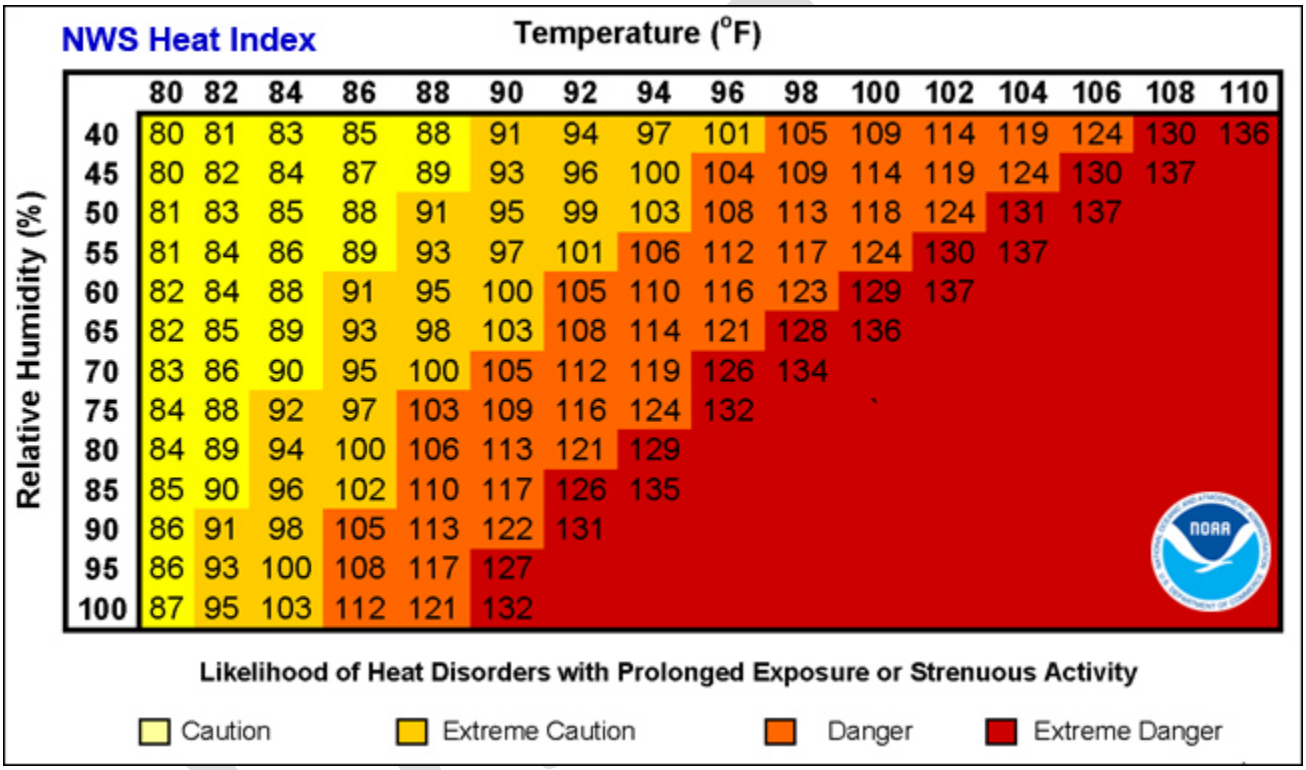


4.10.4 Severity

The severity of an extreme heat event depends on factors beyond just weather; exposure level, building types, and cooling options influence danger. Vulnerable groups, such as construction or farm workers, face higher risks even at moderate temperatures.

When issuing alerts on extreme heat, the NWS uses the heat index to indicate the apparent temperature, which is how hot it feels based on humidity combined with air temperatures. The Heat Index table (**FIGURE 30**) assumes shady conditions with a light wind.

Figure 30 National Weather Service Heat Index



The NWS HeatRisk is an experimental tool that forecasts the potential risk level for heat-related impacts over a 24-hour period and up to seven days. The forecast uses a color-numeric-base index to illustrate the level of risk and identify groups that may be more at risk and the actions that can be taken to mitigate the impacts of heat (**FIGURE 31)**. The HeatRisk forecast (**FIGURE 32)** takes into consideration how unusual the heat is for the time of year, the duration of the heat, including both daytime and nighttime temperatures, and if those temperatures pose an elevated risk of heat-related impacts based on data from the CDC.[22]

[22]NWS HeatRisk HTTPS://WWW.WPC.NCEP.NOAA.GOV/HEATRISK/?WFO=EKA

Figure 31 National Weather Service HeatRisk Index

Category	Risk of Heat-Related Impacts
Green 0	Little to no risk from expected heat.
Yellow 1	Minor - This level of heat affects primarily those individuals extremely sensitive to heat, especially when outdoors without effective cooling and/or adequate hydration.
Orange 2	Moderate - This level of heat affects most individuals sensitive to heat, especially those without effective cooling and/or adequate hydration. Impacts possible in some health systems and in heat-sensitive industries.
Red 3	Major - This level of heat affects anyone without effective cooling and/or adequate hydration. Impacts likely in some health systems, heat-sensitive industries and infrastructure.
Magenta 4	Extreme - This level of rare and/or long-duration extreme heat with little to no overnight relief affects anyone without effective cooling and/or adequate hydration. Impacts likely in most health systems, heat-sensitive industries and infrastructure.

Figure 32 HeatRisk Forecast

HeatRisk Forecast

Mendocino County, CA

Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
July 11	July 12	July 13	July 14	July 15	July 16
Minor	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**

At the state level, the California Office of Environmental Health Hazard Assessment developed a similar tool, the California Communities Extreme Heat Scoring System (CalHeatScore), to raise public awareness of extreme heat impacts. CalHeatScore is a statewide public health tool that provides daily ZIP code-level heat risk scores from 0 (low). CalHeatScore reflects how unusual the heat is for a specific location and the historical relationship between heat and heat-related

illness. The tool supports local decision-making by highlighting when heat conditions may result in elevated health impacts and by providing locally relevant safety guidance and resources.

Figure 33 CalHeatScore Value and Impact Levels

CalHeatScore (CHS) Value	Impact Level	Meaning*
CHS 0	Low	Below baseline level of heat-related health risk.
CHS 1	Mild	Warm day. Community risk of heat-related illnesses may increase up to ⅓ above baseline.
CHS 2	Moderate	Hot day. Community risk of heat-related illnesses may increase up to ⅔ above baseline.
CHS 3	High	Very hot day. Community risk of heat-related illnesses may be up to double the baseline.
CHS 4	Severe	Affects anyone without effective cooling and/or adequate hydration.

Source: CalHeatScore HTTPS://CALHEATSCORE.CALEPA.CA.GOV/ *Increased risk estimates are based on an analysis conducted using emergency department visit data from summer months (i.e., May to October) of 2016-2018. The general applicability of these results may be limited.

Together, the Heat Index, NWS HeatRisk, and CalHeatScore provide a multi-layered assessment of extreme heat severity in Mendocino County, linking meteorological conditions with anticipated health impacts and community vulnerability.

The highest extreme heat temperatures experienced in the inland areas of the county are 117°F on July 6, 2024, in the City of Ukiah, and for the coastal areas, it is 91°F on October 5, 1987, in the City of Fort Bragg.

4.10.5 Secondary Hazards

Extreme heat is associated with various secondary hazards and cascading impacts beyond elevated temperatures. Prolonged heat waves can intensify drought conditions by accelerating evaporation and placing stress on water resources, which may increase the likelihood and severity of wildfires as vegetation becomes drier.

4.10.6 Exposure and Vulnerability

4.10.6.1 Community Lifelines

Extreme heat events can increase the likelihood of power outages, affecting the energy supply. Critical facilities and community lifelines experience operational disruptions due to power failures. The severity of these impacts depends on repair times and how quickly normal operations resume. High temperatures may also trigger public safety power shutdowns to prevent electrical fires, which can interrupt vital services such as communication, healthcare, and cooling. In urban areas, the urban heat island effect exacerbates these issues, elevating health risks and putting more pressure on emergency and energy systems.

4.10.6.2 People

Extreme heat presents serious risks to human health and well-being, especially for vulnerable groups such as older adults, young children, outdoor workers, and people with preexisting health conditions. Extended exposure to high temperatures can lead to heat exhaustion, heatstroke, dehydration, and worsen cardiovascular and respiratory problems. People without proper cooling, due to housing insecurity, power outages, or limited resources, are at greater risk of severe health issues. Additionally, extended heat waves can strain healthcare systems, boost emergency room visits, and hit low-income communities and urban areas hardest, where the heat island effect raises temperatures further.

4.10.6.3 Structures

Extreme heat can weaken structures and built environments. Extended exposure to high temperatures may cause asphalt, concrete, and roofing parts to deteriorate faster, resulting in cracks, warping, or surface softening. Buildings and infrastructure not designed for continuous heat can face failures in insulation, cooling systems, and electrical parts, increasing the risk of indoor overheating and mechanical failures. Additionally, transportation infrastructure such as roads, bridges, and railways may suffer damage from thermal expansion, potentially disrupting mobility and emergency responses.

4.10.6.4 Natural, Historic, and Cultural Resources

Extreme heat can have significant impacts on Mendocino County's natural, historic, and cultural resources. Prolonged high temperatures may stress local ecosystems, increasing the risk of drought, vegetation die-off, and heightened wildfire susceptibility. Sensitive habitats and species, including vineyards, could be threatened by altered water availability and heat-related stressors, while the county's historic and cultural landmarks may face accelerated deterioration. Materials used historically and often found in historic structures such as wood, stone, or paint may degrade more rapidly, and outdoor artifacts or sites may be at increased risk from both heat and related hazards like fire or smoke.

4.10.6.5 Local Vulnerability

- There is an opportunity for the County land use code to include incentives for new development to implement landscaping that provides more shade and lessens the urban heat island effect.
- Socially vulnerable and unhoused populations are at the highest risk.

4.10.7 Future Trends in Development

Future development may increase the county's overall vulnerability, depending on whether the new construction incorporates climate control for high temperature events. All future development should consider the potential impacts related to extreme heat and how the growth is positively or negatively influencing this hazard.

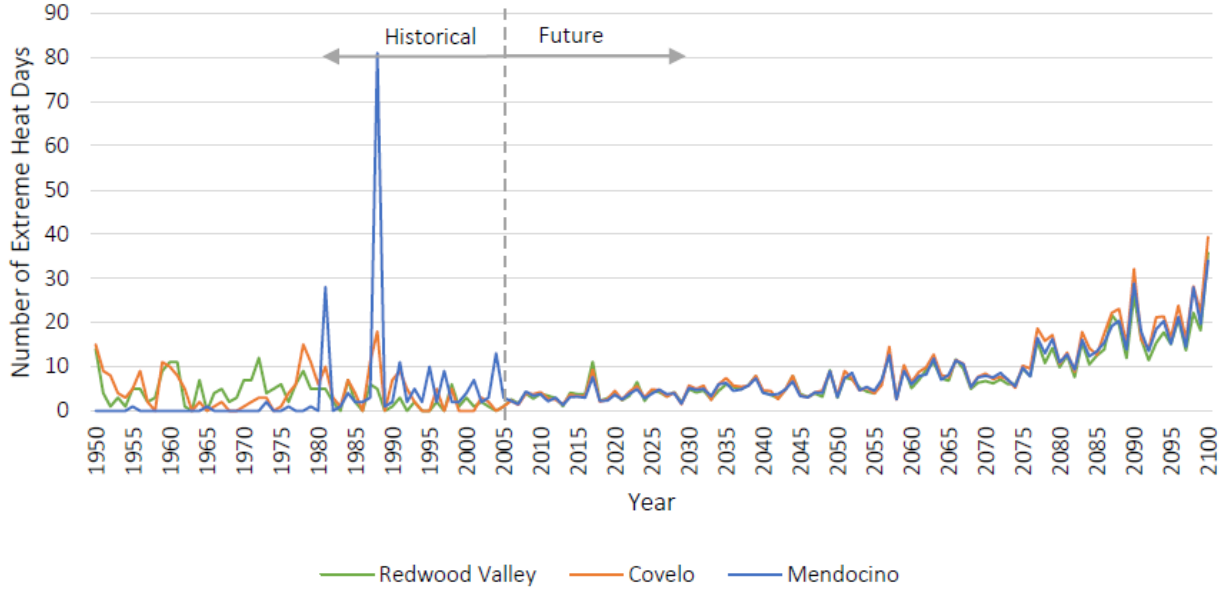
4.10.8 Probability of Future Occurrences

The likelihood of extreme heat events happening in Mendocino County each year is expected to increase significantly in the coming decades. Historically, the county has typically experienced about four days of extreme heat annually. Importantly, these events do not occur equally across the area. Inland communities like Ukiah, Willits, Covelo, and Redwood Valley are forecasted to experience more frequent and severe heat days compared to coastal regions such as Fort Bragg, Point Arena, and Mendocino, where the Pacific Ocean's moderating effect lessens the frequency and severity of heat events. Consequently, residents and infrastructure in inland areas will likely face a disproportionate share of the impacts. The probability of an extreme heat event in the county is annual.

4.10.9 Climate Change Impacts

The Mendocino County Climate Vulnerability Assessment Report indicates that by the middle of the 21st century (2040-2070), the county is expected to experience between 7 and 19 extreme heat days annually, up from a historical average of 4 days. By the end of the century, this number could rise to an average of 15 to 35 extreme heat days per year. Temperature increases will impact the local economy, especially the agricultural and outdoor recreational industries. High temperatures impact the growth of wine grapes by causing late or irregular blooming and affecting yields. The following figure from the Mendocino County Climate Vulnerability Assessment Report shows the frequency of extreme heat days in three census-designated communities in the county.

Figure 34 Frequency of Extreme Heat Days in the Communities of Mendocino, Covelo, and Redwood Valley



Source: Mendocino County Safety Element Update, Climate Vulnerability Assessment Report, March 2021

4.11 Flood (Inland)

4.11.1 General Background

Inland flooding encompasses several types of flood events, including riverine flooding, flash flooding, localized flooding, and alluvial fan flooding. According to the California Enhanced State Hazard Mitigation Plan (CA E-SHMP):

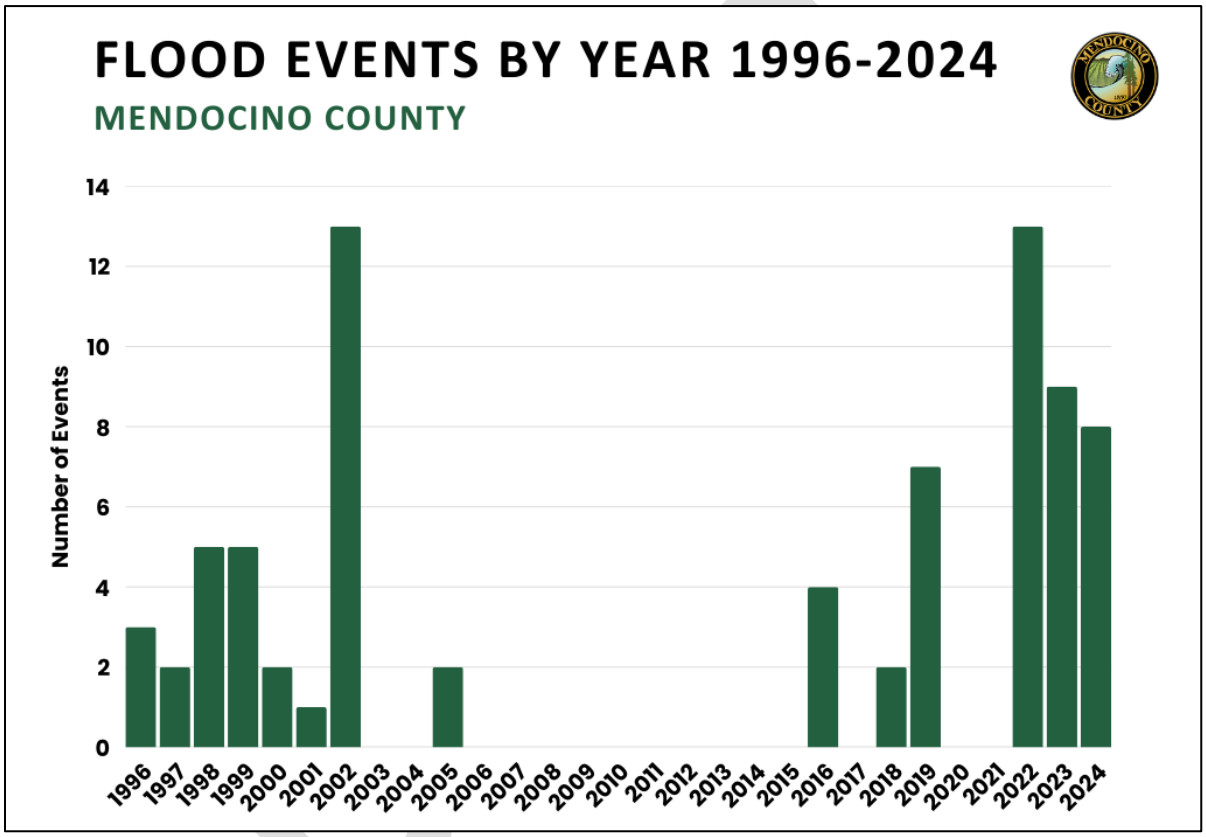
- **Riverine flooding** occurs when rivers, streams, or lakes overflow their banks. It often results from excessive rainfall and runoff that accumulates over broad, flat areas. This type of flooding can affect large regions and may last from several hours to weeks, depending on the severity of the event.
- **Flash flooding** is a sudden and intense flood event, usually triggered by heavy rainfall over a short period. It often strikes low-lying areas with little warning and can be extremely destructive, moving large boulders, uprooting trees, and damaging or destroying buildings and infrastructure. Flash floods may also result from the failure of human-made structures and can reach dangerous depths of 30 feet or more.
- **Localized flooding** typically happens when heavy rain overwhelms stormwater drainage systems. Water can back up and pool in streets, yards, and even the lower levels of buildings. This type of flooding can occur even during less severe storms, especially when debris or sediment clogs storm drains.
- **Alluvial fan flooding** occurs on fan-shaped landforms built up by sediment carried from higher elevations. This type of flooding is especially unpredictable, with fast-moving,

shallow water carrying soil and debris across irregular paths, making it difficult to forecast the exact flow direction and impact areas.

4.11.2 Past Events

The NCEI Storm Events database tracks riverine and flash flood events from 1996 through April 2025. During this period, there have been 76 recorded occurrences in Mendocino County. The highest number of flood events in the county occurred in 2002 and 2022, with 12 events reported in each year, as illustrated in **FIGURE 35** below. In contrast, no significant flood events were recorded between 2006 and 2015.

Figure 35 Inland Flood Event by Year (1996-2024)



Source: NCEI

Of these, two events resulted in fatalities or substantial financial losses. Detailed narratives for each significant event are presented below.

- **December 29, 2005:** Between December 18 and the end of the month, a series of strong Pacific storm systems with a subtropical moisture tap brought widespread flooding and damage to Northern California. Total rainfall ranged from 12 to 20 inches, with flooding beginning in earnest around December 28. Significant impacts were felt across Humboldt, Del Norte, and Mendocino Counties, particularly in the Klamath and Russian River basins, where homes, infrastructure, and agricultural lands were severely affected.

Landslides were a major consequence, causing tens of millions of dollars in damage to roads in Humboldt, Mendocino, Trinity Counties, and tribal lands. Additionally, the storm series included coastal flooding and a damaging wind event, with gusts up to 97 mph and combined damages estimated at $4.9 million. Overall, flood, landslide, wind, and coastal impacts resulted in extensive damage.

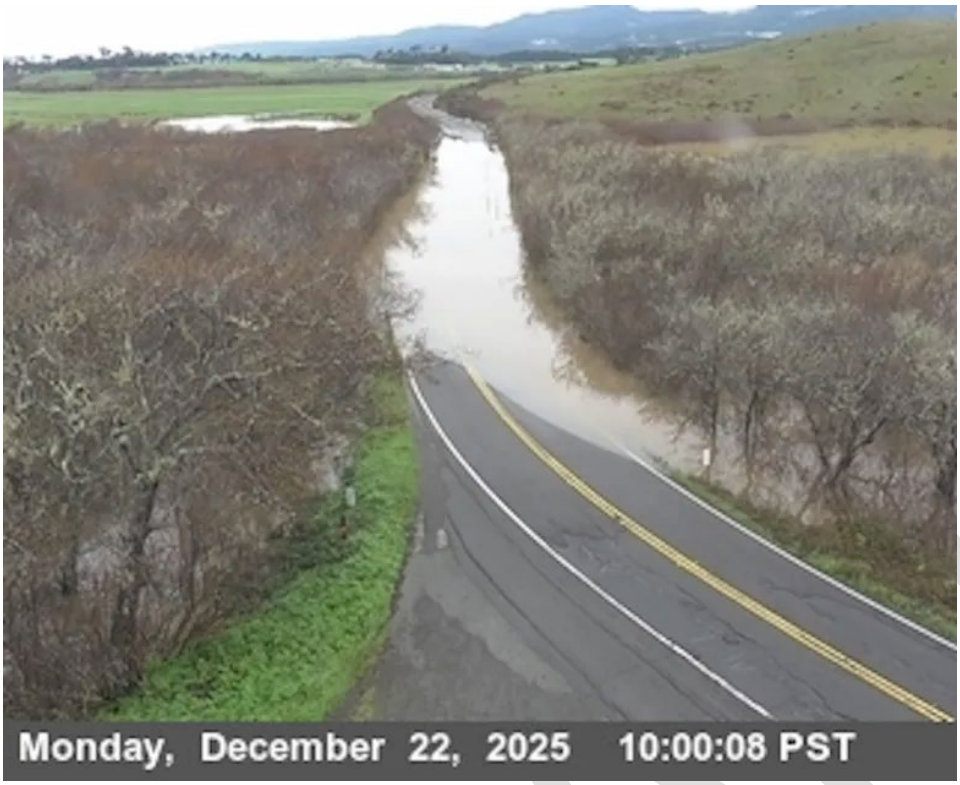
- **December 15, 2016:** In mid-December, a strong atmospheric river brought widespread rainfall to Northwest California, causing significant flooding and landslides along the coast. Three counties declared a local state of emergency, with damages totaling several million dollars. In Fort Bragg, the Pudding Creek Dam overtopped, resulting in damage to both the dam and a primary water main serving the city.

Additionally, the Core Planning Team highlighted a major flood event that occurred on December 12–21, 2025, which had county-wide impacts. Heavy rain from an atmospheric river led to an extended flood warning throughout Mendocino County and widespread disruption: floodwaters submerged streets and low-lying areas in Willits, resulting in sections of East Commercial Street being closed and officials warning drivers to stay away from flooded roads. In Ukiah, city crews were busy clearing drains and putting up warning signs as several areas experienced flooding, with authorities advising caution as 1–3 inches of rain fell through Monday.[23] Meanwhile, the storm caused closures and hazards on major highways — parts of Highway 1 near Point Arena and near Westport were closed, as shown in **FIGURE 36** or had one-way traffic control due to a sinkhole, and State Highways 128 and 175 also faced flooding issues.[24]

[23] NATIONAL WEATHER SERVICE EXTENDS MENDOCINO COUNTY FLOOD WARNING INTO MONDAY MORNING • THE MENDOCINO VOICE | MENDOCINO COUNTY, CA

[24] THE LATEST: HIGHWAY 1 OPEN AFTER WEEKEND STORM CLOSURES • THE MENDOCINO VOICE | MENDOCINO COUNTY, CA

Figure 36 Gasker Slough Flooding Over State Highway 1 Near Point Arena



Source: The Mendocino Voice

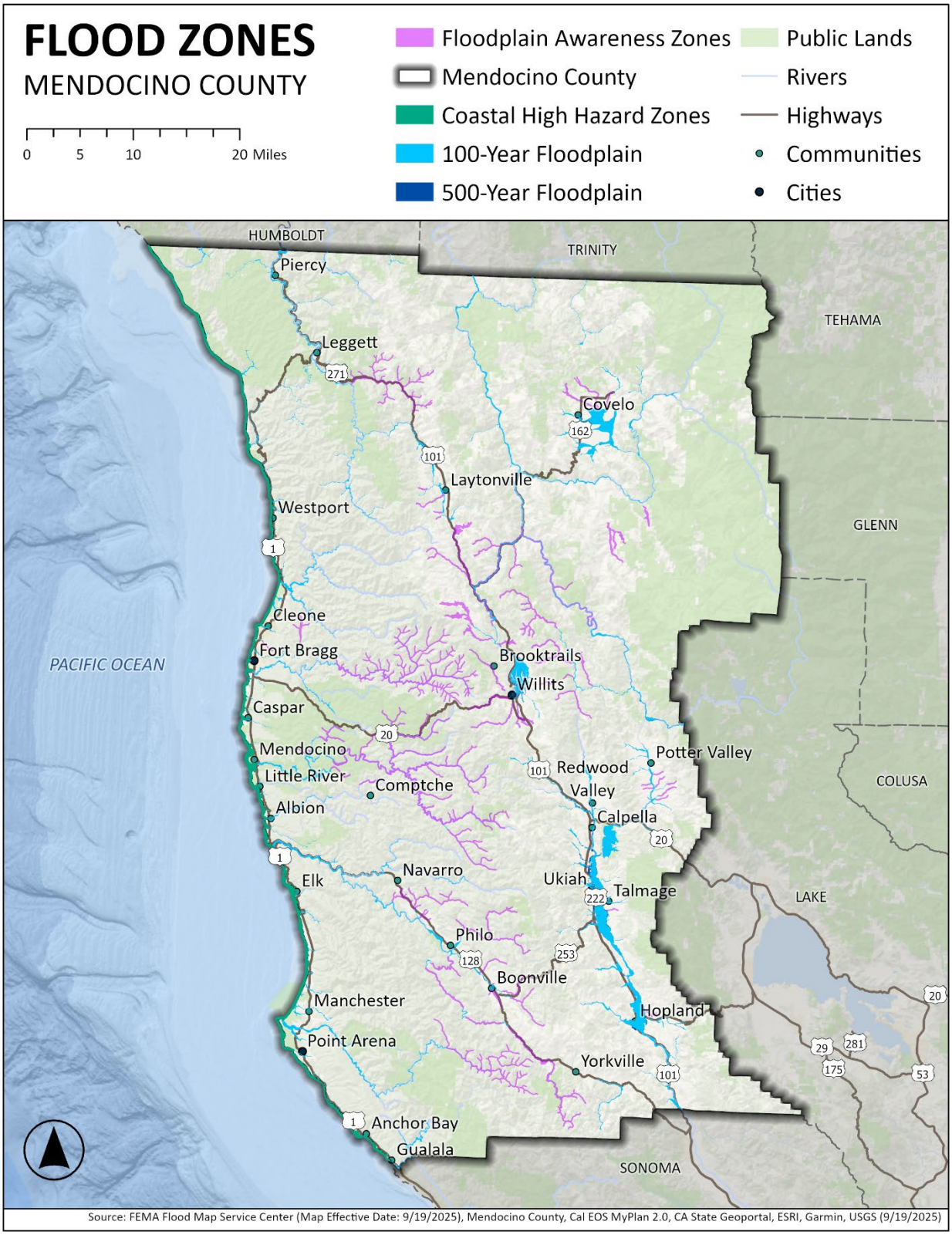
4.11.3 Location

Inland flooding in Mendocino County primarily affects low-lying areas near rivers, streams, and floodplains. Major flood-prone locations include land along the Russian River and its tributaries around south Ukiah and Hopland, low-lying zones east of Willits, and Highway 128 between Philo and Navarro.. The Ukiah Valley, shaped by the Russian River, is particularly vulnerable during severe storms when the river can overflow its banks, impacting areas such as The Forks, Calpella, and Talmage. Tributaries like Orr, Doolin, Gibson, and others also pose flood risks to nearby residential areas, especially where development has increased runoff.

Inland floods often occur within floodplains, which are low-lying areas adjacent to rivers, streams, or creeks that naturally collect and carry excess water during heavy rainfall events. These areas are especially vulnerable to flooding because they are part of the river's natural overflow path. Floodplains help absorb and slow floodwaters, but development in these zones increases the risk of damage to property and infrastructure when flooding occurs.

A map of these floodplains within the county is provided in **FIGURE 37** below. Additionally, the California Department of Water Resources (DWR) has mapped Flood Awareness Zones to highlight flood risks not covered by FEMA, helping residents better understand local hazards.

Figure 37 Inland Flood Risk Areas in the County of Mendocino



4.11.4 Severity

Flood severity is commonly described using terms like “100-year flood” (or an area with a 1% annual chance of flooding), and “500-year flood” (or an area with a 0.2% annual flood risk), which indicate statistical probabilities rather than actual intervals between occurrences. A 100-year floodplain includes areas that have a higher probability of experiencing flood events and is often subject to regulations intended to reduce risk and damage. While 100-year floods can cause significant impacts, 500-year floods may result in more extensive effects due to their rarity and intensity. Minor flooding may lead to short-term disruptions, whereas severe floods, such as 100- or 500-year events, can affect homes, infrastructure, and agricultural land. In some cases, like flash floods, there can be loss of life and recovery may require extended periods.

4.11.5 Secondary Hazards

In Mendocino County, secondary hazards associated with flooding have historically compounded the impacts of major storm events, leading to significant additional losses. Notably, past flood events have triggered a dam incident and landslides. One key example includes the overtopping and damage of the Pudding Creek Dam, which disrupted critical infrastructure such as the City of Fort Bragg’s water supply. Landslides are a recurrent hazard in the region’s steep, rain-saturated terrain and have caused extensive damage to roads, homes, and utilities. Furthermore, heavy rainfall following wildfires poses an even greater risk, as burned areas lack the vegetation needed to stabilize soil, increasing the likelihood of fast-moving and destructive debris flows.

4.11.6 Exposure and Vulnerability

4.11.6.1 Lifelines

Inland floods can significantly impact critical infrastructure by damaging roads, bridges, utilities, and public facilities. Floodwaters can wash out transportation routes, disrupting emergency response and daily commutes. Utility systems such as water treatment plants, power lines, and communication networks may be compromised, leading to service outages and public health risks. Additionally, flooding can overwhelm stormwater and sewage systems, causing backups and contamination.

A summary of the Lifeline analysis for FEMA-designated flood hazard areas (100-year and 500-year floodplains) is presented below:

- **Safety and Security: 6 locations in the 100-year floodplain, 2 location in the 500-year floodplain**
- **Food, Hydration, Shelter: 2 locations in the 100-year floodplain, 0 locations in the 500-year floodplain**
- **Health and Medical: 3 locations in the 100-year floodplain, 0 locations in the 500-year floodplain**
- **Energy: 5 locations in the 100-year floodplain, 1 location in the 500-year floodplain**

- **Communications: 0 locations in the 100-year floodplain, 0 locations in the 500-year floodplain**
- **Transportation: 162 locations in the 100-year floodplain, 8 locations in the 500-year floodplain**
- **Hazardous Materials: 0 locations in the 100-year floodplain, 1 location in the 500-year floodplain**
- **Water Systems: 1 location in the 100-year floodplain, 1 location in the 500-year floodplain**

Additionally, the community lifeline system analysis identified approximately **110.9 miles** of assets located in the 100-year floodplain, and an additional **8.8 miles** of assets in the 500-year floodplain. It is important to note that disruptions at any point along these systems have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0 miles in the 100-year, 0 miles in the 500-year)
- Railroad (69.4 miles in the 100-year, 3.7 miles in the 500-year)
- Highway (37.2 miles in the 100-year, 4.1 miles in the 500-year)

Energy:

- Powerline (11.0 miles in the 100-year, 1.5 miles in the 500-year)
- Transmission Line (24.1 miles in the 100-year, 1.7 miles in the 500-year)
- Natural Gas Pipelines (0 miles in the 100-year, 1.9 miles in the 500-year)

A summary of the community lifeline analysis for flood hazard areas (flood awareness zones) is presented below:

- **Safety and Security: 1 location**
- **Food, Hydration, Shelter: 1 location**
- Health and Medical: 0 locations
- Energy: 0 locations
- Communications: 0 locations
- **Transportation: 65 locations**
- Hazardous Materials: 0 locations
- Water Systems: 0 locations

Additionally, the community lifeline system analysis identified approximately **38.6 miles** of assets located in the state's defined flood-awareness areas, which are broken down by system type below. It is important to note that disruptions at any point along these systems have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0 miles)

- Railroad (15.2 miles)
- Highway (20.2 miles)

Energy:

- Powerline (1.5 miles)
- Transmission Line (1.7 miles)
- Natural Gas Pipelines (0 miles)

4.11.6.2 People

Inland floods pose serious risks to human health and safety by increasing the potential for injuries, drowning, and exposure to contaminated water. Floodwaters can carry harmful bacteria, chemicals, and sewage, leading to waterborne diseases and respiratory issues. Flooding can also disrupt access to medical care and emergency services, especially if roads and transportation are blocked. Additionally, the stress and displacement caused by flooding can have lasting mental health effects on affected individuals and communities.

4.11.6.3 Structures

Inland floods can cause significant damage to buildings, including homes and businesses, through water intrusion, structural weakening, and mold growth. Floodwaters can inundate lower floors, damaging walls, floors, electrical systems, and personal property. Prolonged exposure to moisture can lead to costly repairs and create unhealthy living or working conditions. Flooding may also disrupt business operations, resulting in financial losses and economic hardship for communities.

TABLE 13 and **TABLE 14** summarize the total parcel value and count exposed to flood hazard areas in the County of Mendocino.

Table 13 Parcels Exposed to Flood Hazards (100-Year and 500-Year Floodplains)

Use Type	Parcel Count	Land Value	Improved Value
Commercial	425	$114,469,397	$181,987,110
Industrial	183	$35,039,283	$91,394,316
Institutional	73	$5,676,997	$52,671,853
Miscellaneous	240	$3,549,796	$1,176,323
Residential	3,476	$364,342,571	$506,612,584
Rural	2,835	$238,737,188	$214,588,760
No Data	490	$15,716,923	$12,535,739
100-Year Floodplain Total	**7,722**	**$777,532,155**	**$1,060,966,685**
Commercial	716	$202,295,756	$359,788,342
Industrial	333	$74,756,372	$181,921,118

Use Type	Parcel Count	Land Value	Improved Value
Institutional	118	$10,095,811	$100,793,631
Miscellaneous	292	$4,950,895	$1,194,697
Residential	4,926	$501,006,479	$769,990,343
Rural	3,286	$299,174,221	$292,200,573
No Data	678	$23,691,585	$19,838,028
500-Year Floodplain Total	**10,349**	**$1,115,971,119**	**$1,725,726,732**

Source: The County of Mendocino Assessor's Office and GIS Department

Table 14 Parcels Exposed to Flood Hazards (Flood Awareness Zones)

Use Type	Parcel Count	Land Value	Improved Value
Commercial	40	$8,066,906	$14,361,976
Industrial	33	$7,055,046	$29,861,906
Institutional	16	$2,055,882	$4,860,250
Miscellaneous	47	$62,220	$0
Residential	825	$71,624,380	$70,038,572
Rural	1,534	$113,677,205	$95,208,438
No Data	136	$5,831,614	$5,008,571
Total	**2,631**	**$208,373,253**	**$219,339,713**

Source: The County of Mendocino Assessor's Office and GIS Department

4.11.6.4 Natural, Historic, and Cultural Resources

Inland flooding in Mendocino County can pose significant risks to natural, historic, and cultural resources. Floodwaters can erode or damage sensitive ecosystems, such as wetlands and riparian habitats, which are vital for local biodiversity. Historic buildings, archaeological sites, and culturally significant landmarks may also be threatened by flooding, leading to structural damage, loss of artifacts, and degradation of irreplaceable heritage.

4.11.6.5 Local Vulnerability

- Buildings permitted as "Class K" structures under the building code could be at a higher risk of flood events.
- The Noyo Harbor area experiences flooding from high river flows and high tides accompanied by storm surges that can impact county roads and infrastructure.
- The Russian River (E of Ukiah) routinely floods, affecting county infrastructure and roads.

- Heavy rains could create localized flooding issues around county infrastructure including buildings and roads, posing a threat to buildings and creating hazardous travel conditions.
- Regular flooding is a known issue in the following areas: Hopland (residents on the east side of the river can become isolated), Highway 101 and Highway 1 (Garcia River), Mill Creek, and Highway 128 along the Navarro River.
- Access problems for schools due to flooded roads, impacting transportation and the ability to receive food and supplies.
- Power outages and loss of communication (internet, phone lines) during storms are significant concerns.
- Heavy rain events create localized flooding issues, including pooling of water around the foundations of school facilities.

4.11.7 Future Trends in Development

The county would prefer that any new development be located outside of mapped floodplains, to ensure the county's collective risk to flooding is not increased. Both FEMA and the state have mapped floodplains to inform planning.

The county's land-use regulation (Title 17) explicitly mentions: "The creation of building sites in areas where topography, flooding, or other factors will prevent safe, orderly, and beneficial land development." Restricting or regulating development in identified floodplains is a capability that the county has.

4.11.8 Probability of Future Occurrences

The County of Mendocino faces an annual risk of flooding, typically caused by winter or spring rainfall, though heavy summer rains can also contribute. However, damaging flood events occur less frequently. The Pacific high pressure system increases storm activity, bringing rain at lower elevations and snow higher up, and is a key factor in severe flooding during the winter months. Floods in California are often linked to El Niño events, which bring warmer ocean waters and increased precipitation, especially in the southwest U.S. El Niño cycles occur every four to five years and last 12–18 months, with La Niña representing the cold phase. Mendocino County can expect a major flood roughly every 3–4 years, particularly during strong El Niño years (every 7–8 years).

4.11.9 Climate Change Impacts

Climate change is expected to affect how and when it rains. We may see heavier and more sudden rainstorms, even in places where total yearly rainfall goes down. This can change how floods happen, depending on how hard it rains and how wet the ground is. Warmer temperatures mean the air can hold more moisture, which can cause stronger rainstorms and increase flood risk. On the other hand, long dry periods can make the soil soak up more water during gentle rains, which might lower the chance of flooding. However, dry and compacted

soils have the potential to increase runoff and cause flash flooding during periods of heavy rainfall.[25]

4.12 Mass Earth Movements: Landslides, Rock Falls, & Debris Flows

4.12.1 General Background

Mass earth movements, including landslides, rockfalls, and debris flows, are natural hazards involving the downslope movement of rock, soil, and debris under the influence of gravity. These events can vary widely in speed, scale, and impact. Intense rainfall, earthquakes, wildfire damage to vegetation, or human activities such as excavation, grading, and development on unstable slopes often trigger mass earth movements. Due to its diverse topography and geologic conditions, Mendocino County is particularly susceptible to these hazards in many areas.

The California Geological Survey (CGS) classifies landslides based on the type of material involved and the manner of movement, which may include falls, topples, slides, spreads, and flows.

- **Falls** involve free-falling rock or soil from steep slopes.
- **Topples** occur when blocks of material rotate forward and fall.
- **Slides** involve movement along a defined surface; these may be rotational (curved) or translational (planar).
- **Spreads** occur when loose, water-saturated material moves laterally, often in flat terrain.
- **Flows**, including debris and earth flows, behave like a fluid, rapidly moving material downslope.

In Mendocino County, two other types of mass earth movements of concern include rockfalls and debris flows, due to the county's steep terrain, unstable slopes, and exposure to intense seasonal rainfall. Rockfalls occur when fragments of rock detach from steep slopes or cliffs and fall freely, bounce, or roll downslope. These events can happen suddenly, often without warning, and pose significant risks to roadways, structures, and public safety, especially in mountainous or coastal bluff areas.

Debris flows are fast-moving landslides composed of saturated soil, rock, vegetation, and other material that surge downhill during or after heavy rainfall, often following wildfires or prolonged wet conditions. They can destroy everything in their path and are particularly dangerous in narrow canyons and steep drainage areas.

[25] CLIMATE CHANGE AND INLAND FLOODING | CLIMATE CENTRAL

4.12.2 Past Events

Information was compiled from the NCEI Storm Events database (1996–2024), local news sources, the CA E-SHMP, and input from the Core Planning Team to assess past mass earth movement events in Mendocino County. Details of these events are provided below.

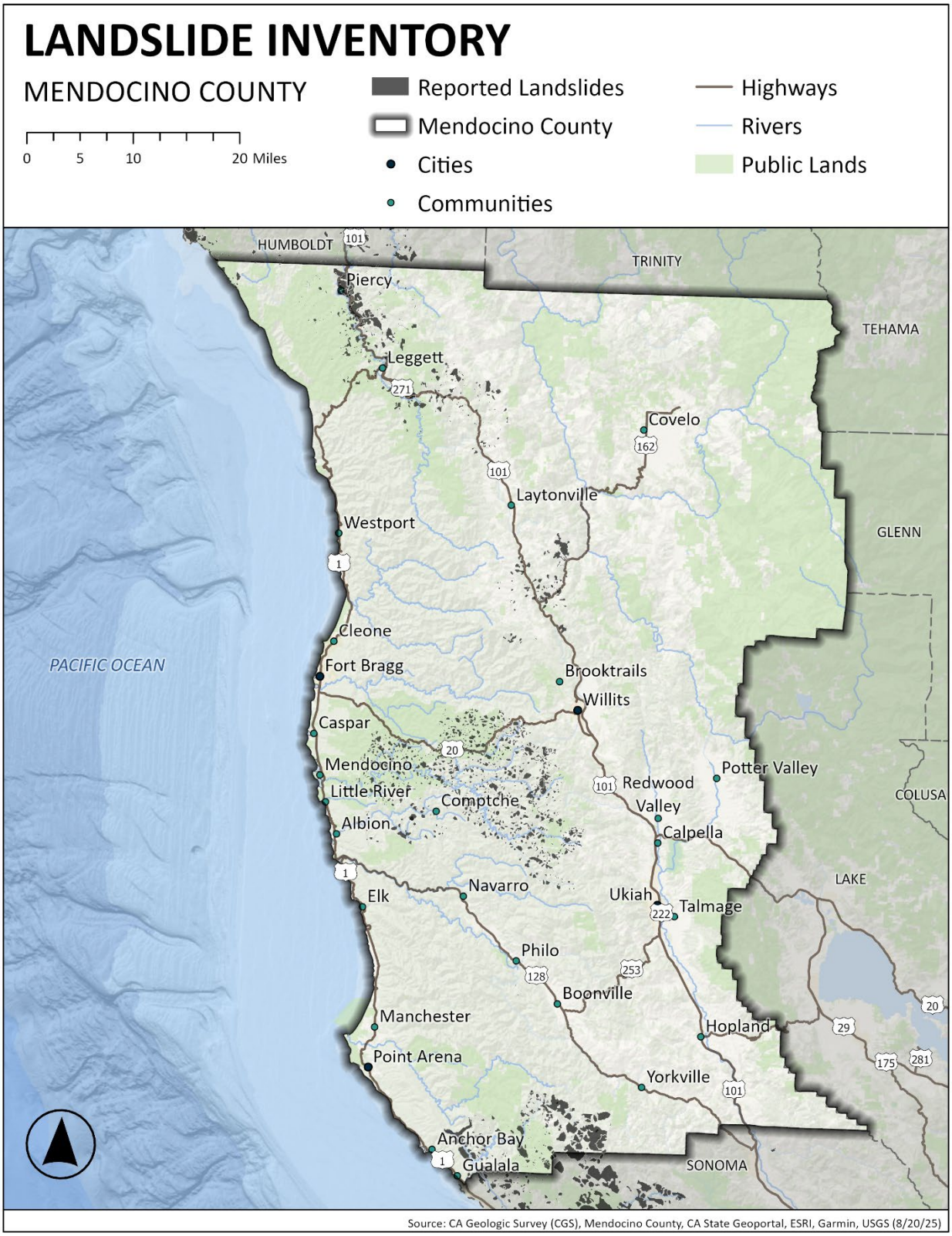
- **December 2005:** A series of strong Pacific storms brought 12 to 20 inches of rain to Mendocino County, resulting in widespread flooding, landslides, and infrastructure damage. Heavy rainfall triggered significant slope failures and road washouts, with Caltrans reporting approximately $17.3 million in damages within the county. Coastal flooding and high winds also caused additional impacts, including damage to shore-side facilities, downed trees, and power outages (NCEI).
- **February 13-15, 2019:** An atmospheric river with extremely heavy rain caused flooding and mudslides throughout the State, impacting Mendocino County and resulting in a disaster declaration (DR-4431-CA).
- **February 24-March 1, 2019:** An atmospheric river with extremely heavy rain caused flooding and mudslides throughout the State and resulted in a disaster declaration (DR-4434-CA).
- **December 15, 2021**: A landslide closed Forest Road M10 near Fouts Springs in Mendocino National Forest. The closure was prompted by heavy winter storms, with forest officials warning of ongoing risks in burn scar areas, including potential erosion, landslides, and debris flows from the August Complex and Ranch Fire zones.[26]
- **Late January–February 2025**: An atmospheric river storm series triggered widespread landslides and flooding, prompting a state of emergency in Mendocino County. Multiple roadways were impacted, including sections of US 101, State Highway 128, and Highway 175. [27]

The statewide landslide inventory displays reported landslides by CGS and other sources over the past 50 years, as illustrated in **FIGURE 38** below.

[26] LANDSLIDE CLOSES M10 IN MENDOCINO NATIONAL FOREST AS WINTER STORMS CONTINUE • THE MENDOCINO VOICE | MENDOCINO COUNTY, CA

[27] STATE OF EMERGENCY DECLARED FOR MENDOCINO COUNTY AFTER FEBRUARY STORMS • THE MENDOCINO VOICE | MENDOCINO COUNTY, CA

Figure 38 Reported Landslides in the County of Mendocino



4.12.3 Location

In Mendocino County, landslides are most likely to occur in areas with steep slopes, unstable soils, and significant rainfall or seismic activity. These high-risk zones include rugged coastal cliffs, mountainous regions such as the Coast Range, and river valleys where erosion weakens slopes, as shown in **FIGURE 39**. Areas recently impacted by wildfires are particularly vulnerable to debris flows, as the loss of vegetation reduces the soil's ability to stay anchored during heavy rain events, increasing the risk of rapid downhill soil movement. Human activities like road cuts, construction, and land clearing can also destabilize slopes and trigger landslides.

Wildfires can increase the risk of debris flows, which may occur shortly after a fire due to intense rainfall or develop over time as vegetation is lost and soil stability declines. The California MyPlan 2.0 platform identifies watersheds within wildfire burn areas that are at elevated risk for debris flows, as shown in **FIGURE 40** below.

Figure 39 Landslide Susceptibility Areas in the County of Mendocino

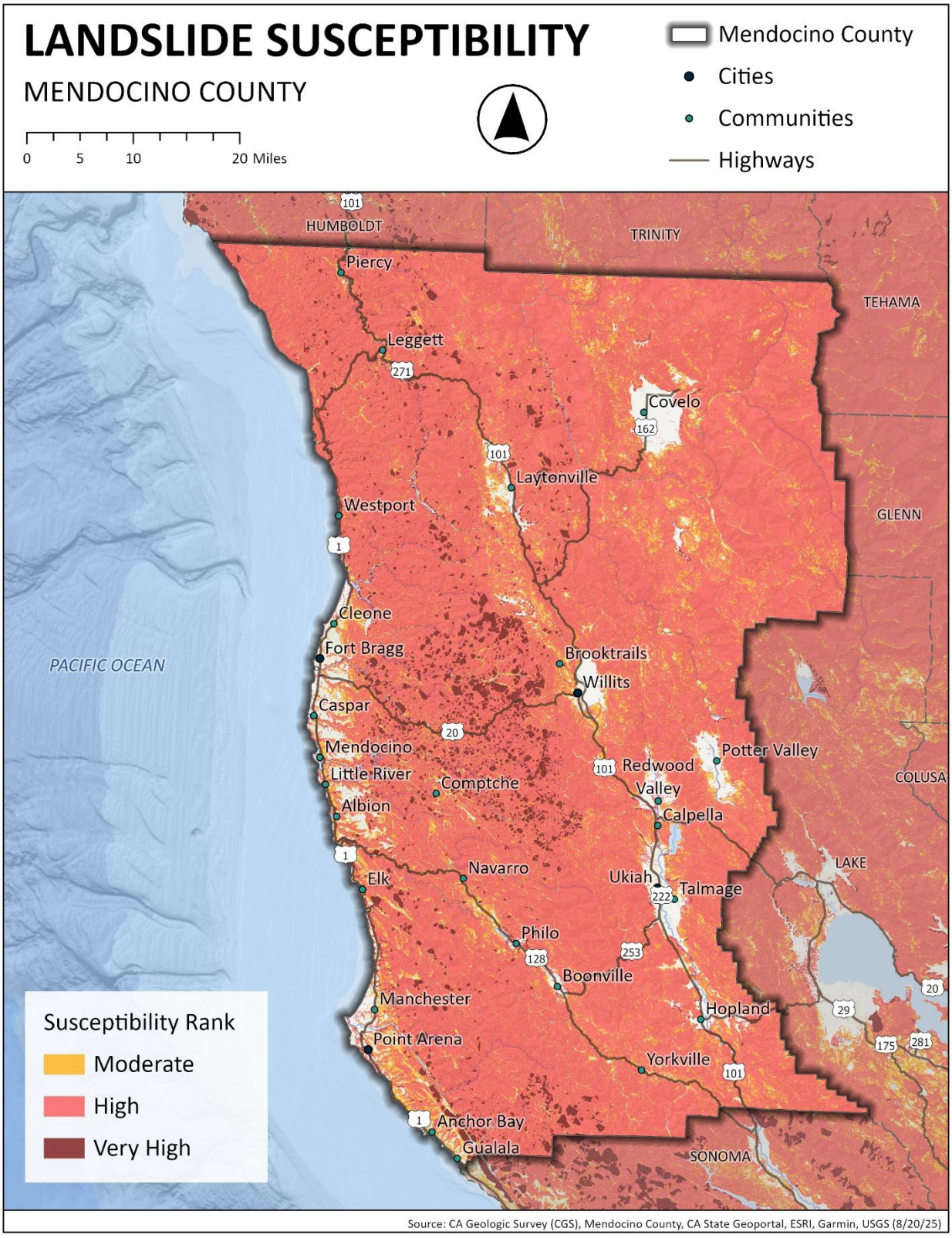
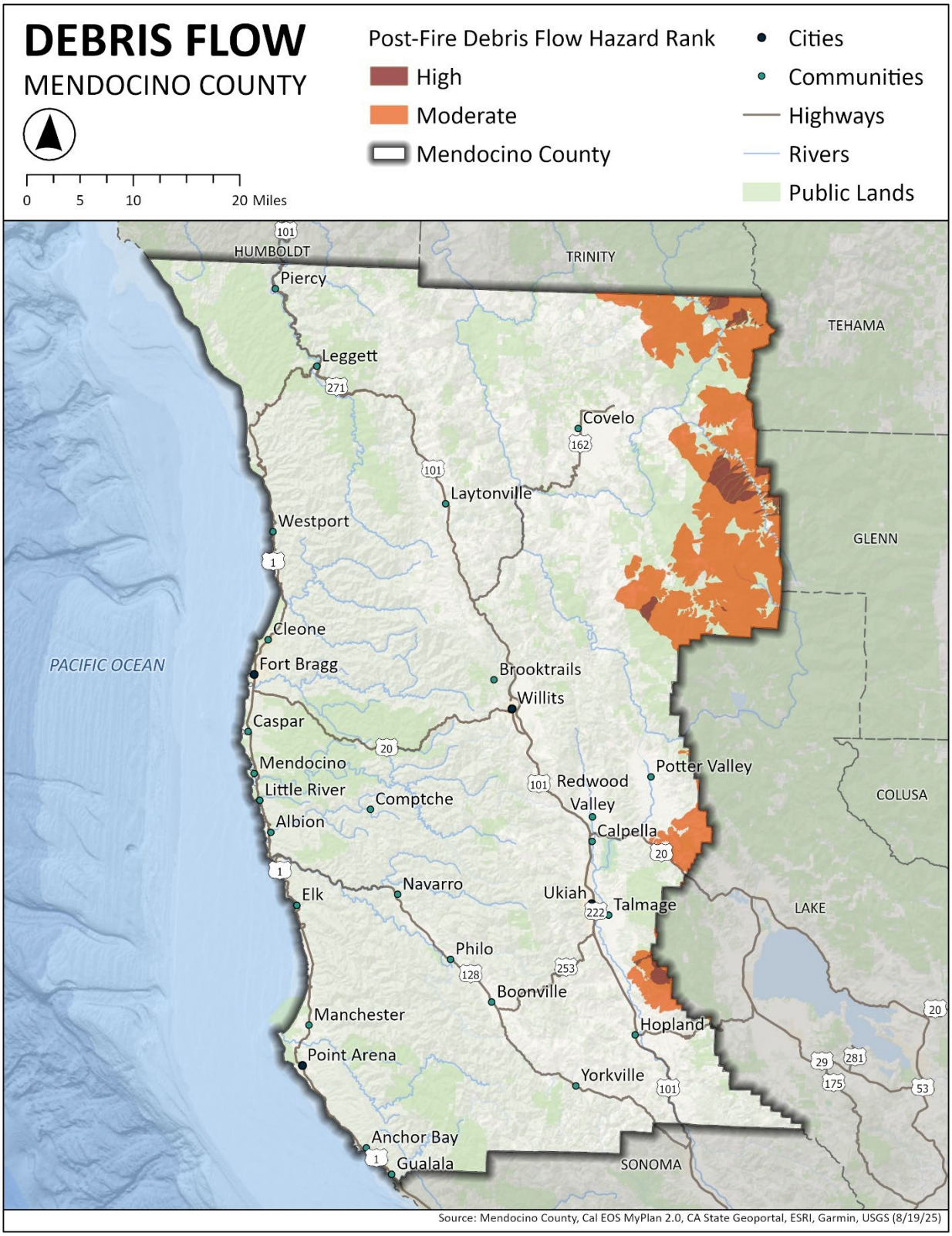


Figure 40 Debris Flow Risk Areas in the County of Mendocino



4.12.4 Severity

Mass earth movements can be highly destructive, posing serious risks to life, property, and infrastructure. Their severity depends on factors like slope steepness, soil composition, rainfall intensity, and prior disturbances like wildfire or construction. These events can occur suddenly with little warning, causing roads to collapse, damaging or destroying homes and businesses, and isolating communities. Debris flows, in particular, can move rapidly and carry large volumes of mud, rock, and vegetation, increasing the potential for injury or fatalities. In steep or fire-impacted areas of Mendocino County, the severity of these hazards may worsen with climate-related changes, such as more intense storms and reduced vegetation cover.

4.12.5 Secondary Hazards

Mass earth movements can trigger or worsen several secondary natural hazards, including flooding and dam or levee failures. When large volumes of earth and debris block rivers or streams, they can create temporary dams known as “landslide dams” or “debris dams.” These blockages can lead to upstream flooding and may suddenly breach, releasing large amounts of water downstream and causing flash floods. In some cases, landslides near man-made dams or levees can damage structural integrity or overwhelm drainage systems, increasing the risk of failure.

4.12.6 Exposure and Vulnerability

4.12.6.1 Lifelines

Mass earth movements can significantly impact critical infrastructure by damaging or disrupting essential systems such as transportation networks, utilities, and communication lines. Landslides and debris flows can block or destroy roads and highways, isolating communities and delaying emergency response. Rockfalls may damage power lines, water pipelines, and gas lines, leading to service outages or hazardous conditions. In some cases, mass movements near reservoirs, dams, or treatment facilities can impair water supply or compromise structural stability. These disruptions not only affect daily operations but can also pose serious risks to public safety and require costly repairs and long-term mitigation efforts.

Landslides

A summary of the Community lifeline analysis for landslides (high-very high risk) is presented below:

- **Safety and Security: 20 locations**
- **Food, Hydration, Shelter: 18 locations**
- **Health and Medical: 9 locations**
- **Energy: 10 locations**
- **Communications: 22 locations**
- **Transportation: 96 locations**

- **Hazardous Materials: 2 locations**
- Water Systems: 0 locations

Additionally, the community lifeline system analysis identified approximately **842.7 miles** of assets located in high to very high landslide risk areas, broken down by system type below. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0.0 miles)
- Railroad (63.1 miles)
- Highway (357.0 miles)

Energy:

- Powerline (179.5 miles)
- Transmission Line (224.9 miles)
- Natural Gas Pipelines (18.2 miles)

Debris Flows

A summary of the community lifeline analysis for post-wildfire debris flow (moderate risk) is presented below. No Lifelines are located in high-risk post-wildfire debris flow areas.

- Safety and Security: 0 locations
- Food, Hydration, Shelter: 0 locations
- Health and Medical: 0 locations
- Energy: 0 locations
- **Communications: 2 locations**
- Transportation: 0 locations
- Hazardous Materials: 0 locations
- Water Systems: 0 locations

Additionally, the community lifeline system analysis identified approximately **15.6 miles** of assets located in moderate risk debris flow areas, broken down by system type below. No lifeline systems are located in high-risk areas. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (4.1 miles)
- Railroad (0 miles)
- Highway (0.1 miles)

Energy:

- Powerline (4.1 miles)

- Transmission Line (7.3 miles)
- Natural Gas Pipelines (0 miles)

4.12.6.2 People

Mass earth movements can pose serious risks to human health and safety. Landslides, rockfalls, and debris flows can occur suddenly, giving little or no warning, and have the potential to injure or kill people in their path. These events can trap residents in homes or vehicles, cut off access to emergency services, and delay evacuations. In addition to physical harm, the destruction of homes and displacement caused by these hazards can lead to long-term emotional stress and mental health challenges. Populations living in steep, fire-affected, or rural areas are especially vulnerable to these impacts.

4.12.6.3 Structures

Mass earth movements can cause significant damage to general structures such as homes and businesses. Landslides and debris flows can bury or collapse buildings, especially those located on or near steep slopes, hillsides, or areas with unstable soil. Rockfalls can strike structures with great force, damaging roofs, walls, and foundations. Even if a building is not directly hit, surrounding ground movement can undermine a structure's stability or cut off access. This type of damage often leads to costly repairs, long-term displacement for residents or business owners, and potential economic losses for the community.

Landslides

TABLE 15 displays total parcel count and value exposed to high and very high-risk landslide areas in the County of Mendocino.

Table 15 Parcels Exposed to Landslides (High-Very High Risk)

Use Type	Parcel Count	Land Value	Improved Value
Commercial	679	$184,344,225	$248,169,410
Industrial	205	$44,624,844	$92,706,807
Institutional	210	$12,878,187	$36,747,006
Miscellaneous	583	$7,038,071	$2,537,558
Residential	21,965	$2,176,588,500	$2,460,339,645
Rural	16,236	$1,147,955,782	$732,030,955
No Data	1,682	$95,196,619	$97,707,933
Total	**41,560**	**$3,668,626,228**	**$3,670,239,314**

Source: The County of Mendocino Assessor's Office and GIS Department

Debris Flow

TABLE 16 displays total parcel count and value exposed to moderate and high post-wildfire debris flow risk areas in the County of Mendocino.

Table 16 Parcels Exposed to Post-Wildfire Debris Flows (Moderate to High Risk)

Use Type	Parcel Count	Land Value	Improved Value
Commercial	1	$0	$0
Industrial	1	$32,964	$0
Institutional	1	$198,075	$20,486
Miscellaneous	1	$38,502	$0
Residential	559	$6,821,325	$2,285,227
Rural	348	$9,187,998	$1,966,719
No Data	9	$0	$0
Total	**920**	**$16,278,864**	**$4,272,432**

Source: The County of Mendocino Assessor's Office and GIS Department

4.12.6.4 Natural, Historic, and Cultural Resources

Soil and sediment from landslides can accumulate downslope, potentially blocking roads and waterways and degrading the quality of streams and other water bodies. When landslides enter streams, they can disrupt fish and wildlife habitats and further impact water quality. Additionally, landslides can cause the long-term loss of hillside areas that serve as important habitat for wildlife.

4.12.6.5 Local Vulnerability

- Post wildfire debris flow and flooding can impact any infrastructure and structures near and downstream from burn scars.
- A number of county transportation routes are located near high-risk landslide areas, which could result in blocked roads and dangerous driving conditions.
- A lack of erosion control in areas around steep hillsides leads to increased risk.

4.12.7 Future Trends in Development

The county would prefer that any new development be located outside of mapped "geologic" hazard areas, to ensure the county's collective risk to mass earth movements is not increased. The state has mapped landslide areas to inform planning.

The county's land-use regulation (Title 17) explicitly mentions: "The creation of building sites in areas where topography, flooding, or other factors will prevent safe, orderly, and beneficial

land development." Restricting or regulating development in identified geologic hazard areas is a capability that the county has.

4.12.8 Probability of Future Occurrences

Mass earth movement hazards are highly likely in Mendocino County, occurring every 1 to 10 years. These events often happen alongside other natural disasters like earthquakes, floods, or wildfires, and their frequency is linked to these conditions. The county's steep slopes, unstable soils, and frequent storms increase the risk of landslides and debris flows. Past incidents and ongoing threats, compounded by climate change and development, mean these hazards are persistent, especially where fires or heavy rainfall have occurred.

4.12.9 Climate Change Impacts

In Mendocino County, landslides are closely linked to intense rainfall and runoff events, which climate change is expected to make more frequent and severe. According to the CA E-SHMP, although overall annual rainfall may decrease, it is likely to fall in fewer but heavier storms, thereby increasing landslide risk. Additionally, extended drought periods and more frequent wildfires, both driven by climate change, will increase vulnerability to debris flows as vegetation that stabilizes soil is lost.

4.13 Severe Storms

4.13.1 General Background

Severe storms are characterized by heavy rainfall, high winds, and sometimes lightning. These events can develop rapidly, often overwhelming natural and built environments, and trigger secondary hazards including flooding and mass earth movements. The frequency and intensity of severe storms may be exacerbated by changing climate patterns, increasing risks for communities, critical facilities, and vital resources. In Mendocino County, severe storms threaten lives and property, disrupt essential services, and exacerbate vulnerabilities related to slope instability and other interconnected hazards.

An atmospheric river is a long, narrow corridor of concentrated moisture in the atmosphere that can deliver intense rainfall when it makes landfall. When these bands make landfall, especially against coastal or mountainous terrain like Mendocino's coast, they release their moisture as intense rainfall or snow, often over several days. Atmospheric rivers are the primary driver of major floods in the county.

4.13.2 Past Events

The NCEI Storm Events Database reports 118 severe storm events in Mendocino County from 1950 to 2024, including 78 wind (including tornado) and 40 heavy rain events. Property damage was documented in 69 occurrences, and one event resulted in a fatality; no crop damage was reported. Most reported incidents took place between 2022 and 2024. Details about the damaging events are provided below (**TABLE 17**). Note that heavy rain is often the cause of other

hazards, such as flooding and mass earth movements. Some events may not have been recorded as heavy rain but rather as a secondary hazard in the NCEI Storm Events data. Refer to the Flood (inland) **4.11.2 PAST EVENTS** and Mass Earth Movements **4.12.2 PAST EVENTS** sections for additional information on these types of events.

Table 17 Damaging Severe Storm Events

Location	Date	Hazard	Magnitude	Fatalities	Property Damage
Mendocino Co.	12/11/1983	Tornado	F0		$2,500
Ukiah	2/13/2000	High Wind	50 knots	1	unknown
Leggett	1/6/2017	Heavy Rain			$2,500,000
Outlet	1/6/2017	Heavy Rain			$2,000,000
Summit	1/6/2017	Heavy Rain			$1,300,000
Mendocino Coast	1/8/2017	Strong Wind	26 knots		$17,000
Laytonville	1/9/2017	Heavy Rain			$7,000,000
Old Hopland	1/9/2017	Heavy Rain			$550,000
Rockport	1/9/2017	Heavy Rain			$3,000,000
Albion	1/9/2017	Heavy Rain			$400,000
Farley	1/17/2017	Heavy Rain			$2,000,000
Cummings	1/17/2017	Heavy Rain			$4,500,000
Boonville Muni Arpt	2/9/2017	Heavy Rain			$1,700,000
Caspar	2/15/2017	Heavy Rain			$1,250,000
Piercy	2/15/2017	Heavy Rain			$1,200,000

Location	Date	Hazard	Magnitude	Fatalities	Property Damage
Cummings	2/15/2017	Heavy Rain			$6,000,000
Southwestern Mendocino Interior (Zone)	12/26/2022	Strong Wind	26 knots		$1,000
Mendocino Coast (Zone)	12/26/2022	Strong Wind	30 knots		$1,000
Mendocino Coast (Zone)	12/27/2022	Strong Wind	22 knots		$1,000
Mendocino Coast (Zone)	12/27/2022	Strong Wind	30 knots		$1,000
Mendocino Coast (Zone)	12/27/2022	Strong Wind	17 knots		$1,000
Southwestern Mendocino Interior (Zone)	12/30/2022	Strong Wind	22 knots		$2,000
Northwestern Mendocino Interior (Zone)	12/30/2022	Strong Wind	26 knots		$1,000
Northwestern Mendocino Interior (Zone)	1/4/2023	Strong Wind	35 knots		$1,000
Mendocino Coast (Zone)	1/4/2023	Strong Wind	35 knots		$1,000
Mendocino Coast (Zone)	1/4/2023	Strong Wind	26 knots		$1,000
Northwestern Mendocino Interior (Zone)	1/4/2023	Strong Wind	26 knots		$1,000
Mendocino Coast (Zone)	1/4/2023	Strong Wind	35 knots		$2,000
Southwestern Mendocino Interior (Zone)	1/4/2023	Strong Wind	26 knots		$2,000
Mendocino Coast (Zone)	1/4/2023	Strong Wind	39 knots		$1,000
Mendocino Coast (Zone)	1/4/2023	Strong Wind	38 knots		$1,000
Mendocino Coast (Zone)	1/4/2023	Strong Wind	31 knots		$1,000

Location	Date	Hazard	Magnitude	Fatalities	Property Damage
Mendocino Coast (Zone)	1/5/2023	Strong Wind	26 knots		$1,000
Mendocino Coast (Zone)	1/5/2023	Strong Wind	30 knots		$1,000
Northwestern Mendocino Interior (Zone)	1/5/2023	Strong Wind	26 knots		$1,000
Southeastern Mendocino Interior (Zone)	1/7/2023	Strong Wind	29 knots		$1,000
Southeastern Mendocino Interior (Zone)	1/7/2023	Strong Wind	35 knots		$1,000
Mendocino Coast (Zone)	1/7/2023	Strong Wind	26 knots		$1,000
Northwestern Mendocino Interior (Zone)	1/9/2023	Strong Wind	26 knots		$1,000
Mendocino Coast (Zone)	1/9/2023	Strong Wind	26 knots		$1,000
Mendocino Coast (Zone)	1/9/2023	Strong Wind	26 knots		$1,000
Southwestern Mendocino Interior (Zone)	1/14/2023	Strong Wind	26 knots		$1,000
Southeastern Mendocino Interior (Zone)	1/14/2023	Strong Wind	22 knots		$1,000
Mendocino Coast (Zone)	3/1/2024	High Wind	36 knots		$1,000
Mendocino Coast (Zone)	3/1/2024	High Wind	29 knots		$7,500
Northwestern Mendocino Interior (Zone)	3/1/2024	High Wind	25 knots		$7,500
Southwestern Mendocino Interior (Zone)	3/1/2024	High Wind	30 knots		$1,500
Northwestern Mendocino Interior (Zone)	3/1/2024	High Wind	28 knots		$250
Mendocino Coast (Zone)	3/1/2024	High Wind	26 knots		$7,500

Location	Date	Hazard	Magnitude	Fatalities	Property Damage
Southwestern Mendocino Interior (Zone)	3/1/2024	High Wind	28 knots		$1,000
Mendocino Coast (Zone)	3/1/2024	High Wind	32 knots		$7,500
Mendocino Coast (Zone)	3/2/2024	High Wind	32 knots		$1,000
Mendocino Coast (Zone)	3/2/2024	High Wind	35 knots		$1,000
Mendocino Coast (Zone)	3/2/2024	High Wind	29 knots		$1,000
Potter Vly	3/3/2024	Heavy Rain			$3,500
Irmulco	3/3/2024	Heavy Rain			$1,100
Dos Rios	3/3/2024	Heavy Rain			$3,500
Northwestern Mendocino Interior (Zone)	3/3/2024	High Wind	25 knots		$1,100
Irmulco	3/5/2024	Heavy Rain			$3,500
Mendocino Coast (Zone)	3/22/2024	High Wind	28 knots		$1,000
Southwestern Mendocino Interior (Zone)	3/22/2024	High Wind	26 knots		$1,000
Cummings	3/23/2024	Heavy Rain			$1,100
Farley	3/24/2024	Heavy Rain			$1,100
Mendocino Coast (Zone)	3/24/2024	High Wind	26 knots		$1,000
Laytonville	11/1/2024	Heavy Rain			$3,500
Old Hopland	11/20/2024	Heavy Rain			$1,100

Location	Date	Hazard	Magnitude	Fatalities	Property Damage
Mendocino Coast (Zone)	11/20/2024	High Wind	42 knots		$1,000
Mendocino Coast (Zone)	12/13/2024	High Wind	25 knots		$1,000
Mendocino Co.	12/13/2024	High Wind	25 knots		$1,000

Since 1970, the county has been included in 12 state proclamations and nine federal disaster declarations for severe storm-related hazards. While proclamations and declarations may identify a secondary hazard as the disaster type (i.e., flooding or landslides), severe storms are ultimately the primary cause of these events.

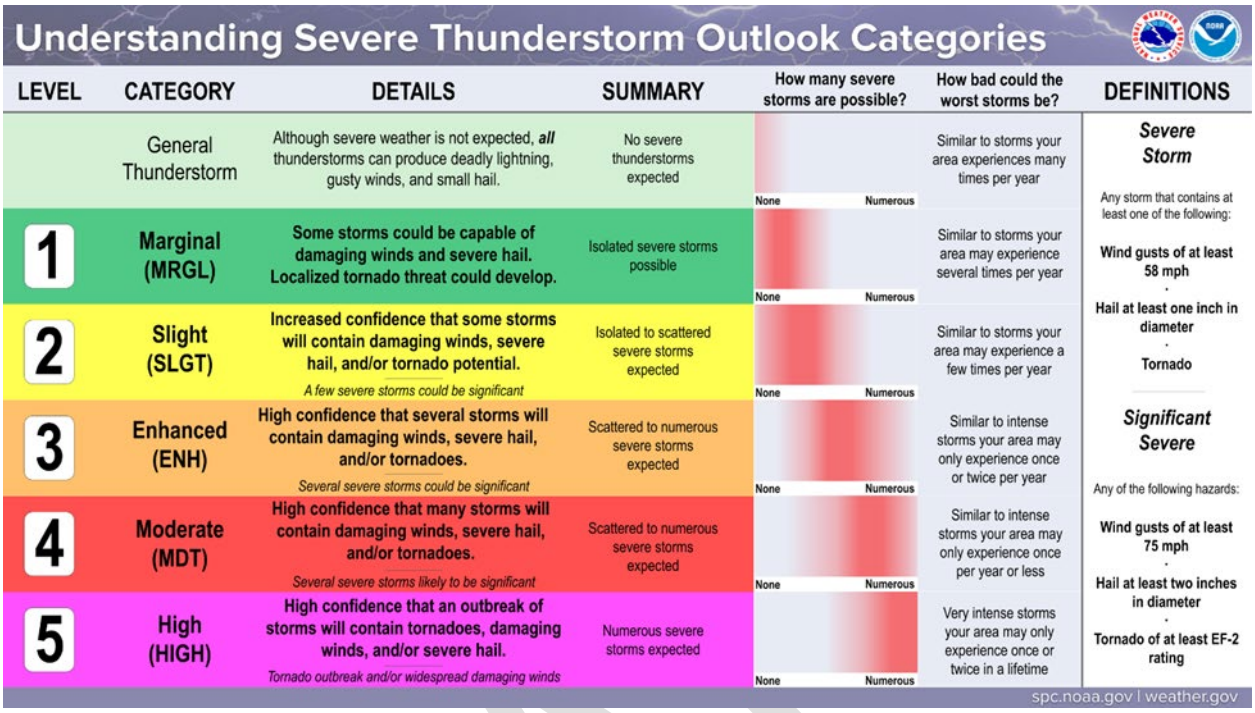
4.13.3 Location

Severe storms can impact all areas of the county, but often at different times of the year. Coastal communities experience severe storms more frequently during the winter months and are more directly affected by atmospheric rivers. Meanwhile, inland communities experience severe summer storms more often, which often include lightning.

4.13.4 Severity

The NWS's Storm Prediction Center (SPC) uses a scale from 1 to 5 to measure the severity of thunderstorms shown in **FIGURE 41.**

Figure 41 Severe Thunderstorm Outlook Categories



Lightning is measured by the Lightning Activity Level (LAL) scale, created by the National Weather Service to define lightning activity into a specific categorical scale. The LAL is a standard parameter used in fire weather forecasts nationwide. It is reproduced in **TABLE 18**.

Lightning can cause deaths, injuries, and property damage, including damage to buildings, communications systems, power lines, and electrical systems. It also causes forest and brush fires. Due to the county's varied topography, there is a risk of experiencing lightning in any of these categories.

Table 18 Lightning Activity Levels (LAL) Scale

Activity Level	Description
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud-to-ground strikes in five minutes
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, with 6 to 10 cloud-to-ground strikes in five minutes.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, with 11 to 15 cloud-to-ground strikes in five minutes.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud-to-ground strikes in five minutes.

Activity Level	Description
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning.

Source: National Weather Service

The heavy rainfall that Mendocino County and all of California often experience is usually caused by an atmospheric river. These rivers are classified using a measurement called the Integrated Water Vapor Transport (IVT), which considers both the amount of water vapor in the system and the wind moving it. To be classified as an atmospheric river, a storm must reach an IVT threshold of 250 units; 1,000 IVT or more is considered "extreme" (Arcuni, 2019).

In 2019, the Center for Western Weather and Water Extremes (CW3E), part of the Scripps Institution of Oceanography at UC San Diego, developed a system to categorize the strength and impact of atmospheric rivers. The center created this scale as a practical tool for officials to assess flooding risks before storms make landfall. The new scale ranks these events into five categories from weak to exceptional. Unlike the Fujita scale for tornadoes, which focuses on potential damage, the atmospheric river scale considers storms that may be hazardous as well as those that can benefit the local water supply. A category one event is generally considered beneficial, typically lasting around 24 hours and bringing modest rainfall. In contrast, a category five event is considered “exceptional” and primarily hazardous, lasting several days with heavy rainfall and runoff that can cause significant damage. **TABLE 19** below further explains the scale.

Table 19 Atmospheric River Categories

Category	Potential Impacts
AR Cat 1: Weak	Primarily beneficial. For example, a Feb. 2, 2017 AR hit California, lasted 24 hours at the coast, and produced modest rainfall.
AR Cat 2: Moderate	Mostly beneficial, but also somewhat hazardous. An atmospheric river on Nov. 19-20, 2016 hit Northern California, lasted 42 hours at the coast, and produced several inches of rain that helped replenish low reservoirs after a drought.
AR Cat 3: Strong	Balance of beneficial and hazardous. An atmospheric river on Oct. 14-15, 2016 lasted 36 hours at the coast, produced 5-10 inches of rain that helped refill reservoirs after a drought, but also caused some rivers to rise to just below flood stage.
AR Cat 4: Extreme	Mostly hazardous, but also beneficial. For example, an atmospheric river on Jan. 8-9, 2017 that persisted for 36 hours produced up to 14 inches of rain in the Sierra Nevada and caused at least a dozen rivers to reach flood stage.

Category	Potential Impacts
AR Cat 5: Exceptional	Primarily hazardous. For example, a Dec. 29, 1996 to Jan. 2, 1997 atmospheric river lasted over 100 hours at the Central California coast. The associated heavy precipitation and runoff caused more than $1 billion in damages.

Source: Center for Western Weather and Water Extremes, Scripps Institution of Oceanography at UC San Diego

The Beaufort Wind Scale, recreated in **TABLE 20** is used to measure the severity of high winds. Hurricane-force winds are defined as a speed equal to or greater than 64 knots (74 mph) or Beaufort Number 12 (Force 12). Hurricane-force winds are not exclusive to hurricanes; they occur in severe thunderstorms. The greatest magnitude wind event recorded in the NCEI Storm Events database for Mendocino County was a 12 on the Beaufort Wind Scale, at 66 knots or 76 mph.

Table 20 Beaufort Wind Scale

Beaufort Number	Wind Speed (Knots)	Wind Description	Visual Clues
0	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicated wind direction, still wind vanes
2	4-6	Light Breeze	The wind felt on face, leaves rustle, and vanes begin to move
3	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Whole trees moving, resistance felt walking against the wind
8	34-40	Gale	Twigs breaking off trees, generally impede progress
9	41-47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Seldom experienced on land, trees broken or uprooted, “considerable structural damage”

Beaufort Number	Wind Speed (Knots)	Wind Description	Visual Clues
11	56-63	Violent Storm	
12	64+	Hurricane	

The Fujita Scale, commonly known as the F-Scale, classifies the intensity of tornadoes based on the damage they cause to human-built structures and vegetation. The scale ranges from F0, indicating light damage, to F5, signifying incredible damage. In 2007, the Enhanced Fujita Scale (EF-Scale) was implemented in the United States to provide a more accurate assessment of tornado intensity. The EF-Scale retains the original scale's structure but incorporates more detailed engineering analyses of damage indicators, resulting in a more precise correlation between observed damage and estimated wind speeds. The EF-Scale ranges from EF0, with estimated wind speeds of 65-85 mph, to EF5, with estimated wind speeds exceeding 200 mph.

TABLE 21 compares the Fujita scale to the EF-Scale. According to records in the NCEI Storm Events database, the greatest magnitude tornado Mendocino County has experienced was an F-1 in Fort Bragg on December 5, 1998.

Table 21 Fujita Scale Compared to Enhanced Fujita Scale

Fujita Scale	Wind Speed	Enhanced Fujita Scale	Wind Speed
F-0	40-72 mph	EF-0	68-85 mph
F-1	73-112 mph	EF-1	86-110 mph
F-2	113-157 mph	EF-2	111-135 mph
F-3	158-206 mph	EF-3	136-165 mph
F-4	207-260 mph	EF-4	166-200 mph
F-5	261-318 mph	EF-5	200+ mph

Source: NWS

4.13.5 Secondary Hazards

Severe storms in Mendocino County frequently serve as triggers to secondary hazards. Heavy rainfall associated with these storms often causes flooding and mass earth movements. Strong winds can increase wildfire risk by knocking down trees and spreading embers. Lightning can initiate wildfires, as was seen in 2020 with the August Complex event where lightning strikes ignited several wildfires.

4.13.6 Exposure and Vulnerability

4.13.6.1 Community Lifelines

Severe storms significantly threaten vital lifelines in Mendocino County, disrupting key services and risking public safety. High winds can damage power lines, disrupt communications, and block roads with fallen trees and debris, impeding emergency response efforts. Flooded roads and damaged infrastructure delay medical services, slow repairs, and isolate communities, especially in rural or difficult-to-reach areas. These disruptions not only pose immediate dangers during storms but also hinder recovery, affecting residents, businesses, and vulnerable populations.

4.13.6.2 People

Severe storms can have profound and wide-reaching effects on people throughout Mendocino County, but the challenges are particularly severe for vulnerable groups such as older adults, individuals with disabilities, low-income households, and those living in remote or isolated areas. Power outages and blocked transportation routes can leave these populations without access to medical care, refrigeration for medications, and essential communication with caregivers or emergency services. When storms cause flooding or mass earth movements, residents with limited mobility may be unable to evacuate quickly or reach safer ground. In rural communities, where services are already limited, any disruption can worsen social and economic hardships, making recovery slower and more difficult.

4.13.6.3 Structures

Buildings and structures across Mendocino County are especially vulnerable to the effects of severe storms. Strong winds can rip off roofs, break windows, and knock over exterior walls, while heavy rains can weaken foundations and cause water intrusion and mold growth. Older buildings or those not conforming to building codes are particularly at risk, with storm damage often worsening existing weaknesses. Additionally, flying debris and fallen trees can impact homes, businesses, and public facilities, leading to expensive repairs and, in some cases, rendering buildings temporarily uninhabitable. These structural damages not only put occupants at risk during the storm but also require long-term rebuilding and repair efforts, which further strain community resources and resilience.

4.13.6.4 Natural, Historic, and Cultural Resources

Severe storms in Mendocino County pose serious threats to the area's natural landscapes as well as its historic and cultural treasures. Heavy rainfall and strong winds can accelerate erosion, destabilize fragile habitats, and harm mature forests, which are vital for biodiversity. Related flooding can wash away riverbanks, alter wetland ecosystems, and increase sediment in streams, ultimately disrupting fish populations and water quality. High winds can threaten historic buildings, landmarks, and archaeological sites, causing structural damage that may be difficult or impossible to fix.

4.13.6.5 Local Vulnerability

- Power outages and loss of communication (internet, phone lines) during storms are significant concerns.
- Vegetation and tree damage, requiring preemptive or responsive tree removal after storms.
- High winds can blow trees over, presenting hazards for buildings, roads, and pedestrians/cars.

4.13.7 Future Trends in Development

Future development is not anticipated to increase vulnerability to this hazard. As all new development is required to meet the latest state codes, growth will reduce the overall vulnerability exposure ratio to severe storms.

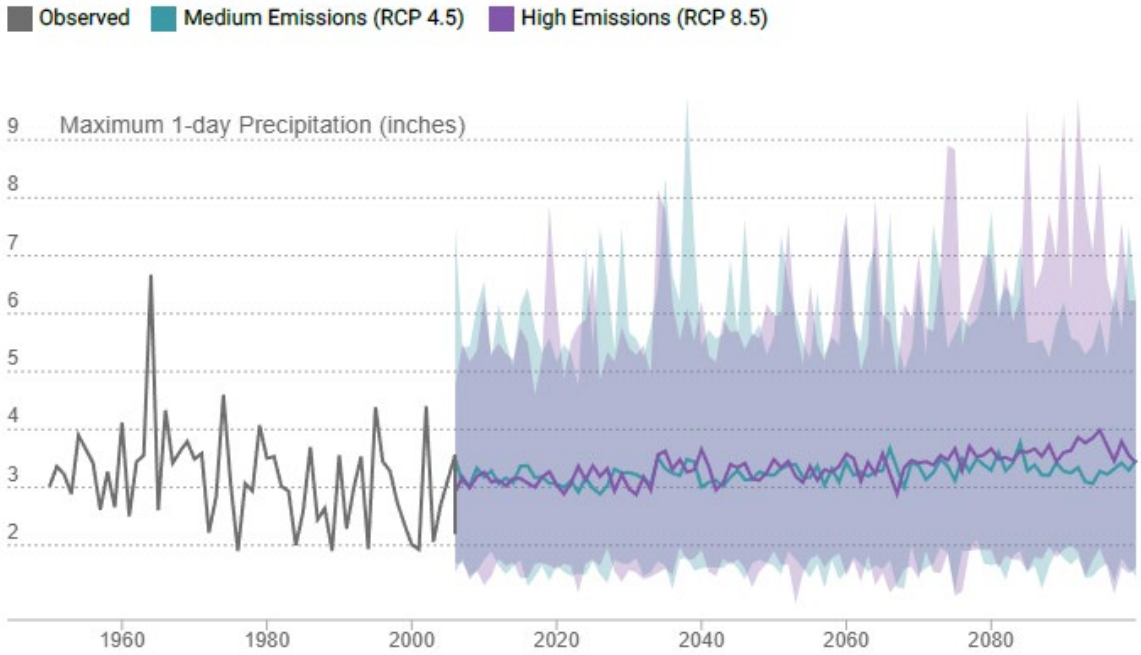
4.13.8 Probability of Future Occurrences

The NOAA Storm Events database recorded 118 severe storm events, of which 69 caused property damage between 1950 and 2024, indicating the probability of a severe storm annually.

4.13.9 Climate Change Impacts

According to the Mendocino County Climate Vulnerability Assessment Report, climate change is likely to shift precipitation patterns statewide, where previously considered "normal" conditions are likely to become more extreme. However, future trends in precipitation are uncertain statewide. The Fourth Climate Change Assessment for California, specifically the Regional Report for the North Coast Region, reports that model predictions of annual rainfall in the North Coast Region are slightly higher by the end of the century. Statewide, the intensity of severe storms is likely to increase in the future. **FIGURE 42** from Cal-Adapt shows the maximum daily precipitation over a 24-hour period each year for Mendocino County observed and projected under the different emissions scenarios.

Figure 42 Maximum 1-day Precipitation for Mendocino County



Observed (1961-1990) 30yr Average: 3.250 inches

	Change from baseline ⓘ	30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	3.043 inches	2.734 - 3.377 inches
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	+0.191 inches	3.234 inches	2.815 - 3.845 inches
HIGH EMISSIONS (RCP 8.5)	+0.274 inches	3.317 inches	2.771 - 3.975 inches
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+0.285 inches	3.328 inches	2.873 - 3.873 inches
HIGH EMISSIONS (RCP 8.5)	+0.557 inches	3.600 inches	2.862 - 4.351 inches

Source: Cal-Adapt Local Climate Change Snapshot, Mendocino County

4.14 Tsunami

4.14.1 General Background

A tsunami is a large wave caused when an ocean or lake floor suddenly shifts, usually because of underwater earthquakes or landslides. These waves can travel at speeds exceeding 600 miles per hour in deep water and often go unnoticed by ships. However, as they approach the shore, they slow down and grow much taller, sometimes reaching heights of over 90 feet. This sudden rise in water, known as “run-up,” can flood coastal areas and cause significant damage. While most tsunamis occur due to earthquakes, fast-moving storms can also trigger smaller events.

Tsunamis can originate locally or from distant sources; however, local tsunamis pose greater risk due to limited warning times. Tsunamis usually come as a series of waves that can last for hours, and the first wave is not always the largest. The damage from tsunamis results from associated flooding, strong currents, erosion, sediment displacement, and the transport of hazardous debris, which can damage infrastructure, endanger lives, and disrupt emergency and transportation services. The Mendocino County area marks the southern extent of the Cascadia subduction zone, a significant seismic hazard capable of generating major tsunamis.

4.14.2 Past Events

Past tsunami events were compiled from the NCEI Storm Events database, local news sources, the Safety Element of the General Plan, the previous HMP, and input from the Core Planning Team. Event narratives are provided below:

- **1946:** Noyo Harbor experienced damage in the dock areas, with an estimated 100 fishing boats thrown about because of a tsunami generated by an earthquake in the Aleutian Islands (County General Plan).
- **1960:** Six fishing boats in Noyo Harbor were lost because of a tsunami generated by an earthquake in Chile (County General Plan).
- **1964:** A tsunami generated by an Alaska earthquake struck Noyo Harbor, causing damage estimated at $250,000-$1,000,000, sinking 10 boats, and damaging more than 100 fishing boats. Run-up from this event ranged from 4.2 feet at Van Damme State Park to 12.4 feet in Fort Bragg (County General Plan).
- **December 31, 2005:** From December 18 through the end of the month, a series of strong Pacific storms brought 12–20 inches of rain to Northern California, causing widespread flooding and landslides. Major damage occurred in the Klamath and Russian River basins, including flooded homes, infrastructure damage, and $15 million in damage to the Klamath River Bridge. Landslides caused over $75 million in road damages across multiple counties and tribal lands. The storms also brought coastal flooding and damaging winds, with gusts up to 97 mph, contributing an additional $4.9 million in damage. Damage estimates are still being finalized.
- **March 11, 2011:** A tsunami generated by the Tohoku Earthquake off of Japan's coast caused run-up ranging from 2.6 feet in Albion to 5.7 feet in Point Arena (County General Plan). The NCEI database reported $4 million in damage across the region due to this event.
- **July 30, 2025:** An 8.8-magnitude earthquake off Russia's Kamchatka Peninsula triggered a tsunami that impacted the California coast. Mendocino County experienced waves up to 3 feet at Arena Cove and approximately 0.7 feet in Fort Bragg. A tsunami advisory

was issued but lifted by 10:30 a.m. the next day. No significant damage was reported, but authorities advised caution due to strong currents and minor sea level changes.[28]

Additionally, Mendocino County has experienced tsunami warnings and advisories even though no actual tsunamis impacted the area. In December 2021, a 7.0-magnitude earthquake off the coast of Alaska triggered a tsunami warning for parts of Northern California. The warning was quickly canceled after monitoring showed no significant tsunami waves were generated. Similarly, in January 2022, a volcanic eruption near Tonga generated waves that prompted a tsunami advisory along the U.S. West Coast, including Mendocino County. Officials warned residents to stay alert, but the waves that reached the shore were minor, and the advisory was lifted without incident.

4.14.3 Location

According to the California Department of Conservation, a wave run-up of 10 feet would affect the entire coastal region of Mendocino County. Low-lying coastal areas and the river valleys of the Navarro, Albion, Noyo, Garcia, and Ten Mile rivers could experience inundation. Although the wave run-up is not projected to reach as far as the town of Manchester, flooding is expected at Noyo Harbor. These risk areas are shown in **FIGURE 43.**

[28] THE LATEST: TSUNAMI ADVISORY CANCELED, THREAT OF TSUNAMI DIMINISHES ON MENDOCINO COAST • THE MENDOCINO VOICE | MENDOCINO COUNTY, CA

Figure 43 Tsunami Risk Areas in the County of Mendocino

4.14.4 Severity

Severity of impact is influenced by factors such as distance from the tsunami source, earthquake magnitude, wave duration, run-up height, tidal conditions, shoreline configuration, wave approach direction, and seabed topography. In Mendocino County, most tsunami events produce relatively low run-up heights of less than one foot, typically resulting in minor flooding and limited damage.

4.14.5 Secondary Hazards

Tsunamis can trigger a range of secondary natural hazards that compound their overall impact. One of the most immediate is coastal and inland flooding, which can extend far beyond the initial shoreline, damaging infrastructure, homes, and critical facilities. Prolonged wave action and high-velocity water flow can lead to severe erosion of beaches, dunes, and coastal bluffs, destabilizing the landscape and increasing vulnerability to future events.

In some cases, tsunamigenic fires may occur. These fires are initiated by ignited combustible materials (such as broken homes, vehicles, and boats) that float with the tsunami waves and can result in wildfires. These fires can spread rapidly, especially in areas where emergency access is limited due to flooding or infrastructure failure, further endangering lives and property.

4.14.6 Exposure and Vulnerability

4.14.6.1 Lifelines

Tsunamis can severely damage critical infrastructure in coastal areas, including roads, bridges, utilities, and communication systems. Flooding and wave force may disrupt emergency services, power, water treatment, and transportation, complicating response and recovery efforts. Damage to fuel storage and pipelines can also lead to spills or fires, further compromising safety and the functionality of infrastructure.

A summary of the community lifeline analysis for tsunami risk areas is presented below:

- Safety and Security: 0 locations
- Food, Hydration, Shelter: 0 locations
- Health and Medical: 0 locations
- **Energy: 1 location**
- Communications: 0 locations
- **Transportation: 25 locations**
- Hazardous Materials: 0 locations
- Water Systems: 0 locations

Additionally, the community lifeline system analysis identified approximately **11 miles** of assets located in tsunami risk areas, broken down by system type below. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (0 miles)
- Railroad (1.7 miles)
- Highway (5.3 miles)

Energy:

- Powerline (2.6 miles)
- Transmission Line (1.4 miles)
- Natural Gas Pipelines (0 miles)

4.14.6.2 People

Tsunamis pose a serious threat to human safety, causing injury or loss of life through strong currents, flooding, and debris. Exposure to contaminated floodwaters can lead to waterborne diseases, while damage to sanitation and healthcare facilities can limit access to medical care. Additionally, the psychological stress and displacement caused by tsunamis can have long-term mental health effects on affected communities.

4.14.6.3 Structures

Tsunamis can inflict severe damage on structures through a combination of powerful wave forces, flooding, and the movement of debris. The initial impact of the waves can cause structural failure, especially in buildings not designed to withstand such forces. Floodwaters can then infiltrate foundations, weaken building materials, and lead to long-term issues like mold and corrosion. **TABLE 22** summarizes the number and value of parcels exposed to tsunami areas in the county.

Table 22 Parcels Exposed to Tsunamis

Use Type	Parcel Count	Land Value	Improved Value
Commercial	118	$44,031,681	$47,488,627
Industrial	12	$5,688,840	$2,507,927
Institutional	27	$1,246,566	$1,404,091
Miscellaneous	115	$2,982,332	$560,135
Residential	1,064	$316,390,455	$239,843,560
Rural	381	$38,899,208	$17,056,882
No Data	87	$3,844,018	$1,295,785
Total	**1,804**	**$413,083,100**	**$310,157,007**

Source: The County of Mendocino Assessor's Office and GIS Department

4.14.6.4 Natural, Historic, and Cultural Resources

Tsunamis can cause significant and often irreversible damage to natural landscapes, historic landmarks, and cultural sites. Coastal ecosystems such as wetlands, estuaries, and beaches may be eroded or inundated with saltwater and debris, disrupting habitats and long-term ecological balance. Historic structures, monuments, and culturally significant sites, many of which are located near coastlines, are particularly vulnerable to water damage, structural collapse, and loss of irreplaceable materials or artifacts.

4.14.6.5 Local Vulnerability

- Coastal communities are vulnerable to coastal hazards and the resulting evacuation challenges.
- Hazards could potentially strand residents or visitors and could cut off access to Manchester.
- Coastal erosion can impact infrastructure and buildings located in coastal areas of the County. Specific vulnerabilities relate to communications infrastructure and the following locations (Pudding Creek Mobile Home Park, Anchor Bay Campground, Noyo Harbor, and Albion Harbor).
- The Noyo Harbor area and it's economy could be greatly impacted, including county roads and infrastructure.
- Power outages and loss of communication (internet, phone lines) are significant concerns.

4.14.7 Future Trends in Development

Future development may increase the county's overall vulnerability, depending on whether the new construction lies within mapped tsunami risk zones. All future development should consider the potential impacts related to tsunami. Local regulations do not forbid development in these areas, though if the site is located in an identified Coastal Zone then an additional Coastal Development Permit would be needed which could further assess the hazard.

4.14.8 Probability of Future Occurrences

The probability of tsunamis in the County of Mendocino is likely to occur, with an expected rate of 10 to 50 years. While large, locally generated tsunamis are less frequent, they pose a higher risk due to shorter warning times and potentially severe impacts. Distant-source tsunamis, such as those originating from earthquakes in Alaska, Japan, or Chile, are more common and generally provide more warning time, though their impacts are typically less severe. Given ongoing seismic activity in the region, continued monitoring and preparedness are essential despite the relatively infrequent occurrence of damaging tsunamis.

4.14.9 Climate Change Impacts

According to the CA E-SHMP, climate change is expected to influence tsunami hazards in Mendocino County by increasing the frequency and severity of factors that contribute to tsunami generation and impact. Rising sea levels will enable tsunami waves to reach further inland, resulting in more extensive flooding and damage, even from smaller events. Expected increases of rainfall and storm activity can destabilize slopes, raising the risk of landslides into coastal waters that may trigger local tsunamis.

4.15 Wildfire

For a more detailed assessment of wildfire risk and vulnerability, please reference the 2025 **MENDOCINO COUNTY COMMUNITY WILDFIRE PROTECTION PLAN** (CWPP).

4.15.1 General Background

Wildfires are a natural part of many ecosystems, including those found in Mendocino County. They play a vital role in shaping landscapes, recycling nutrients, and maintaining healthy forests. However, wildfires can also pose significant risks to human communities, infrastructure, and the environment when they occur near populated areas or under extreme weather conditions. In recent decades, changes in climate and land use have contributed to longer fire seasons and more intense wildfires across California.

Mendocino County's geography, climate, plant communities, and ignition sources contribute to frequent wildfires. Key fire behavior factors include:

- Fuel: Includes vegetation at different levels. Light fuels like grasses burn quickly, while heavier fuels like logs ignite slower. Insect-damaged trees are more susceptible.
- Weather: High temperatures, low humidity, strong winds, and dry conditions favor severe fires, particularly inland.
- Terrain: Slope and elevation affect fuel moisture and fire spread, with fire moving easily uphill.

Mendocino County features extensive Wildland-Urban Interface (WUI) areas where structures are adjacent to or intermixed with wildland vegetation. These zones are especially vulnerable to wildfire due to the proximity of flammable vegetation and human activity. The WUI presents unique challenges for fire prevention, suppression, and evacuation, as fires can quickly spread between natural landscapes and built environments. In Mendocino County, many communities are located within or near forested, chaparral, and grassland ecosystems, increasing the risk of wildfire impact on buildings and infrastructure.

4.15.2 Past Events

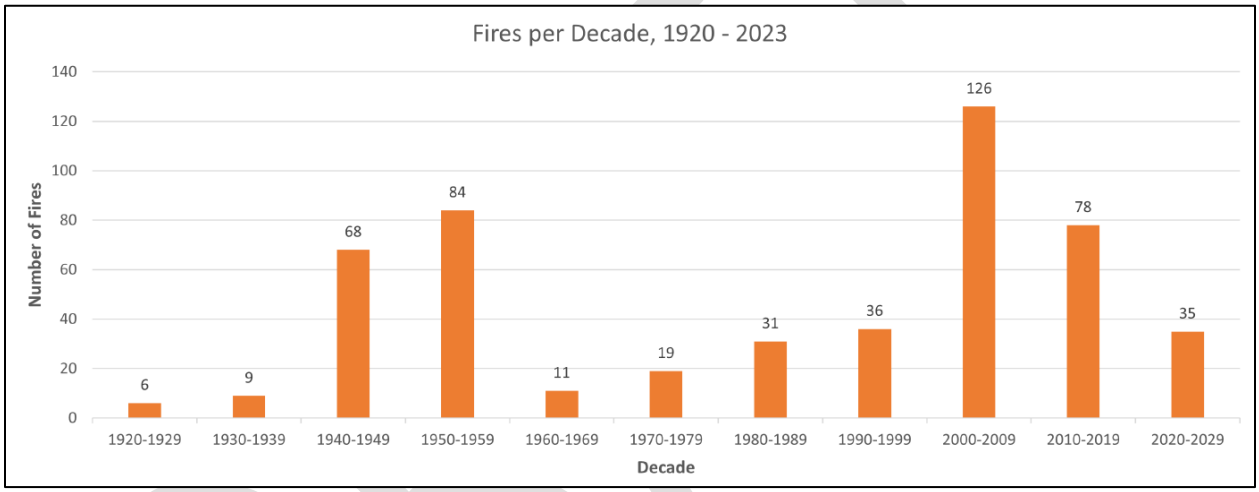
According to the Mendocino County Community Wildfire Protection Plan (CWPP) 2025, Mendocino County has shown a distinct oscillating pattern in fire frequency over the past century, alternating between decades of high and low fire occurrences. Nearly 400,000 acres

have burned in the last ten years, surpassing figures from previous decades between 1920–2019.

The fire history analysis period (1920–2023) indicates that most fires in Mendocino County occur along the central and eastern portions of the county, with ignitions primarily concentrated along highways and major thoroughfares. For fires with known ignition dates, the majority are human-caused and occur between June and September, with July having the highest number of fire starts. **FIGURE 44** and **FIGURE 45** summarize the frequency and magnitude of these wildfires by decade in Mendocino County.

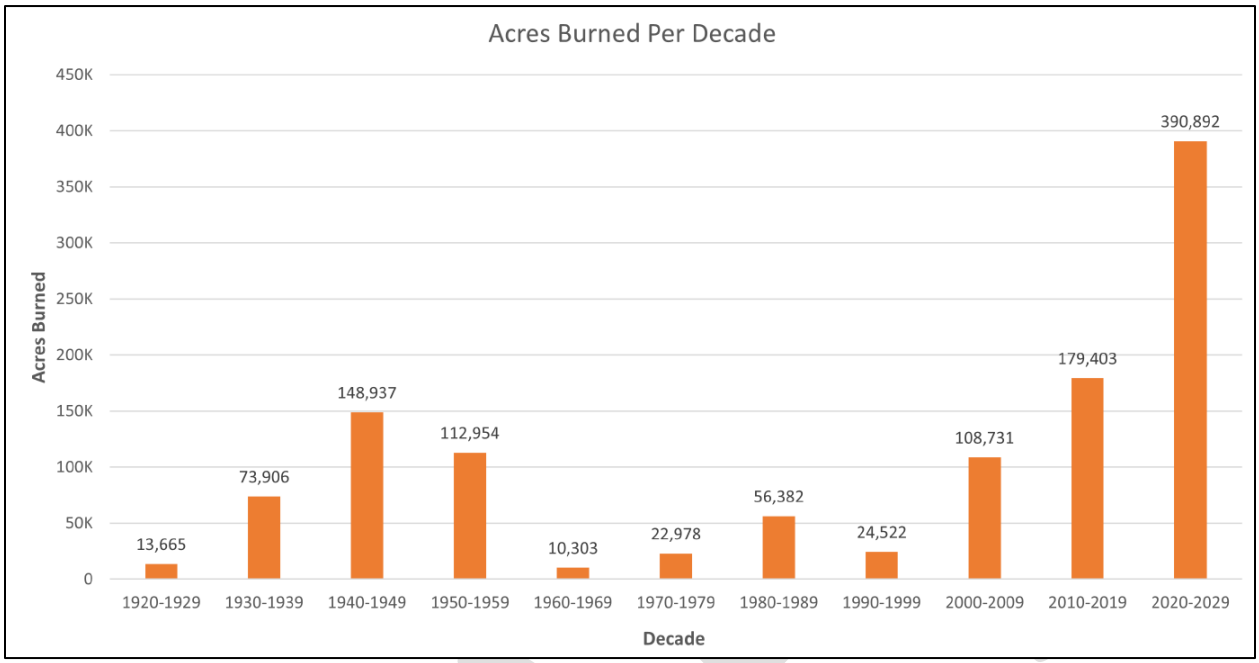
Additionally, **FIGURE 46** displays the historical wildfire perimeters in Mendocino County, as documented by the National Interagency Fire Center, covering the period from 1911 to 2021.

Figure 44 Wildfires by Decade in Mendocino County (1920-2023)



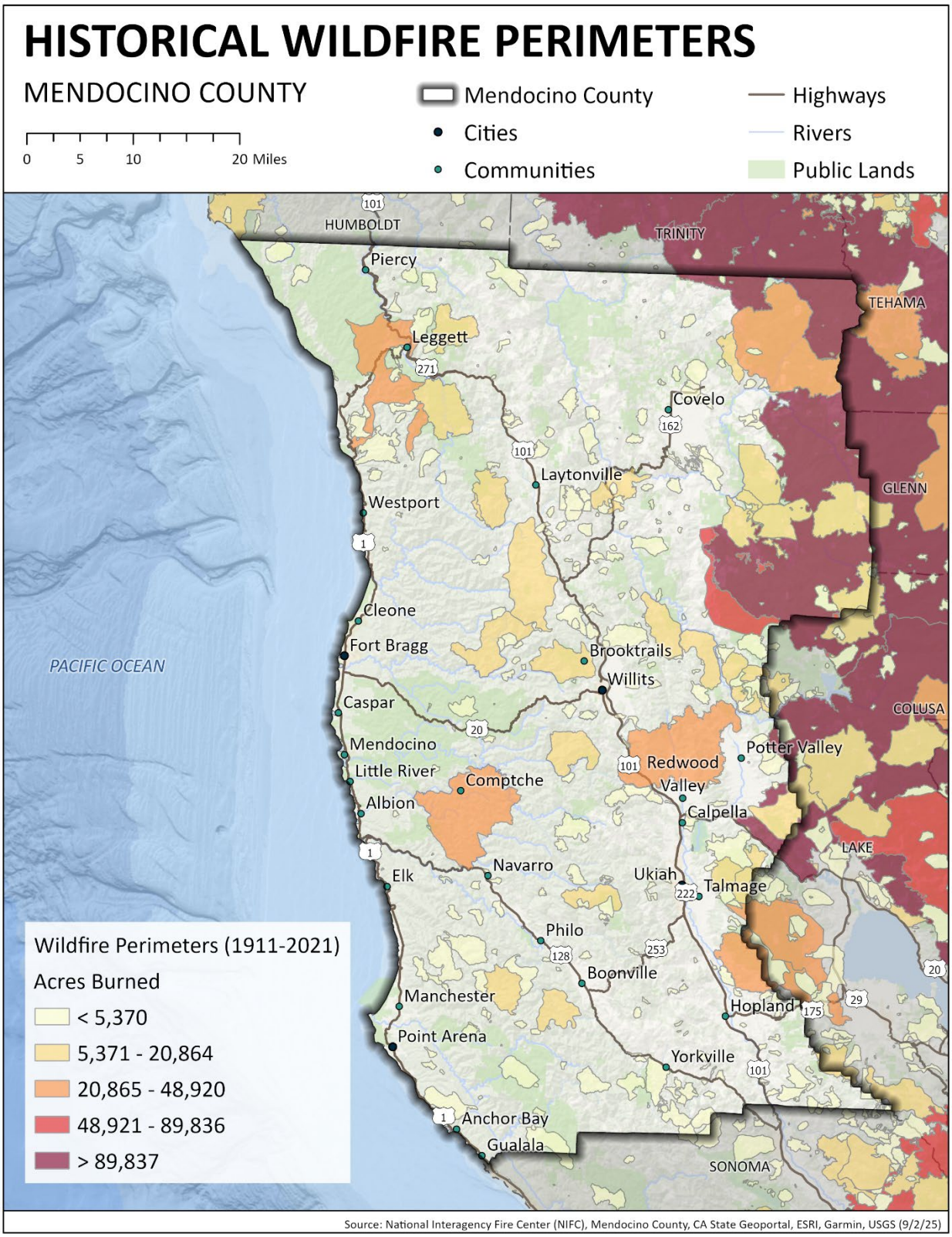
Source: Mendocino CWPP 2025

Figure 45 Acres Burned by Decade in Mendocino County (1920-2023)



Source: Mendocino CWPP 2025

Figure 46 Historical Wildfire Perimeters in the County of Mendocino



Narratives for wildfires that prompted a California State Emergency Proclamation and affected Mendocino County are provided below.

- **1987 - Wildland Fires:** In early September 1987, devastating wildfires swept across California's forests and rangelands. According to the *Los Angeles Times*, at one point, 11,000 residents were evacuated, and 13,000 firefighters were actively battling blazes statewide. The rapid expansion of the fires prompted the Governor to issue a formal State of Emergency.[29]
- **Summer 2018 – Mendocino Complex Fire and High Winds:** In the summer of 2018, the Mendocino Complex Fire, driven by extreme heat, dry vegetation, and high winds, became the largest wildfire in California history, burning over 459,000 acres across Mendocino and surrounding counties. On July 28, 2018, Governor Jerry Brown declared a State of Emergency for Mendocino County to mobilize firefighting resources and access emergency aid. High winds played a critical role in the fire's rapid spread, prompting both state and federal disaster declarations. The fire destroyed hundreds of structures and took nearly two months to fully contain.
- **September 2020 – Oak Fire:** In September 2020, the Oak Fire ignited near Brooktrails in Mendocino County, burning approximately 1,100 acres and destroying 56 structures. In response, the Mendocino County Board of Supervisors proclaimed a Local State of Emergency, enabling access to state emergency support and resources.

Narratives for wildfires that prompted federal disaster declarations and affected Mendocino County are provided below.

- **2008 Wildfires EM-3287-CA:** In response to the massive wildfire outbreak fueled by lightning strikes beginning June 20, 2008, Governor Schwarzenegger proclaimed a state of emergency on June 26, 2008, specifically for Mendocino and Shasta counties, citing over 100 fires ignited by lightning, more than 25,000 acres burned in Mendocino, evacuations, property damage, and extreme peril conditions. Just two days later, on June 28, 2008, President Bush issued a federal emergency declaration (EM-3287-CA) covering California wildfires from June 20 to August 20, designating Mendocino County among those eligible for direct federal assistance for emergency protective measures. The combined state and federal responses unlocked critical funding and resources, including nearly $246 million in public assistance, to support fire suppression, infrastructure protection, evacuations, and hazardous conditions in Mendocino County during the intense summer 2008 wildfire season.[30]
- **2017 Redwood Valley Fire FM-5219-CA:** In response to the Redwood Valley Fire in Mendocino County, part of the Mendocino–Lake Complex, FEMA issued a Fire Management Assistance Grant (FM-5219-CA) on October 9, 2017, the same day the

[29] https://www.latimes.com/archives/la-xpm-1987-09-04-mn-3890-story.html
[30] https://www.fema.gov/disaster/3287

blaze began. The fire ultimately burned 36,523 acres, destroyed 543 structures, damaged 41 more, and tragically resulted in 9 civilian fatalities, with one confirmed injury.[31]

- **2017 Wildfires DR-4344-CA:** In October 2017, during a severe wildfire outbreak in Northern California, FEMA issued Major Disaster Declaration DR-4344-CA. The incident period spanned October 8–31, 2017, with the declaration made on October 10. Mendocino residents received assistance for housing needs, cleanup, repairs, and rebuilding, while local governments accessed federal funds for fire suppression, infrastructure recovery, and mitigation projects.[32]
- **2018 Mendocino Fire Complex FM-5262-CA:** In response to the Mendocino Complex Fire (a combination of the Ranch and River fires that began on July 29, 2018) FEMA issued a Fire Management Assistance Declaration (FM-5262-CA) at the request of California on July 28, 2018. In total, FEMA obligated over $890,000 for emergency response work and $21.5 million in public assistance grants for the Mendocino Fire Complex.[33] This declaration directly supported Mendocino County's firefighting operations, resource coordination, and recovery, complementing the state of emergency proclaimed by Governor Brown on July 28, 2018.

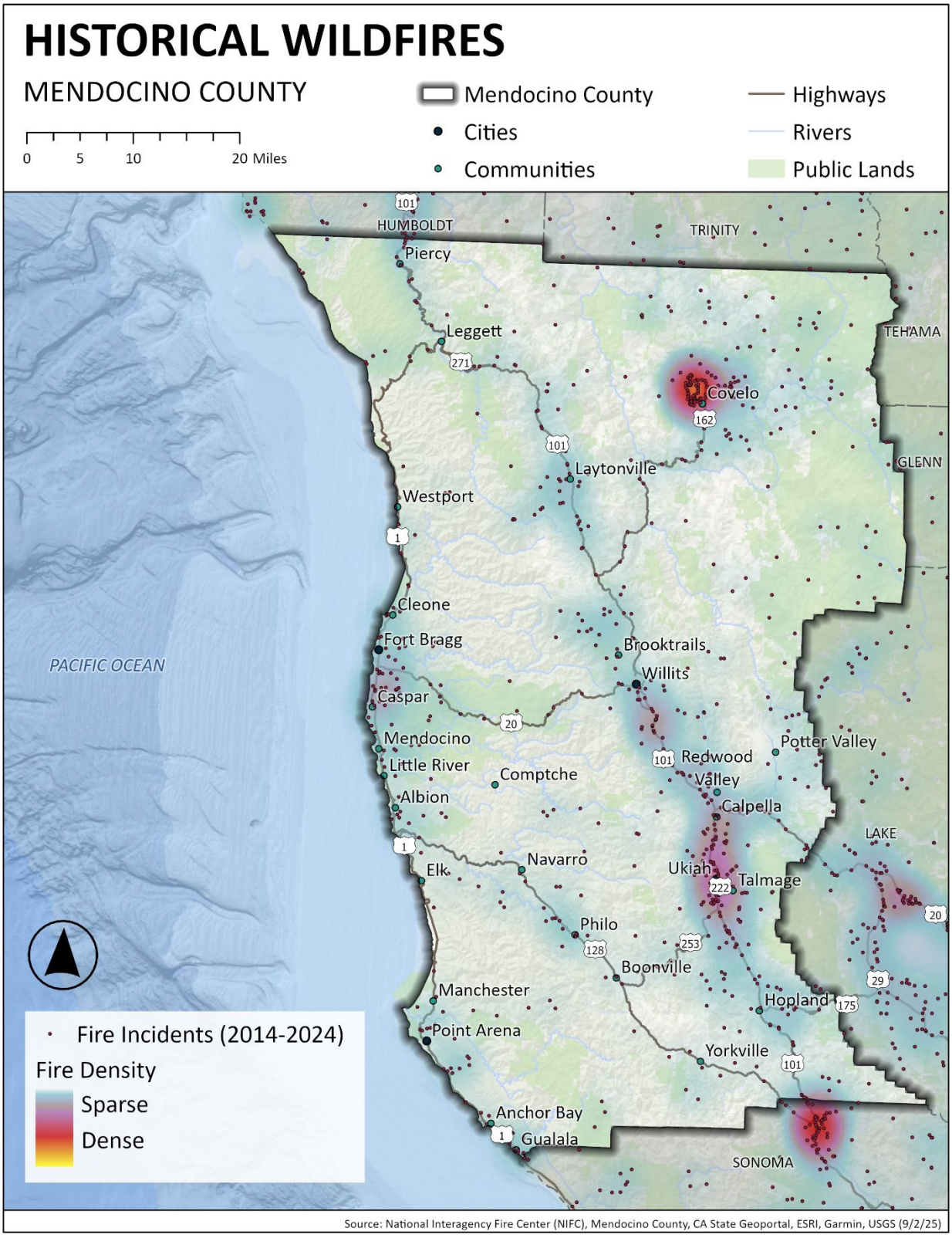
4.15.3 Location

According to the CWPP, Mendocino County features a varied landscape with diverse topography and vegetation. The northeastern area has mountainous terrain with steep canyons and rivers like the Eel, featuring grassland, oak woodland, mixed chaparral, and coniferous forests. The southwestern region includes valleys and foothills, with similar vegetation but more hardwood in ravines. Chaparral is prevalent in the foothills. Near the coast, grasslands and mixed hardwood dominate, though invasive species like Gorse are present. The northwestern part is densely populated, with a mix of hardwoods, grasslands, coniferous communities, and intermixed forests, including species like douglas-fir, redwood, madrone, coast live oak, coastal scrub, chaparral, and annual grasses. Invasive shrubs and grasses also affect grasslands.

According to data from the National Interagency Fire Center (NIFC), which documents wildfire events of all sizes, the area with the highest concentration of wildfire occurrences in Mendocino County between 2014 and 2024 was near Covelo. Other notable areas with frequent wildfire activity include the corridor along Highway 101 between Willits and Ukiah, as well as a stretch along Highway 1 near Caspar. These areas are illustrated in **FIGURE 47**.

[31] https://www.fema.gov/disaster/5219
[32] https://www.fema.gov/disaster/4344
[33] https://www.fema.gov/disaster/5262

Figure 47 Historical Wildfire Density in the County of Mendocino



4.15.4 Severity

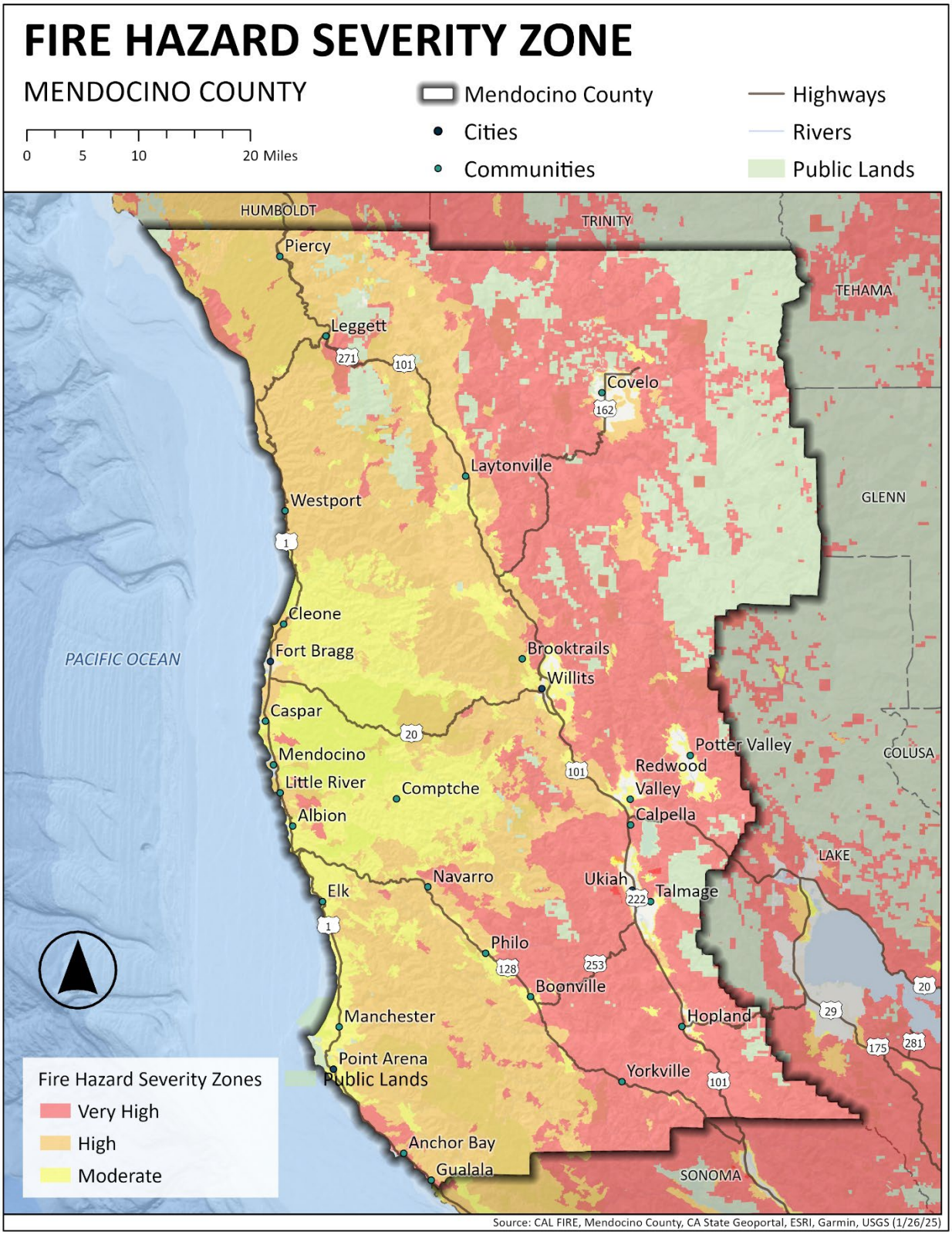
CAL FIRE maintains fire hazard severe zone (FHSZ) data for the entire state. CAL FIRE classifies fire hazard severity into three levels (Moderate, High, and Very High) which indicate the likelihood of wildfire occurrence and potential fire behavior under extreme conditions. These classifications are based on scientific models that evaluate factors such as vegetation, slope, and prevailing weather patterns.[34]

- **Moderate:** Areas classified as Moderate have a lower likelihood of large, damaging wildfires. Fires in these areas may still occur but are generally expected to spread more slowly and with less intensity due to less flammable vegetation or more favorable topographic conditions.
- **High:** High severity zones have an increased potential for wildfire ignition and spread. Fires in these areas are likely to burn more intensely and rapidly, especially under dry and windy conditions. These areas often contain dense vegetation or are situated on steeper slopes that contribute to faster-moving fires.
- **Very High:** Very High severity zones represent the most hazardous conditions. These areas are characterized by highly flammable vegetation, steep terrain, and weather conditions that can support extreme fire behavior, including crown fires, ember storms, and rapid rates of spread. Fires in Very High zones are difficult to control and pose a significant threat to life, property, and natural resources.

These classifications are intended to inform land use decisions, building codes, and mitigation planning. They represent hazard, not risk, meaning they identify areas where wildfire conditions are more likely to be severe, regardless of the presence of people or structures. The fire hazard severity zones in Mendocino County are shown in **FIGURE 48** below.

[34] **FIRE HAZARD SEVERITY ZONES | OSFM**

Figure 48 Fire Hazard Severity Zones in the County of Mendocino



4.15.5 Secondary Hazards

Wildfires significantly increase the risk of other natural disasters, particularly debris flows triggered by rain events. After a wildfire burns through an area, the vegetation that normally stabilizes soil is destroyed, and the soil itself can become water-repellent due to the intense heat. This creates a dangerous situation where even light to moderate rainfall can lead to rapid runoff, carrying ash, rocks, and debris downhill in fast-moving flows. These post-fire debris flows are especially hazardous in steep terrain and can occur with little warning, damaging homes, roads, and waterways downstream. These debris flows can bury infrastructure, block drainage systems, and endanger lives long after the fire is extinguished. Areas like Northern California, including Mendocino County, are particularly vulnerable to these secondary disasters due to their topography and seasonal rainfall patterns.

4.15.6 Exposure and Vulnerability

4.15.6.1 Lifelines

Wildfires can significantly disrupt critical infrastructure, threatening public safety and delaying emergency response. Power systems are especially vulnerable. In addition to direct damage to transmission and distribution infrastructure, wildfire risk has led electric utilities to implement Public Safety Power Shutoffs (PSPS) during periods of elevated fire weather. These precautionary outages, while intended to reduce wildfire ignition risk, can result in prolonged and widespread power disruptions, particularly in rural and high-fire-severity areas.

PSPS events have cascading impacts across multiple lifelines. Prolonged power outages can disrupt water and wastewater systems that rely on electricity for pumping and treatment, reduce telecommunications reliability, and limit access to fuel, food, and medical services. Transportation systems may also be affected when traffic signals, fuel stations, and electric vehicle charging infrastructure are offline. The general public also faces the risk of food spoilage. For residents with access and functional needs, including those dependent on medical devices or refrigerated medications, PSPS events can pose serious health and safety risks.

Wildfires and PSPS events also create significant economic impacts in Mendocino County. Power shutoffs and infrastructure damage can interrupt agricultural operations, wine production, tourism, retail activity, and small businesses, resulting in lost revenue, spoiled goods, and reduced employment hours. Repeated outages can strain local governments, school districts, and service providers, increase operational costs, and slow post-fire recovery. These economic disruptions compound the direct losses from wildfire damage and contribute to long-term community vulnerability.

Transportation routes, including roads and bridges, may be closed or damaged, hindering evacuations and emergency access. Water systems can be compromised by burned pipelines, damaged treatment facilities, or contaminated sources, reducing both firefighting capacity and public supply. Communication infrastructure, such as cell towers and fiber-optic lines, may also

fail during wildfires, limiting emergency coordination. These cascading impacts underscore the importance of strengthening infrastructure resilience in wildfire-prone areas.

A summary of the community lifeline analysis for wildfire risk areas (high-very high risk) is presented below:

- Safety and Security: 35 locations
- Food, Hydration, Shelter*:* 13 locations
- Health and Medical: 17 locations
- Energy: 10 locations
- Communications: 24 locations
- Transportation: 174 locations
- Hazardous Materials: 2 locations
- Water Systems: 2 locations

Additionally, the community lifeline system analysis identified approximately **774.8 miles** of assets located in high to very high fire severity risk areas, broken down by system type below. It is important to note that disruptions at any point along this system have the potential to result in cascading impacts.

Transportation:

- Airport Runway (1.5 miles)
- Railroad (84.5 miles)
- Highway (263.4 miles)

Energy:

- Powerline (168.7 miles)
- Transmission Line (233.1 miles)
- Natural Gas Pipelines (23.6 miles)

4.15.6.2 People

Wildfires pose serious threats to human health and safety, both during and after an event. Immediate risks include injury or death from fast-moving flames, smoke, and falling debris, particularly for those in the path of the fire or involved in evacuation and response. Smoke from wildfires contains harmful pollutants, such as fine particulate matter (PM2.5), which can exacerbate respiratory and cardiovascular conditions, particularly among vulnerable populations, including children, the elderly, and individuals with pre-existing health issues. Prolonged exposure to poor air quality can also lead to long-term health effects.

4.15.6.3 Structures

Wildfires can severely damage or destroy homes, businesses, and other buildings, especially in WUI areas. Structures are vulnerable to direct flame contact, extreme heat, and wind-driven embers, which can ignite buildings even outside the immediate fire zone. Smoke and heat can

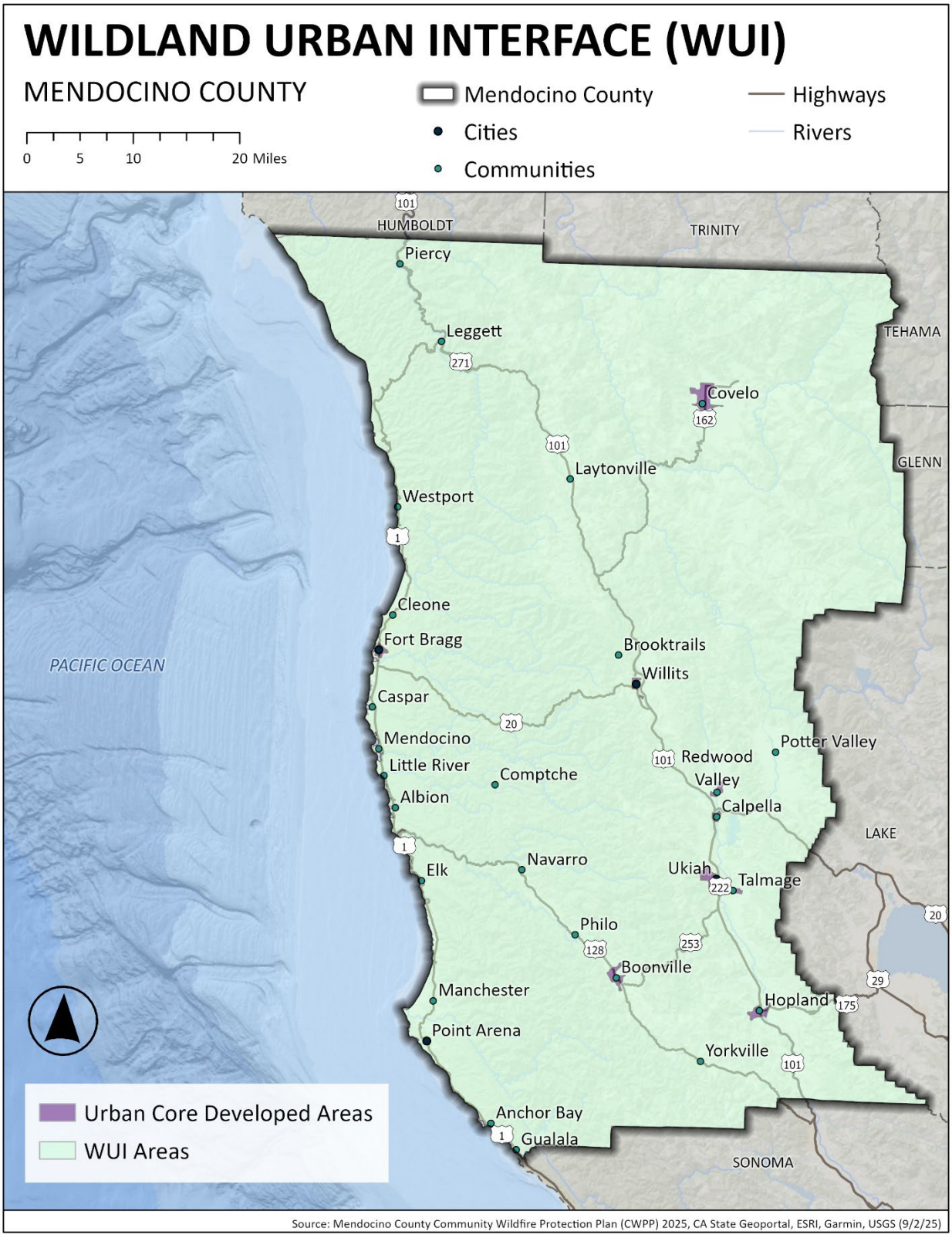
also cause significant interior damage, rendering buildings uninhabitable. These losses lead to financial hardship, displacement, and long-term recovery challenges. Fire-resistant construction, defensible space, and stronger building codes are essential to reducing structural risk. WUI areas in the county are shown in **FIGURE 49** below, and **TABLE 23** summarizes the total county and value of parcels exposed to wildfire risk areas.

Table 23 Parcels Exposed to Wildfire Risk (High-Very High Risk)

Use Type	Parcel Count	Land Value	Improved Value
Commercial	607	$148,782,011	$180,319,874
Industrial	128	$22,919,807	$54,660,194
Institutional	144	$7,936,469	$16,671,650
Miscellaneous	469	$6,134,869	$2,624,621
Residential	1,565	$94,307,486	$97,345,315
Rural	19,859	$1,911,998,955	$2,112,304,072
No Data	13,986	$976,350,326	$582,271,005
Total	**36,758**	**$3,168,429,923**	**$3,046,196,731**

Source: The County of Mendocino Assessor's Office and GIS Department

Figure 49 Wildland Urban Interface (WUI) Areas in the County of Mendocino



4.15.6.4 Natural, Historic, and Cultural Resources

Wildfires pose significant threats to Mendocino County's natural landscapes, historic sites, and cultural resources. Intense fires can damage sensitive ecosystems, reduce biodiversity, and alter habitats for wildlife. Historic buildings, landmarks, and culturally significant sites, especially those important to Indigenous communities, are vulnerable to destruction or irreversible damage. Loss of these resources not only affects environmental health but also diminishes community identity and heritage.

4.15.6.5 Local Vulnerability

- The updated CAL FIREhazard maps recently identified increased risk.
- CAL FIREalso has a list of single ingress/egress communities (30 locations). Additional locations have been identified.
- The need for landscape-scale fuel reduction secondary access route in Brooktrails.
- Lack of home addresses and road signage is a huge problem throughout Battalion 4 (NW portion of Mendocino County).
- Evacuation down steep and narrow roads could impede responding fire apparatus, causing road blockage and long response times for personnel.
- Solutions are needed to enhancing enforcement of wildfire code.
- Understory brush and fuels are present and encroaching on established evacuation routes.
- Air quality concerns during wildfire events and outdated or a lack of ventilation systems.
- There is a large and growing number of dead and dying trees.
- Ingress/egress issues for neighborhoods or communities with only a sole access point.
- Vegetation and fuel reduction needs around lifelines.

4.15.7 Future Trends in Development

The California Department of Forestry and Fire Protection (CAL FIRE) / State Fire Marshal maintain "fire hazard severity zone" maps (moderate / high / very high) which cover the county's unincorporated areas. These zones trigger certain state building-standards and fire-safe planning requirements in the wildland-urban interface (WUI) and other high-risk areas. Any new development in the WUI should reduce the overall vulnerability exposure ratio to wildfires.

Enforcing continued compliance with county wildfire regulations is a current challenge. Although new development may have mitigated the present wildfire risk, the landscape can change over time, leading to increased wildfire risk.

4.15.8 Probability of Future Occurrences

Wildfires are expected to occur annually in Mendocino County, based on historical patterns and local climate conditions. Trends indicate a steady increase in the number of acres burned each year, reflecting both the growing intensity and scale of wildfire events. According to the

Mendocino County CWPP, frequent droughts, past forest management practices, and the continued expansion of the WUI have heightened forest vulnerability by contributing to fuel accumulation and shifts in vegetation composition. These factors have resulted in larger, more destructive fires that pose significant risks to both the built environment and natural ecosystems. As fire seasons grow longer and extreme fire weather becomes more common, effective fire suppression is increasingly difficult. Given these conditions, wildfires are likely to remain a persistent and escalating hazard in Mendocino County.

4.15.9 Climate Change Impacts

According to California's Fourth Climate Change Assessment, if greenhouse gas emissions continue to rise, the state is projected to experience a 50 percent increase in the number of large wildfires exceeding 25,000 acres and a 77 percent increase in the average area burned annually by 2100. These changes will be driven by various climatic factors that affect wildfire risk differently across California's regions. In Northern California, including Mendocino County, rising temperatures and decreased summer precipitation are expected to increase the frequency and severity of wildfires by drying out vegetation and lengthening fire seasons. Reduced snowpack in mountainous areas will further reduce moisture during fire season, elevating the risk. Wind patterns such as the Diablo winds will also contribute to fire spread and intensity. As a result, Northern California is likely to face significantly heightened wildfire risk, emphasizing the need for targeted mitigation and adaptation strategies.

Appendix A – FEMA Approval and County Adoption

Appendix B – 2021 Mitigation Action Status Reporting

TABLE 24 reports the status of those mitigation actions included in the 2021 HMP.

Table 24 2021 Mitigation Actions

Local Government	Mitigation Action	2026 Status	Additional Comments
Mendocino County	ma-AH-MC-134. Develop a public outreach program that distributes consistent hazard mitigation content and mitigation tips for property owners. For example, wildfire outreach should focus on necessary ignition resistance and home hardening features - including defensible space - for county residents.	On-Going Action	
Mendocino County	ma-AH-MC-205. Develop an education program to inform both existing Class K structure owners and applicants of building permits for Class K structures of the inherent risks of such structures to all natural hazards.	On-Going Action	
Mendocino County	ma-AH-MC-299. Construct evacuation routes as needed to ensure multiple egress routes from neighborhoods.	On-Going Action	
Mendocino County	ma-CC-MC-221. Offer agricultural disaster training and networking opportunities for farmers and agricultural regulatory agencies.	No Progress - No Longer a Mitigation Priority	
Mendocino County	ma-CC-MC-298. Develop public outreach to educate the public on household practices that can lessen the impacts of climate change.	No Progress - No Longer a Mitigation Priority	The county does support these efforts but does not have the capability to lead this effort. The county will look to the state for expertise and content.

Local Government	Mitigation Action	2026 Status	Additional Comments
Mendocino County	ma-DF-MC-126. Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	No Progress - Continue Action	
Mendocino County	ma-DF-MC-199. Design and implement a countywide warning system program, with all other HMP participating jurisdictions as secondary participants, to warn everyone within a dam inundation zone of impending dam failure.	Complete	Mendocino County Citizen Emergency Alert and Notification System (MendoAlert) - Nixel/Everbridge
Mendocino County	ma-DR-MC-196. Develop a public education campaign to encourage water conservation during drought.	On-Going Action	The County Water Agency has worked with other agencies and community partners to develop and compile educational materials and resources related to drought and water conservation. Those resources are continuously available on the Water Agency website. Our recently developed Drought Resilience Plan for state small water systems and domestic wells (in compliance with SB 552) includes three drought stages: 1 – Water Shortage Monitoring, 2 – Water Shortage Warning, and 3 – Severe and Emergency Water Shortage, along with corresponding response actions for each stage. One of the response actions for Stage 2 is community engagement and outreach by the County and local water districts. So, while we do have a library of materials available on our website continuously (which we make our best effort to keep updated), Stage 2 – Water Shortage Warning would trigger a more formal public education campaign. For more details, you can find the full DRP document and the library of resources here: https://www.mendocinocounty.gov/government/mendocino-county-water-agency/drought-water-conservation

Local Government	Mitigation Action	2026 Status	Additional Comments
Mendocino County	ma-DR-MC-197. Amend land use codes to incorporate regulations that encourage and incentivize water savings for development.	In Progress	
Mendocino County	ma-DR-MC-198. Replace existing turf grass and water-intensive landscaping with drought-resistant landscaping.	No Progress - Continue Action	
Mendocino County	ma-EQ-MC-127. Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, identified as needing replacement by the County, are located in high ground shaking areas, and/or are necessary for first responders to use during and/or immediately after a disaster or emergency.	On-Going Action	At this juncture, all the bridges in the County Maintained System identified as “seismic” risk have been replaced or retrofitted. There are structurally deficient bridges in the system that are safe at less than the bonus load or have posted limits below the legal load limit with scheduled replacement in progress.
Mendocino County	ma-EQ-MC-200. Encourage privately owned critical facilities (e.g., churches, hotels, other gathering facilities) to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified.	On-Going Action	
Mendocino County	ma-EQ-MC-201. Retrofit / Harden County-owned critical facilities (including water & sewer infrastructure) and buildings, and their ability to withstand earthquakes.	On-Going Action	
Mendocino County	ma-EQ-MC-202. Retrofit non-compliant suspended ceilings in County buildings. This includes Non-Structural Suspended Gypsum Dry-Wall & Cement Plaster Ceilings built 1950-1974.	On-Going Action	
Mendocino County	ma-EQ-MC-203. Install seismic gas shut-off valves on County buildings to prevent the flow of gas into buildings during a seismic event.	On-Going Action	
Mendocino County	ma-WS-MC-118. Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of	No Progress - Continue Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
	tree failure and property damage and avoid the creation of wind acceleration corridors within vegetated areas.		
Mendocino County	ma-EW-MC-207. Routinely inspect storm water channels for vegetation build-up or encroachment, trash and debris, silt and gravel build-up, and erosion or bank failure.	On-Going Action	
Mendocino County	ma-EW-MC-208. Perform a feasibility study for flood-proofing options and analyze the drainage systems countywide.	No Progress - Continue Action	
Mendocino County	ma-FL-MC-125. Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	No Progress - No Longer a Mitigation Priority	There are only two Repetitive Loss structures in unincorporated areas (Near Ukiah and Navarro). The Navarro structure is considered a Severe Repetitive Loss structure.
Mendocino County	ma-FL-MC-210. Elevate and retrofit bridges and culverts to allow proper stormwater / 100-YR flows.	Complete	New major drainage facilities over blue line streams are designed for the 100-year event. Minor drainage conduits are designed for a 10-year event or better if feasible. There are some segments of County Roads in the floodplain that cannot be elevated, nor can conduits be sized for 100-year events. Every new replacement project seeks to increase capacity if possible & practicable.
Mendocino County	ma-FL-MC-213. Draft a Floodplain Management Plan to address countywide flooding and identify specific mitigation projects to reduce the magnitude, frequency, and severity of flooding in Mendocino County.	In Progress	
Mendocino County	ma-FL-MC-215. Adopt higher regulatory standards (including but not limited to freeboard, comp storage, lower substantial damage thresholds, setback, and fill restrictions) as means to reduce future flood risk and support a no-adverse-impact (NAI) philosophy to floodplain management.	No Progress - Continue Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
Mendocino County	ma-PN-MC-222. Assess and institute necessary upgrades to critical facilities to allow for usage during a pandemic, including adequate ventilation and physical barriers.	In Progress	
Mendocino County	ma-PN-MC-223. Institute necessary structural improvements to evacuation centers/sheltering locations to allow for proper ventilation, space for staff, and structural barriers to be used during a pandemic and other hazard events.	In Progress	
Mendocino County	ma-PN-MC-224. Develop alternative sheltering/ evacuation locations for social distancing required during a pandemic and other hazard events.	In Progress	
Mendocino County	ma-SF-MC-139. Construct a lightweight fill prism under roads to prevent the slip plain from further movement and subsequent damage to roads.	No Progress - No Longer a Mitigation Priority	Road prism failures are repaired after failure as best as possible under the constraints of the budget.
Mendocino County	ma-SF-MC-225. Establish a priority list of slope failure locations and implement slope stabilization projects in the highest risk areas.	No Progress - Continue Action	
Mendocino County	ma-SH-MC-206. Develop educational outreach during the building permit process to raise awareness about the presence of naturally occurring asbestos.	On-Going Action	
Mendocino County	ma-SH-MC-226. Establish a priority list of coastal erosion locations and implement slope stabilization projects in the highest risk areas.	No Progress - No Longer a Mitigation Priority	This is not a project that the county can lead. The County of Mendocino supports these efforts and could help the state by providing any useful local information.
Mendocino County	ma-WF-MC-123. Create and/or help strengthen existing vegetation management programs that provide vegetation management services to	No Progress - No Longer a	These efforts were never led by the county, but instead by the Fire Safe Council. The county fully supports these efforts.

Local Government	Mitigation Action	2026 Status	Additional Comments
	elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Mitigation Priority	
Mendocino County	ma-WF-MC-227. Retrofit critical facilities (adult care, child care, schools, railways) with fire-resistant materials and create defensible space around structures.	In Progress	
Mendocino County	ma-WF-MC-228. Ensure addresses and locations are easily accessible during an emergency, especially in the WUI. Methods include installation of high-visibility address markers, partnering with the County Fire Chief to reduce overlapping, duplicate, or misordered street and address markings, and developing GPS-based locating options for more remote or hard-to-find locations.	In Progress	
Mendocino County	ma-WF-MC-238. Update County Code/ Land Use Regulations/Subdivision Design Guidelines to include design and siting standards to incorporate, for example, emergency response access and turnaround space or fire suppression water needs.	In Progress	
Mendocino County	ma-WF-MC-239. Coordinate with fire protection agencies to develop a vegetation management program to remove understory brush, hazardous trees, and excessive fuels around County roads and evacuation routes.	In Progress	
Mendocino County	ma-WF-MC-287. Implement and continue to re-prioritize Mendocino County CWPP Mitigation Projects and support smaller-scale neighborhood and community plans as appropriate.	On-Going Action	
Mendocino County	ma-WF-MC-300. Identify and develop a plan and maintenance schedule for key fuel breaks currently existing around population centers and other key resources; develop new fuel breaks as identified.	On-Going Action	
Mendocino County	ma-WF-MC-301. Continue to support programs to reduce fuel loads in the County, including but not limited to continuing the chipper program,	On-Going Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
	mastication and removal of fuels, and encouraging prescribed burns when practicable.		
Mendocino County	ma-WF-MC-302. Develop a program to map and manage emerging high-risk fuel sources.	No Progress - No Longer a Mitigation Priority	These efforts were never led by the county, but instead by the Fire Safe Council. The county fully supports these efforts.
City of Ukiah	ma-DR-UK-64. Develop a climate action plan and/or drought contingency plan to provide an effective and systematic means of assessing drought conditions, develop mitigation actions and programs to reduce risks of climate change and drought, and develop response options that minimize hardships.	Complete	Climate Action Plan Adopted 2024. Drought Resiliency Plan adopted 2020.
City of Ukiah	ma-AH-UK-70. Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such as high and/or very high wildfire areas.	On-Going Action	Prior to 2024, Planning Division staff relied on an ad hoc review process to identify parcels in wildfire, flood, and fault zones. In 2024, the City transitioned to Citizenserve, an electronic permitting system, and began linking permit reviews with GIS parcel data. In 2025, the City hired a GIS Analyst to support system build-out, ensure regular updates, and maintain hazard data integration. The screening process is now embedded in permit intake, electronically reviewed, and will be continuously maintained.
City of Ukiah	ma-AH-UK-276. Construct backup generators at critical facilities (fire stations, Adventist Health Ukiah Valley) and pump stations to respond to hazard events in the loss of power.	In Progress	Ukiah Valley Adventist Health and the Ukiah Valley Conference Center both have backup generators now. Additionally, backup generators have been purchased for the lift stations in the city. Current North and South Fire Stations would require significant improvements to be able to be wired for generators.

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Ukiah	ma-CC-UK-297. Continue the installation of purple pipes throughout the City to supply untreated irrigation water to City landscaping.	In Progress	The City is currently in Phase 4, the final phase of the Recycled Water Project. The project expands recycled water to Vinewood Park, Frank Zeek School, Pomolita soccer fields, Ukiah High, Ukiah Cemetery, Anton Stadium, Giorno Park, Todd Grove Park, Ukiah Golf Course, Ukiah Softball Complex, Oak Manor Elementary, Riverside Park, Ukiah Transfer Station and Recycling Center, and over 700 acres of agriculture.
City of Ukiah	ma-DF-UK-73. Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	No Progress - No Longer a Mitigation Priority	The Office of Emergency Management has limited resources; therefore, we will focus on critical mission essential activities, including preparedness, response, and recovery. Insurance is a mitigation activity outside the scope of the OEM.
City of Ukiah	ma-EQ-UK-77. Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	In Progress	New Corp Yard is purchased and ready for move-in by early 2026.
City of Ukiah	ma-EQ-UK-277. Encourage privately owned critical facilities (e.g., churches, hotels, other gathering facilities) to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified.	On-Going Action	The City continues to encourage seismic evaluation and retrofit of privately owned critical facilities such as churches, hotels, and other gathering places. Outreach efforts have included distributing seismic safety guidance, promoting state and federal retrofit resources, and coordinating with community organizations. While participation remains voluntary, the City is tracking facilities contacted and referring interested owners to engineering professionals for evaluation.
City of Ukiah	ma-EQ-UK-278. Install seismic gas shut-off valves on County buildings to prevent the flow of gas into buildings during a seismic event.	No Progress - No Longer a Mitigation Priority	N/A

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Ukiah	ma-EQ-UK-280. Develop an outreach and education program for owners and tenants in downtown unreinforced masonry buildings to understand earthquake risks and precautions, and, for owners, to understand retrofitting options and available funding mechanisms.	No Progress - Continue Action	
City of Ukiah	ma-FL-UK-62. Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid the creation of wind acceleration corridors within vegetated areas.	No Progress - Continue Action	
City of Ukiah	ma-FL-UK-75. Retrofit wastewater and potable water facilities that are subject to flooding. Retrofitting activities may include elevating vulnerable equipment, electrical controls, and other equipment, fastening and sealing manhole covers to prevent floodwater infiltration, and protecting wells and other potable water from infiltration and flood damage by raising controls and well pipes.	On-Going Action	Some of the work is ongoing for the foreseeable future, for example, the sealing of manholes. None of the City water facilities flood. WWRP doesn't flood, but access to the plant floods. Secondary access will be developed.
City of Ukiah	ma-FL-UK-76. Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	No Progress - No Longer a Mitigation Priority	N/A
City of Ukiah	ma-FL-UK-78. Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	On-Going Action	New roads/bridges are constructed using updated FEMA Flood Maps. Existing roads/bridges are evaluated on an ongoing basis
City of Ukiah	ma-PN-UK-281. Assess and institute necessary upgrades to critical facilities to allow for usage during a pandemic, including adequate ventilation and physical barriers.	No Progress - No Longer a Mitigation Priority	No longer a priority due to limited resources.

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Ukiah	ma-PN-UK-282. Institute necessary structural improvements to evacuation centers/sheltering locations to allow for proper ventilation, space for staff, and structural barriers to be used during a pandemic and other hazard events.	No Progress - No Longer a Mitigation Priority	No longer a priority due to limited resources.
City of Ukiah	ma-PN-UK-283. Develop alternative sheltering/evacuation locations for social distancing required during a pandemic and other hazard events.	No Progress - Continue Action	
City of Ukiah	ma-WF-UK-60. Implement a fuel modification program and code requirements.	On-Going Action	A 7.5 million-dollar grant from the USFS allowed the city to implement a fuels-reduction crew program in 2024. That program is underway, with various fuel-reduction projects currently in progress.
City of Ukiah	ma-WF-UK-74. Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	On-Going Action	The City has launched a Vegetation Management Program supported by a $7.5 million U.S. Forest Service grant, which includes establishing a dedicated Fuels Crew to reduce wildfire risk in the community. While the program does not currently provide direct services to elderly, disabled, or low-income property owners, Code Enforcement and Fire Prevention staff within the Community Development Department continue to partner with the Ukiah Valley Fire Authority to promote education and compliance. Staff are also pursuing additional opportunities and partnerships to build on this investment, expand the program's reach, and better serve vulnerable populations. (ongoing)
City of Ukiah	ma-WF-UK-285. Coordinate with the county on designated shelters outside of city limits in the event of wildfire; integrate shelter location information into community outreach.	No Progress - Continue Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Ukiah	ma-WF-UK-289. Implement CWPP projects in partnership with the county, Fire Safe Council, and CAL FIRE.	On-Going Action	Please see above regarding the fuel crew.
City of Ukiah	ma-WF-UK-296. Develop a cost-share program for residential mitigation and retrofits to be more fireproof.	On-Going Action	The City supports residential mitigation and retrofits through the Housing Rehabilitation Program, funded by the State of California Community Development Block Grant (CDBG) Program. This program provides low-interest loans and grants to income-qualified households for rehabilitation activities, with loan amounts ranging from $5,000 to $80,000. Eligible properties include 1–4 unit residences, whether owner-occupied or rental. While not exclusively focused on wildfire retrofits, the program offers an important funding pathway for home hardening improvements, and staff continue to explore opportunities to expand cost-share options specifically for fireproofing measures.
City of Fort Bragg	ma-CC-FB-204. Develop a project to address increased salinity in drinking water intakes due to reduced river levels (drought) paired with king tides, sea level rise, or tsunami effects.	In Progress	The city has acquired a desalination unit, but plans to study when retreating inland would be appropriate.
City of Fort Bragg	ma-DR-FB-231. Explore water supply contingency and alternative water supplies to improve water supply and delivery, and wastewater treatment capacity in times of drought.	In Progress	The city is piloting a desalination buoy to diversify its water supply. A project is underway to explore water reuse through purple-pipe initiatives. In addition, planning is underway for the construction of three new reservoirs to expand water storage capacity.
City of Fort Bragg	ma-EQ-FB-9. Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency. Specific needs for the fire department, the corporation yard, and the hospital.	In Progress	The city successfully applied for an OES grant but was unable to secure the required matching funds. Construction on the hospital has not yet begun, but designs for the new fire department are completed.

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Fort Bragg	ma-EQ-FB-12. Develop an unreinforced masonry grant program to correct problems, such as bracing chimneys, on residential and nonresidential buildings.	No Progress - No Longer a Mitigation Priority	The Capital Improvement Plan (CIP) includes a project specifically intended to address this issue in select areas.
City of Fort Bragg	ma-EW-FB-13. Install underground utilities or clear right-of-way for utilities that provide power and communication to critical facilities and are at-risk to failure during a winter storm event.	In Progress	Development of the municipal broadband utility is in progress.
City of Fort Bragg	ma-FL-FB-10. Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	In Progress	Portions of Highway 1 and the Noyo Harbor have been identified as vulnerable in an ongoing sea level rise study.
City of Fort Bragg	ma-FL-FB-232. Develop a public outreach program that informs property owners located in areas of concern for flood, but not necessarily in a flood zone, such as Ocean Lake Mobile Home Park, about voluntary flood insurance.	On-Going Action	
City of Fort Bragg	ma-PN-FB-233. Develop a comprehensive public outreach program to educate property owners in areas at risk, including those outside official flood zones, about various hazard risks, including flooding, and the benefits of voluntary flood insurance. This program will specifically target communities like Ocean Lake Mobile Home Park to raise awareness and encourage proactive measures for disaster preparedness and risk reduction.	No Progress - No Longer a Mitigation Priority	
City of Fort Bragg	ma-PN-FB-235. Institute necessary structural improvements to evacuation centers/ sheltering locations to allow for proper ventilation, space for staff, and structural barriers to be used during a pandemic and a hazard event.	No Progress - No Longer a Mitigation Priority	A new mitigation project has been established to focus on creating a resilience center for natural hazards.

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Fort Bragg	ma-PN-FB-236. Develop alternative sheltering/evacuation locations for distancing required during a pandemic and other hazard events.	No Progress - No Longer a Mitigation Priority	A new mitigation project has been established to focus on creating a resilience center for natural hazards.
City of Fort Bragg	ma-SF-FB-237. Retrofit well and water delivery pipes that are frequently subjected to landslides.	In Progress	The Water Distribution Master Plan is nearing completion and includes a 10-year Capital Improvement Plan (CIP) focused on replacing or rehabilitating pipes identified as potential concerns. The plan is scheduled for presentation to the City Council next month.
City of Fort Bragg	ma-SF-FB-245. Initiate process to understand landslide susceptibility for emergency egress, including land ownership and Caltrans funding opportunities, both north and west of Fort Bragg. Locations include North Harbor Drive, north of Fort Bragg (Hwy 1), and east of Fort Bragg (Hwy 20).	Complete	The city is engaging in a collaborative effort to use logging roads or private roads for emergency evacuations.
City of Fort Bragg	ma-WF-FB-14. Develop an urban fire prevention program that provides grant funding for property owners to update structures that currently do not meet the CBC and California Fire Code, focusing on areas in the eastern portion of the city.	Complete	The state is overseeing this requirement, mandating compliance for all new residential and commercial construction, as well as for the reconstruction of commercial structures above a specified valuation. The initiative primarily targets the historic downtown area.
City of Point Arena	ma-AH-PA-211. Assess and retrofit as needed wastewater treatment plan, including for berming that separates wastewater treatment facility from Arena Creek and could be subject to breach in earthquake or with extreme weather events and for other necessary seismic retrofits.	In Progress	A sewer study is underway to support the replacement of waterlines.
City of Point Arena	ma-AH-PA-214. Conduct rechannelization and habitat restoration for Arena Creek along Port Road, where the stream channel has been clogged due to the discontinuation of historic meadows along the creek, causing flooding and blocking egress from Arena Cove.	On-Going Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Point Arena	ma-AH-PA-286. Construct backup generators at critical facilities (fire stations, hospital) and sheltering locations to respond to hazard events in loss of power.	In Progress	The city has installed a generator at the water plant and is now planning to install another at City Hall.
City of Point Arena	ma-EQ-PA-41. Seismically retrofit or replace public works and/or emergency response facilities, in particular City Firehouse and City Hall/Law Enforcement/EOC, that are necessary during and/or immediately after a disaster or emergency	On-Going Action	
City of Point Arena	ma-EQ-PA-212. The city will coordinate with Point Arena Water Works to assess the need for seismic retrofitting of the large water tank located upstream of town, and will carry out retrofitting as needed to ensure its resilience.	No Progress - Continue Action	The water tank located upstream of town is operated by Point Arena Water Works. Effective planning will require coordination with both Point Arena Water Works and the county.
City of Point Arena	ma-EW-PA-213. Implement Mill Street rain/ flooding projects identified in the recent design study.	Complete	Projects completed in 2022.
City of Point Arena	ma-FL-PA-39. Retrofit wastewater and potable water facilities that are subject to flooding. Retrofitting activities may include elevating vulnerable equipment, electrical controls, and other equipment, fastening and sealing manhole covers to prevent floodwater infiltration, and protecting wells and other potable water from infiltration and flood damage by raising controls and well pipes.	On-Going Action	
City of Point Arena	ma-PN-PA-217. Install additional barriers and proper ventilation in the Emergency Operations Center (EOC, City Hall) to allow for the operation of the EOC during a pandemic and hazard events.	No Progress - No Longer a Mitigation Priority	Pandemic mitigation is no longer prioritized over other natural hazards.
City of Point Arena	ma-PN-PA-218. Develop alternative sheltering/evacuation locations for distancing required during a pandemic and other hazard events.	No Progress - No Longer a	Pandemic mitigation is no longer prioritized over other natural hazards.

Local Government	Mitigation Action	2026 Status	Additional Comments
		Mitigation Priority	
City of Point Arena	ma-PN-PA-219. Assess and institute necessary upgrades to critical facilities to allow for usage during a pandemic, including adequate ventilation and physical barriers.	No Progress - No Longer a Mitigation Priority	Pandemic mitigation is no longer prioritized over other natural hazards.
City of Point Arena	ma-PN-PA-220. Implement necessary structural improvements to evacuation centers and shelter locations to harden facilities against hazard events, including upgrades to roofing, windows, and foundations to enhance durability and ensure continued operation during emergencies.	On-Going Action	A study is in progress to strengthen City Hall and improve its overall resilience to hazards.
City of Point Arena	ma-WF-PA-43. Develop a fire road access/roadside vegetation removal program or fuel break program in which live native vegetation should be thinned and/or moved, and dead vegetation should be removed within a 50-foot distance of each side of a road. Roads to be included in this program include those located in high or very high areas of this MHMP or defined by the Mendocino County Fire Safe Council.	On-Going Action	An annual letter is sent to homeowners advising them on how to maintain defensible space around their properties.
City of Willits	ma-AH-WL-258. Develop a program that allows for an expedited permitting and review process for backup power generation at facilities that are considered critical during a natural disaster (grocery stores, gas stations, cell/communication towers).	On-Going Action	Practiced with PSPS shutdown alarms and lower permit costs for generator permits and projects.
City of Willits	ma-AH-WL-259. Develop a program that creates incentives, through expedited permitting/review and reduced/waived permit fees, for homeowners and business owners to retrofit their homes and businesses to be more resilient to natural disasters.	On-Going Action	We picked up a grant called PLHA to assist homeowners in completing critical care to their homes.

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Willits	ma-AH-WL-260. Conduct outreach to the general public to better understand where vulnerable populations live within the City of Willits so that the city can better serve them with hazard-related outreach.	On-Going Action	We had public meetings on the updated fire plan and floodplain maps.
City of Willits	ma-AH-WL-261. Develop a City-wide evacuation plan that identifies alternative evacuation routes in the event of a natural disaster.	Complete	We developed an evacuation plan, but it was not adopted.
City of Willits	ma-AH-WL-263. Install redundant communication systems beyond existing landline, internet, and cell tower infrastructure to enable emergency notification in the event that primary systems are compromised during a natural disaster.	Complete	Backup repeaters are installed
City of Willits	ma-DR-WL-264. Implement water supply contingency projects, explore and acquire alternative water supplies, and retrofit water supply systems in order to improve water supply and delivery and conserve water.	In Progress	In the case of an emergency, the city has groundwater systems available.
City of Willits	ma-DR-WL-265. Replace existing water-intensive landscaping with drought-resistant landscaping.	On-Going Action	Some areas of grass were removed and replaced with wood chips in city parks.
City of Willits	ma-DR-WL-266. Amend land use codes to incorporate regulations that encourage and require water savings for development.	Complete	Adopted MWELO
City of Willits	ma-EQ-WL-101. Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	Complete	Brand New Firehouse
City of Willits	ma-EQ-WL-267. Install seismic gas shut-off valves on County buildings to prevent the flow of gas into buildings during a seismic event.	No Progress - Continue Action	
City of Willits	ma-EQ-WL-268. Retrofit / Harden City-owned critical facilities and buildings and their ability to withstand earthquakes.	No Progress - Continue Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Willits	ma-EQ--269. Develop a memorandum of agreement/understanding with neighboring cities to share building inspection services in the event of a natural disaster.	Complete	We have an on-call contract with BPR consulting group to assist if something of that nature comes to pass.
City of Willits	ma-EQ-WL-270. Encourage privately owned critical facilities to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified.	No Progress - Continue Action	
City of Willits	ma-EQ-WL-294. Conduct seismic inspections of City facilities to determine what retrofits are needed to make facilities more resilient to seismic events	No Progress - Continue Action	
City of Willits	ma-EW-WL-271. Perform a feasibility study on flood-proofing options and analyze city-wide drainage systems.	In Progress	Maps have been created of all city storm drains.
City of Willits	ma-EW-WL-272. Routinely inspect storm water channels for vegetation build-up or encroachment, trash and debris, silt and gravel build-up, and erosion or bank failure.	On-Going Action	Yearly, the stormwater channels are inspected and cleaned as necessary.
City of Willits	ma-EW-WL-273. Implement a tree removal program for trees at high risk of snapping during wind events around city facilities and infrastructure.	On-Going Action	As of now, trees are just taken care of at public comment or if they become problematic.
City of Willits	ma-FL-WL-93. Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	No Progress - Continue Action	There is one Repetitive Loss structure in the city.
City of Willits	ma-FL-WL-96. Retrofit wastewater and potable water facilities that are subject to flooding. Retrofitting activities may include elevating vulnerable equipment, electrical controls, and other equipment, fastening and sealing manhole covers to prevent floodwater infiltration, and protecting wells and other potable water from infiltration and flood damage by raising controls and well pipes.	On-Going Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Willits	ma-FL-WL-103. Continue to participate in the NFIP program by enforcing the floodplain management ordinance to reduce future flood damage. In addition, join the Community Rating System (CRS) program. A community that participates in additional floodplain management activities, such as those outlined in the CRS program, will reduce flood losses, facilitate accurate insurance rating, and promote awareness of flood insurance.	On-Going Action	9/1/2022 Updated FEMA maps.
City of Willits	ma-FL-MCOE-274. Elevate and retrofit bridges and culverts to allow proper stormwater/100-YR flows.	No Progress - Continue Action	
City of Willits	ma-PN-WL-292. Install additional barriers and proper ventilation in the Emergency Operations Center (EOC, City Hall) to allow for the operation of the EOC during a pandemic and hazard event	No Progress - Continue Action	
City of Willits	ma-PN-WL-293. Develop alternative sheltering/evacuation locations to support distancing requirements during a pandemic and other hazard events.	Complete	High school is a secondary evacuation location.
City of Willits	ma-WF-WL-92. Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	No Progress - Continue Action	
City of Willits	ma-WF-WL-275. Retrofit City facilities with fireproof building materials to better withstand potential impacts of wildfire.	No Progress - Continue Action	
City of Willits	ma-WF-WL-284. Develop a vegetation management program to remove understory brush and excessive fuels around City roads, evacuation routes, and buildings.	On-Going Action	Moving and street cleaning of right-of-ways.

Local Government	Mitigation Action	2026 Status	Additional Comments
City of Willits	ma-WF-WL-288. Implement Mendocino County CWPP Mitigation Projects (Battalion 2: Willits), including a shaded fuel break to protect the Willits water system, construct a replacement fire station, and replace 1 aging fire apparatus.	No Progress - Continue Action	
City of Willits	ma-WF-WL-291. Increase City water supply storage to achieve adequate water pressure throughout the City's system for emergency fire response, and so fire sprinkler systems in buildings can function properly.	On-Going Action	
Mendocino County Office of Education	ma-AH-MCOE-169. Integrate annual communications lists, which include amateur radio operators, into the Emergency Operations Plan to mitigate communications failures during regional disasters.	On-Going Action	
Mendocino County Office of Education	ma-WF-MCOE-243. Install backup generators at essential district facilities that currently lack backup power.	On-Going Action	
Mendocino County Office of Education	ma-AH-MCOE-255. Develop a disaster warning system framework to disseminate information to districts, faculty, students, and families before, during, and after natural hazard events.	On-Going Action	
Mendocino County Office of Education	ma-DF-MCOE-256. Participate in the countywide warning system program, detailed in MC-199 of Vol. 1 of this HMP, led by the County as a participating jurisdiction.	On-Going Action	
Mendocino County	ma-DR-MCOE-229. Replace sports fields with irrigated turf grass with artificial turf that doesn't require watering.	On-Going Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
Office of Education			
Mendocino County Office of Education	ma-DR-MCOE-230. Retrofit landscape with drought-tolerant plant species and ground cover to minimize water use.	On-Going Action	
Mendocino County Office of Education	ma-DR-MCOE-232. Develop a drought management/contingency plan to minimize the adverse impacts of drought on faculty, students, and facilities.	On-Going Action	
Mendocino County Office of Education	ma-EQ-MCOE-249. Conduct seismic evaluations for buildings on the AB300 List and buildings acquired by the district built prior to 1978 that have not been addressed.	On-Going Action	
Mendocino County Office of Education	ma-EQ-MCOE-250. Complete DSA Retrofits for non-wood frame structures built before July 1, 1978 (Category 2 Buildings) on the AB300 list that require detailed seismic evaluation.	On-Going Action	
Mendocino County Office of Education	ma-EQ-MCOE-251. Repair and Seismically Upgrade, or remove from inventory, and replace with permanent buildings, Portable Classrooms, AND other essential facilities in portable structures. Structurally reinforce (by securing to the ground) certain portable classrooms for seismic conditions, where adequate per Code and cost-effective. Support additional portable classroom requirements in more cost-effective ways than permanent construction.	On-Going Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
Mendocino County Office of Education	ma-EQ-MCOE-252. Install seismic shut-off valves on gas fixtures on all school facilities.	On-Going Action	
Mendocino County Office of Education	ma-EQ-MCOE-253. Retrofit non-compliant suspended ceilings in district buildings. This includes Non-Structural Suspended Gypsum Dry-Wall & Cement Plaster Ceilings built 1950-1974.	On-Going Action	
Mendocino County Office of Education	ma-EQ-MCOE-254. Draft and adopt an emergency operations plan that identifies and plans for alternative transportation routes in case of a natural disaster during school operating hours.	On-Going Action	
Mendocino County Office of Education	ma-EW-MCOE-209. Implement a tree removal program for trees that are at a high risk of snapping in wind events (i.e., big cypress trees) around OoE facilities and infrastructure.	On-Going Action	
Mendocino County Office of Education	ma-FL-MCOE-245. Rehabilitate school site drainage systems.	On-Going Action	
Mendocino County Office of Education	ma-EW-MCOE-257. Upgrade HVAC systems that are adequate to handle projected future temperature increases and heat waves.	On-Going Action	
Mendocino County	ma-FL-MCOE-247. Regrade selected sites to facilitate better drainage.	On-Going Action	

Local Government	Mitigation Action	2026 Status	Additional Comments
Office of Education			
Mendocino County Office of Education	ma-FL-MCOE-248. Repair and maintain erosion on retention and detention basins for school sites.	On-Going Action	
Mendocino County Office of Education	ma-PN-MCOE-244. Assess and implement necessary upgrades to critical facilities to enable use during emergencies, including adequate ventilation, fresh-air options, and physical barriers.	On-Going Action	
Mendocino County Office of Education	ma-WF-MCOE-240. Implement a defensible space program that includes clearing of excessive fuels (trees, shrubs, brush) around school and administrative facilities and the installation of landscaping materials that create defensible space.	On-Going Action	
Mendocino County Office of Education	ma-WF-MCOE-241. Enhance building ventilation systems for wildfire smoke by improving air filtration options.	On-Going Action	
Mendocino County Office of Education	ma-WF-MCOE-242. Retrofit school facilities with fireproof building materials to better withstand potential impacts of wildfire.	On-Going Action	

Appendix C – 2026 Mitigation Actions

TABLE 25 includes the full details for all new mitigation actions in this updated 2026 HMP. It should be noted that for potential funding source(s), reference to a "general fund" includes staff time. Projects that are on-going reference 2031 as the completion year, as that is when this hazard mitigation plan will be next updated.

Acronyms used on the following pages include:

- FPDs – Fire Protection Districts
- PGE (PG&E) – Pacific Gas and Electric Company
- PRRM – Prevention, Recovery, Resiliency, and Mitigation
- BOR - Bureau of Reclamation
- CASF - California Advanced Services Fund
- CDBG - Community Development Block Grant
- CDBG-MIT RIP - Community Development Block Grant - Mitigation Resilient Infrastructure Program
- CDP - Coastal Development Permit
- CEQA - California Environmental Quality Act
- CIPP - Cure-in-Place Pipe
- DWR - Division of Water Resources
- DWSRF - Drinking Water State Revolving Fund
- EIR - Environmental Impact Report
- EOC - Emergency Operations Center
- EOP - Emergency Operations Plan
- FEMA - Federal Emergency Management Agency
- GIS – Geographic Information Systems
- GO Bonds – General Obligation Bonds
- HAM (Radio) – Amateur Radio
- HHPD – High Hazard Potential Dam
- HMGP – Hazard Mitigation Grant Program
- ISRF - Infrastructure State Revolving Fund
- IT – Information Technology
- LCP - Local Coastal Program
- LIDAR – Light Detection and Ranging
- LUP - Land Use Plan
- MCOG - Mendocino Council of Governments
- MIP - Microgrid Incentive Program
- MOUs – Memoranda of Understanding

- NAI - No-adverse-impact
- NFIP – National Flood Insurance Program
- OES – Office of Emergency Services
- OPC - Ocean Protection Council
- PD – Police Department
- RL - Repetitive Loss
- UCCE - University of California Cooperative Extension
- USDA – United States Department of Agriculture
- UVBGSA - Ukiah Valley Basin Groundwater Sustainability Agency
- WUI – Wildland-Urban Interface

Table 25 2026 Mitigation Actions

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
County of Mendocino	(ME1) Complete Update to the Local Coastal Program and Continued Program Implementation. Mendocino County's Local Coastal Program (LCP) has not been comprehensively updated since it was certified by the California Coastal Commission in 1992. The on-going update will include revisions to the Coastal Element of the General Plan (Land Use Plan, "LUP") and Coastal Zoning Code (Implementation Program, "IP"). The overall goal of the project is to improve local coastal planning in Mendocino County to better address coastal resiliency and climate change adaptation by updating technical studies, descriptions, policies, maps, and the implementation plan for the LCP in order to adapt to the impacts of climate change, sea level rise, and associated coastal hazards while maintaining the overall quality of the coastal zone environment in the interest of all people.	Planning & Building Director	Cities of Fort Bragg and Point Arena, Noyo Harbor District	Coastal Hazards	All	Medium	2026	Local, LCP Local Assistance Grant
County of Mendocino	(ME2) Review and Identify Priority Projects from the Sea Level Rise Impact Assessment. A sea level rise study for Mendocino County is being conducted by the Mendocino Council of Governments (MCOG) to identify and prioritize coastal roads at risk from flooding and erosion. The study will assess impacts on infrastructure, potential solutions, and develop preliminary cost estimates for roadway modifications.	Planning & Building Director	City of Fort Bragg	Coastal Hazards	1,2,3	Medium	2026	Local, Ocean Protection Council (OPC)
County of Mendocino	(ME3) Coyote Valley Dam Response Plan. HHPD: As part of the upcoming Flood Response Plan, develop a chapter devoted to the Coyote Valley Dam inundation.	Chief Recovery & Resiliency Officer	Cities and Local FPDs in impacted area	Dam and Levee Incident	1,2,3,4,6	High	2027	Local, FEMA HHPD
County of Mendocino	(ME4) Public Dam/Levee Risk Educational Campaign. Develop an educational campaign to inform at-risk populations annually during the Spring about inundation risk and voluntary flood insurance. Utilize all of the county's messaging tools including social media and targeted mailings and communications. (past action ma-DF-MC-126)	Chief Recovery & Resiliency Officer		Dam and Levee Incident	1,2,3,5	Medium	2027	Local
County of Mendocino	"(ME5) Coordination with Local Water Providers. Support water districts, cities, the UVBGSA, or any other relevant agency in their infrastructure projects by encouraging, helping to facilitate coordination, assisting in identifying available grant funding, drafting letters of support, etc.							
County of Mendocino	Because the county is not a water purveyor, it likely would not take on any actual infrastructure projects, but rather serve in a support role to the water purveyor. The Water Agency has identified a related new mitigation action relating to a water supply study that could help inform those infrastructure projects. "	Deputy Director of Transportation – Solid Waste Division & Water Agency		Drought	1,2,4	Medium	2031	Local
County of Mendocino	(ME6) Improving Understanding of County's Water Supply Resources and Hydrogeology. Conduct countywide groundwater and geomorphology studies, well inventories, or additional groundwater monitoring and public	Deputy Director of Transportation – Solid Waste	Local Water Entities, UVBGSA	Drought	4,5,6	Medium	2031	Local, State Prop 9 Programs,

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	outreach to fill existing data gaps. These efforts will enhance the understanding of local water supply systems and hydrogeology through coordination with relevant agencies, water entities, and the Ukiah Valley Basin Groundwater Sustainability Agency (UVBGSA). These efforts will support more informed water management decisions and long-term drought resilience planning.	Division & Water Agency						DWR (Any project progress will be dependent on external funding opportunities)
County of Mendocino	(ME7) Include a Coastal Groundwater Study within the Local Coastal Program Update. Review study results and identify mitigation actions to prioritize for the hazard of drought.	Planning & Building Director		Drought	1,2,4	High	2030	Local, LCP Local Assistance Grant
County of Mendocino	(ME8) Drought Resistant. Replace existing turf grass and water intensive landscaping with drought resistant landscaping. (past action ma-DR-MC-198)	Facilities Superintendent		Drought	2,3	Low	2030	Local
County of Mendocino	(ME50) Land Use Updates - Water Efficiency. Amend land use codes to incorporate regulations that encourage and incentive water savings for development. (ma-DR-MC-197)	Planning and Building Director		Drought	2,6	Medium	2027	Local, FEMA HMGP
County of Mendocino	(ME59) Public Water Conservation Campaign. Develop a public education campaign to encourage water conservation during drought. (ma-DR-MC-196)	Deputy Director of Transportation		Drought	1,2,4,5	Low	2031	Local
County of Mendocino	(ME9) Coordinating Countywide MOUs for All Districts. Create formalized MOUs for all school districts.	Chief Recovery & Resiliency Officer	Office of Education	Earthquake	4	Low	2028	Local
County of Mendocino	(ME10) Gas Shut-Off Valves on County Buildings. Install seismic gas shut-off valves on county buildings to prevent the flow of gas into structures during a seismic event. (ma-EQ-MC-203)	Facilities Superintendent		Earthquake	1,2,3	High	2031	Local, FEMA HMGP
County of Mendocino	(ME11) Seismic Assessments and Retrofits. Conduct a seismic assessment of vulnerabilities to county facilities and infrastructure. Retrofit / harden OES and other county facilities (including water & sewer infrastructure) to improve the ability for these structures and infrastructure to withstand earthquakes.	Facilities Superintendent		Earthquake	1,2,3	Medium	2031	Local, FEMA HMGP
County of Mendocino	(ME60) Ramp & Bridge Sesmic Retrofits. Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, identified as needing replacement by the County, are located in an high ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency. (ma-EQ-MC-127)	Deputy Director of Transportation		Earthquake	1,2,3	Low	2031	Local, CDBG-MIT RIP, FEMA HMGP
County of Mendocino	(ME61) Private Critical Facility Seismic Assessments. Encourage privately owned critical facilities (e.g. churches, hotels, other gathering facilities) to	Chief Building Official		Earthquake	1,2,3,5	Low	2031	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified. (ma-EQ-MC-200)							
County of Mendocino	(ME62) Seismic Hardening of County-owned Critical Facilities. Retrofit/harden county-owned critical facilities (including water & sewer infrastructure) and buildings for their ability to withstand earthquakes. (ma-EQ-MC-201)	Facilities Superintendent		Earthquake	1,2,3	Low	2031	Local, CDBG-MIT RIP, FEMA HMGP
County of Mendocino	(ME63) County Facility Ceiling Retrofits. Retrofit non-compliant suspended ceilings in county buildings. This includes non-structural suspended gypsum dry-wall & cement plaster ceilings built 1950-1974. (ma-EQ-MC-202)	Facilities Superintendent		Earthquake	1,2,3	Low	2031	Local, CDBG-MIT RIP, FEMA HMGP
County of Mendocino	(ME12) Cold/Freeze Mitigation Producer Educational Campaign. Develop an annual Spring outreach campaign. The goal to educate producers on solutions to mitigate losses from cold / freeze events.	County Agriculture Commissioner	UCCE Extension, Farm Bureau	Extreme Cold or Freeze	1,2,5	Medium	2031	Local
County of Mendocino	(ME13) Cooling Centers and Stations in Population Centers. Specific concerns in Anderson Valley / Boonville. County to evaluate the Admin and Library buildings for the need for backup generators if able to serve as designated cooling centers. Consider integrating charging stations as well. Centers could also serve as community resilience centers, a concept currently being piloted within the state.	Public Health Officer	Facilities, Cities	Extreme Heat	1,3	Medium	2027	Local, FEMA HMGP, Governor's Office of Land Use and Climate Innovation, Extreme Heat and Community Resilience Program
County of Mendocino	(ME14) Flood Management Plan. Develop a Floodplain Management & Flood Response Plan to address countywide flooding. Identify specific mitigation projects to reduce the magnitude, frequency, and severity of flooding in Mendocino County. (ma-FL-MC-213)	Chief Recovery & Resiliency Officer	Cities and Local FPDs in impacted area	Flood (inland)	1,2,3,4	Medium	2027	Local, FEMA HMGP, DWR
County of Mendocino	(ME16) Flood Proofing Assessment & Retrofits. Perform a feasibility study of flood proofing options for county facilities and analyze the drainage systems of all county facilities. (past action ma-EW-MC-208)	Facilities Superintendent		Flood (inland)	1,2,3,4	Medium	2028	Local, FEMA HMGP
County of Mendocino	(ME17) Higher Regulatory Standards. Adopt higher regulatory standards (including but not limited to freeboard, comp storage, lower substantial damage thresholds, setback and fill restrictions) as means to reduce future flood risk and support a no-adverse-impact (NAI) philosophy to floodplain management.	Chief Building Official		Flood (inland)	All	Medium	2028	Local
County of Mendocino	(ME64) Stormwater Channel Inspection Program. Routinely inspect stormwater channels for vegetation build up or encroachment, trash and	Deputy Director of Transportation		Flood (inland)	1,2,3	Low	2031	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	debris, silt and gravel build up, and erosion or bank failure. (ma-EW-MC-207)							
County of Mendocino	(ME18) Slope Failure Location Inventory. Establish a priority list of slope failure locations and implement slope stabilization projects in the highest risk areas. (past action ma-SF-MC-225)	Chief Recovery & Resiliency Officer		Mass Earth Movements	1,2,3,4	Medium	2028	Local, FEMA HMGP
County of Mendocino	(ME19) Vegetation & Tree Management Program. Develop a program to manage vegetation and trees in areas within and adjacent to rights of way in order to reduce the risk of tree failure and property damage and avoid the creation of wind acceleration corridors within vegetated areas. (past action ma-WS-MC-118)	Deputy Director of Transportation		Severe Storms	1,2,3	High	2031	Local
County of Mendocino	(ME20) Vegetation & Tree Management Program. Develop a program to manage vegetation and trees in areas in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid the creation of wind acceleration corridors within vegetated areas. (past action ma-WS-MC-118)	Facilities Superintendent		Severe Storms	1,2,3	High	2031	Local
County of Mendocino	(ME22) Update Tsunami Sirens. All four tsunami sirens require either maintenance or replacement.	Chief Recovery & Resiliency Officer		Tsunami	3,4,5	High	2028	Local, FEMA HMGP
County of Mendocino	(ME23) County Road Evacuation Route Signage. Primary focus areas are Nash Ranch, the Navarro Area, Baldwin Hills, and Anderson Valley / Boonville	Chief Recovery & Resiliency Officer		Wildfire	1,2,3,5	Low	2030	Local, CAL FIRE
County of Mendocino	(ME24) Develop New & Maintain Fuel Breaks. Identify and develop a plan and maintenance schedule for key fuel breaks currently existing around population centers and other key resources; develop new fuel breaks as identified. One current priority is a shaded fuel break in Hopland. (ma-WF-MC-300)	Chief Recovery & Resiliency Officer		Wildfire	All	High	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME25) Evacuation Route Construction. As needed to ensure multiple ingress/egress routes from neighborhoods. Ukiah, Redwood Valley Calpella, and Round Valley/Covelo are particular areas of focus. Per the prioritized list other areas of focus include: Brooktrails, Mitchell Creek, East Hills Ukiah, Russian River Estates, and Potter Valley. Other specifics from Prepare CA efforts included: Anderson Valley/Boonville and Willits (Second Access out of Brooktrails, Tomki in Pine Mountain Area, Willits Creek Rd., Old Mill, and Ridge Rd at the top of Brooktrails subdivision). (ma-AH-MC-299)	Deputy Director of Transportation	DOT	Wildfire	1,2,3,5,6	High	2031	Local
County of Mendocino	(ME26) Evacuation Route Maintenance & Planning. Greatest concern with communities having only one ingress/egress route. Specific areas included surrounding Ukiah, Willits, and the following roads around Hopland (Mountain House Rd, US 101, Hwy 175, La Franchi Rd, Redemeyer Rd).	Chief Recovery & Resiliency Officer	OES	Wildfire	2,3,4,5	High	2031	Local
County of Mendocino	(ME27) Fire Road Atlas. Development of a Fire Road Atlas to inform planning efforts.	Chief Recovery & Resiliency Officer	Cities, FPDs, DOT, GIS	Wildfire	3,4	High	2030	Local, CAL FIRE

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
County of Mendocino	(ME28) Fire-Hazard Abatement Ordinance Implementation Planning and Capacity Building. The project aims to enhance public safety and reduce the risk of wildfires by developing a comprehensive and enforceable strategy for managing hazardous vegetation and combustible materials. Key tasks include researching best practices from other jurisdictions, analyzing the existing County ordinance (Chapter 8.77), and creating a tailored fuel abatement strategy specific to Mendocino County's rural context. The goal is to explore how other communities enforce hazardous fuel abatement for public safety, analyze existing ordinances, recommend a strategy for the county's program, and update ordinance language while estimating implementation resources.	Chief Recovery & Resiliency Officer	Cities, Code Enforcement, FPDs	Wildfire	All	High	2027	Local, CDBG-MIT RIP
County of Mendocino	(ME29) Fuels Reduction and Community Preparedness. Project goals include implementation of roadside fuels reduction in key areas, completion of CEQA analysis for five future projects to streamline implementation, and funding the Mendocino County Community Chipper Days program for three additional years (225 days, serving 1,575 residents). The project will treat 66.2 acres in Covelo and Dos Rios, protecting 100-150 homes. The proposed CEQA projects (Branscomb, Black Bart Trail, Redwood Ridge, Old River Road, Hopland) aim to clear approximately 207 acres and enhance future funding opportunities.	Chief Recovery & Resiliency Officer		Wildfire	1,2,3,5,6	High	2026	Local, FEMA HMGP, CAL FIRE, CA Climate Investments Wildfire Prevention
County of Mendocino	(ME30) Hazardous Fuels Reduction. Priority locations include: Anderson Valley/Boonville (removal of eucalyptus trees along road, Bell Springs Road (first four miles), Branscomb & Old River Road, Covelo Airport (control burn), Leggett (in coordination with Team Rubicon), Redwood Valley Calpella, and Round Valley/Covelo (along Highway 162)	Chief Recovery & Resiliency Officer	CAL FIRE, FPDs, Fire Safe Council	Wildfire	1,2,3,5,6	High	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME31) Home Hardening / Fuels Management. The project intends a Phase 1 scoping project to design a Phase 2 program focused on home hardening and fuels management. Phase 1 involves hiring consultants, LIDAR mapping, public outreach, screening homes for fire hardening, identifying fuels treatment methods, site inspections, CEQA analysis, budget revisions, and report delivery. Phase 2 scope includes approximately 750 residential home retrofits using ignition-resistant construction materials and defensible space establishment, and approximately 1,520 acres of hazardous fuels reduction, including grazing, to build community resiliency to future wildfire events in the Brooktrails/Sherwood Corridor, targeted fuels reduction around City of Willits water treatment plant, with a specific target of at least 300 acres of grazing for fuels reduction and at least 5 acres of invasive species removal.	Chief Recovery & Resiliency Officer		Wildfire	1,2,3,5	High	2027	Local, FEMA HMGP, CAL FIRE

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
County of Mendocino	(ME32) Lifeline Hardening Assessments. Provide hardening assessments to public critical facilities (adult care, child care, schools, and railway infrastructure) to identify recommended mitigation.	Chief Recovery & Resiliency Officer	FPDs	Wildfire	1,2,3	Medium	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME33) Orr Springs Road Fuels Reduction (Phase 1). Project reduces hazardous fuels along Orr Springs Road/Comptche-Ukiah Road to improve ingress and egress and aid in evacuations and access during fire events. Phase 1 includes hiring a project management contractor, completing a route survey to identify trees for removal, engaging with landowners on 183 parcels for access agreements, and developing an operations plan with revised project maps and CEQA review actions.	Chief Recovery & Resiliency Officer		Wildfire	1,2,3,5,6	High	2026	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME34) Potter Valley Road Widening Project. Widen for safety, emergency access, and evacuation	Deputy Director of Transportation		Wildfire	1,3	Medium	2030	Local
County of Mendocino	(ME35) Redwood Complex Ignition-Resistant Construction, Phase 2 - Batch 2. Project entails replacing flammable roofing materials with ignition resistant roofing materials for properties within Mendocino County to help improve community resiliency in the face of wildfire.	Chief Recovery & Resiliency Officer		Wildfire	1,2,3,5	High	2026	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME36) Road Addressing, Signage, & Mapping. Ensure addresses and locations are easily accessed during emergency, especially in the WUI. Methods include installation of high visibility street signs and address markers, partnering with County Fire Chiefs to reduce overlapping, duplicate, or misordered street and address markings. (ma-WF-MC-228)	Chief Recovery & Resiliency Officer	County Fire Chiefs, Fire Safe Council	Wildfire	All	High	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME37) Support External Programs to Reduce Fuel Loads. Continue to support programs to reduce fuel loads in the county, including but not limited to continuing the chipper program, mastication and removal of fuels, and encouraging prescribed burns when practicable. (ma-WF-MC-301)	Chief Recovery & Resiliency Officer		Wildfire	All	High	2031	Local
County of Mendocino	(ME54) Critical Facility Hardening and Defensible Space. Retrofit critical facilities (adult care, child care, schools, railways) with fire-resistant materials and create defensible space around structures. (ma-WF-MC-227)	Facilities Superintendent		Wildfire	1,2,3	Low	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME56) Vegetation Management Program. Coordinate with fire protection agencies to develop vegetation management program to remove understory brush, hazardous trees, and excessive fuels around county roads and evacuation routes. (ma-WF-MC-239)	Chief Recovery & Resiliency Officer		Wildfire	1,2,3,4,6	Low	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME67) CWPP Implementation & Support. Implement and continue to re-prioritize Mendocino County CWPP Mitigation Projects and support smaller scale neighborhood and community plans as appropriate. (ma-WF-MC-287)	Chief Recovery & Resiliency Officer		Wildfire	All	Low	2031	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME38) 911 Switching Equipment. Project entails the purchase and installation of an approximately 760-square-foot prefabricated bunker-type structure (bunker) to house 911 switching equipment, the replacement of the existing building electrical panels, and a new generator.	Facilities Superintendent	IT	Multiple	1,2,3,4,5	High	2026	Local, CDBG-MIT RIP

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
County of Mendocino	(ME39) Resiliency Center Development. The county will coordinate with local communities to develop formalized resiliency centers within existing public buildings.	Chief Recovery & Resiliency Officer		Multiple	4,5	Medium	2030	Local, FEMA HMGP, Governor's Office of Land Use and Climate Innovation
County of Mendocino	(ME40) Community-Based Emergency Preparedness Program. Program will focus on education relating to the public's need to sustain themselves for 72-hours following disaster events (cots, non-perishable food, supplies, etc.).	Chief Recovery & Resiliency Officer		Multiple	1,3,5	High	2031	Local
County of Mendocino	(ME41) Critical Generators Mitigation Project. Project ensures county continuity of operations during power outages due to public safety power shutoffs and disaster events. Phase 1 deliverables will include procurement for a design consultant, regulatory permitting where needed, project design for finalizing each site's generator capacity and site design, and other administrative tasks to install generators at five County facilities.	Facilities Superintendent	Prevention, Recovery, Resiliency, & Mitigation (PRRM)	Multiple	1,2,3	High	2026	Local, FEMA HMGP
County of Mendocino	(ME42) Emergency Warning Siren Feasibility and Installation Project (Phase 1). Project address the county's multiple hazards through the installation and management of early warning sirens. Phase 1 deliverables include conducting site specific workplans, mapping and land use planning, permitting and environmental activities. Phase II pending FEMA review.	Chief Recovery & Resiliency Officer	Redwood Valley Fire Department	Multiple	3,4,5	Low	2026	Local, FEMA HMGP
County of Mendocino	(ME43) Grants Capacity Building. The objective of the capacity building grant is to establish a Grants Unit within the Executive Office. This unit will improve the processes of grant research, application development, and reporting. The initiative will include acquiring grant management software and hiring consultants to provide technical expertise and assist with grant writing.	Grants Unit Administrative Analyst		Multiple	4	High	2029	Local, CalOES Prepare CA Jumpstart
County of Mendocino	(ME44) Microwave (Repeater Site) Hardening. Harden repeater sites to ensure uninteruppted communications.	Facilities Superintendent	IT	Multiple	1,2,3,4	Medium	2027	Local, CDBG-MIT RIP
County of Mendocino	(ME45) Microwave and Radio Communication System Enhancements. Project entails improved reliability and resiliency of microwave and radio communications systems through procurement and installation of higher capacity, upgraded microwave equipment (16 sites to receive upgraded equipment).	Communications Coordinator		Multiple	1,2,3,4	High	2026	Local, CDBG-MIT RIP
County of Mendocino	(ME46) Mobile Communications Van. Purchase a utility van equipped with HAM radio & other emergency communication tools. This will ensure the dissemination of vital communication, and effective event response and deployment of services.	Chief Recovery & Resiliency Officer		Multiple	1,2,3,4	High	2028	PGE

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
County of Mendocino	(ME47) Natural Hazard Mitigation Educational Campaign. Develop a public outreach program that distributes consistent hazard mitigation content and mitigation tips for property owners. Engagement will utilize regular (monthly) social media posts and booths at annual public events (County Fair, Pumpkin Fest, etc.). (ma-AH-MC-134)	Chief Recovery & Resiliency Officer		Multiple	All	Medium	2031	Local
County of Mendocino	(ME48) Tomki Creek Crossing. Implement design for the evacuation route improvements within Tomki (secondary egress Willits to Ukiah).	Deputy Director of Transportation	Prevention, Recovery, Resiliency, & Mitigation (PRRM), OES	Multiple	1,2,3	High	2030	Local, FEMA HMGP
County of Mendocino	(ME49) Westport / Whale Gulch Repeater. This is currently a dead area for communications. Can put repeater on existing pole.	Communications Coordinator		Multiple	1,2,3,4	High	2030	Local, CDBG-MIT RIP
County of Mendocino	(ME51) Critical Facility Upgrades (Pandemic). Assess and institute necessary upgrades to critical facilities to allow for usage during pandemic, including adequate ventilation and physical barriers. (ma-PN-MC-222)	Facilities Superintendent		Multiple	1,2,3	Low	2029	Local
County of Mendocino	(ME52) Shelter Upgrades (Pandemic). Institute necessary structural improvements to evacuation centers/sheltering locations to allow for proper ventilation, space for staff, and structural barriers to be used during pandemic and hazard event. (ma-PN-MC-223)	Facilities Superintendent		Multiple	1,2,3	Low	2031	Local
County of Mendocino	(ME53) Alternative Sheltering Locations. Develop alternative sheltering/ evacuation locations for social distancing required during pandemic and other hazard event. (ma-PN-MC-224)	Social Services - Senior Program Manager		Multiple	1,2,3	Low	2029	Local
County of Mendocino	(ME55) Code Updates for Response Improvements. Update County Code/ Land Use Regulations/Subdivision Design Guidelines to include design and siting standards to incorporate, for example, emergency response access and turn around space or fire suppression water needs. (ma-WF-MC-238)	Planning and Building Director		Multiple	1,2,3,6	Medium	2027	Local, FEMA HMGP, CAL FIRE
County of Mendocino	(ME57) Class K Structure Owner Education. Develop an education program to inform both existing Class K structure owners and applicants of building permits for Class K structures of the inherent risks of such structures to all natural hazards. (ma-AH-MC-205)	Planning and Building Director		Multiple	1,2,3,5,6	Low	2031	Local
County of Mendocino	(ME65) Asbestos Awareness. Develop educational outreach during the building permit process to raise awareness about the presence naturally occurring asbestos. (ma-SH-MC-206)	Planning and Building Director		Multiple	1,3,5	Low	2031	Local
City of Fort Bragg	(FB1) Assess and Reinforce Vulnerable Sections of the Raw Water Line. Assess and reinforce vulnerable sections of the raw water line at risk of erosion. Implement protective measures—such as bank stabilization or rerouting—to prevent breaks that could disrupt the city's water supply.	Director of Public Works		Coastal Hazards	1,4,6	High	2029	Local, FEMA HMGP, State Water Board, USDA
City of Fort Bragg	(FB2) Cure-in-Place Pipe (CIPP) Relining Program. Implement a Cure-In-Place Pipe (CIPP) relining program to internally strengthen aging wastewater	Director of Public Works	Noyo Harbor District	Coastal Hazards	1,2,6	High	2027	Local, FEMA HMGP

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	pipelines. This approach will improve the integrity and resilience of the sewer system—critical as approximately one-third of the city's wastewater gravity flows into the harbor, where it is then pumped to the City Wastewater Treatment Plant—reducing the risk of leaks, ruptures, and environmental contamination.							
City of Fort Bragg	(FB3) Coastal Hazards Mitigation Educational Campaign. Implement a Cure-In-Place Pipe (CIPP) relining program to internally strengthen aging wastewater pipelines. This approach will improve the integrity and resilience of the sewer system—critical as approximately one-third of the city's wastewater gravity flows into the harbor, where it is then pumped to the City Wastewater Treatment Plant—reducing the risk of leaks, ruptures, and environmental contamination.	City Emergency Manager		Coastal Hazards	3,5	Medium	2029	Local
City of Fort Bragg	(FB4) Remediation Action Plan at the OUE Site. Complete an Environmental Impact Report (EIR) and obtain a Coastal Development Permit (CDP) for the remediation action plan at the OUE site. The project involves restoration of 10 man-made ponds and wetlands, including associated dams and wetland areas. This process is currently underway to ensure regulatory compliance and environmental protection.	Director of Community Development		Dam and Levee Incident	1,6	Medium	2027	Local, DWR, BOR
City of Fort Bragg	(FB5) Design New Water Reservoirs. Develop designs and plans for three new water reservoirs to increase storage capacity. These reservoirs will capture excess water during wet months and provide a reliable supply during dry periods, enhancing water security and drought resilience.	Director of Public Works		Drought	1,2,6	High	2029	Local, FEMA HMGP, State Water Board, DWR — Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program
City of Fort Bragg	(FB8) Implementation of Water Master Plan. Continue Implementation of Water Infrastructure Projects - Water Master Plan Projects, including Construction of three new storage reservoirs, Recycled Water Reclamation (Purple pipe), distribution system rehabilitation, raw water line replacement, and Newman Pump Station Construction.	Director of Public Works		Drought	1,4,5	High	2031	Local, FEMA HMGP, State Water Board, DWR — Small Community Drought Relief Program, DWR — Urban Community

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
								Drought Relief Program
City of Fort Bragg	(FB10) Raw Water Pipeline. Complete the reconstruction of the Raw Water Pipeline, which delivers source water to the water treatment plant. Construct the Newman Pump Station to pump water from the Noyo River to the new storage reservoirs.	Director of Public Works		Drought	1,2,6	High	2027	Local, FEMA HMGP, State Water Board, DWR — Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program
City of Fort Bragg	(FB6) Feasibility Study for Desalination Project. Conduct a feasibility study exploring the use of offshore buoys and infrastructure for a future ocean water desalination project. This study will assess environmental impacts, technical requirements, and potential benefits to diversify the city's water supply.	Director of Public Works		Drought	2,4,6	Medium	2027	Local, FEMA HMGP, State Water Board, DWR — Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program
City of Fort Bragg	(FB7) Feasibility Study for Use of Purple Pipe System. Conduct a feasibility study on the use of the purple pipe system to treat and recycle wastewater into potable water. This study will evaluate technical, environmental, and regulatory factors to advance sustainable water reuse and reduce demand on traditional water sources.	Director of Public Works		Drought	1,2,6	Medium	2027	Local, FEMA HMGP, State Water Board, DWR — Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program
City of Fort Bragg	(FB9) Study on Water Supply Contingency. Explore water supply contingency and alternative water supplies to improve water supply and delivery, and wastewater treatment capacity in times of drought. (past action ma-DR-FB-231)	Director of Public Works		Drought	1,2,4	Medium	2030	Local, FEMA HMGP, DWR, BOR, USDA

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Fort Bragg	(FB11) Harden Water Distribution Lines. Harden water distribution lines from the treatment facility by reinforcing and protecting critical pipelines to reduce vulnerability to damage.	Director of Public Works		Earthquake	1,2,6	High	2028	Local, FEMA HMGP, Drinking Water State Revolving Fund (DWSRF) Construction, USDA
City of Fort Bragg	(FB13) Seismically Retrofit Public Works and Emergency Response Facilities. Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency. Specific needs for the fire department, the corporation yard, and the hospital. (past action ma-EQ-FB-9)	Director of Public Works/Engineering		Earthquake	3,4	High	2030	Local, FEMA HMGP
City of Fort Bragg	(FB14) Veteran Hall EOC. Renovate and seismically retrofit the Veteran Halls to be used as an Official Emergency Operations Center (EOC) to improve coordination and response during emergencies and provide ongoing community support.	City Emergency Manager		Earthquake	1,3,4	High	2028	Local, FEMA HMGP, Emergency Operations Center Grant Program, Governor's Office of Land Use and Climate Innovation
City of Fort Bragg	(FB15) Community Resilience Center. Construct a Community Resilience Center to improve coordination and response during emergencies and provide ongoing community support.	City Emergency Manager		Earthquake	1,3,4	High	2028	Local, FEMA HMGP, Emergency Operations Center Grant Program, Governor's Office of Land Use and Climate Innovation
City of Fort Bragg	(FB12) Seismic Retrofit Project for City Hall East. Implement a seismic retrofit project for City Hall East to enhance structural resilience against earthquakes.	Director of Public Works		Earthquake	3,4	Medium	2028	Local, FEMA HMGP, State General Obligation

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
								(GO) Bonds for Public Buildings
City of Fort Bragg	(FB16) Guest House Museum Seismic Retrofit. Rehabilitation of the existing brick foundation and chimneys on the Guest House Museum as well as upgrading the windows.	Director of Public Works		Earthquake	3,4	Medium	2027	Local, FEMA HMGP, State General Obligation (GO) Bonds for Public Buildings
City of Fort Bragg	(FB17) Develop and Implement an Evacuation Plan for the Ocean Lake Adult Mobile Home Community. Develop a formal Evacuation Plan for the Ocean Lake Adult Mobile Home Community and conduct a targeted public education campaign to ensure residents understand evacuation routes, procedures, and emergency communication methods.	City Emergency Manager	Private Homeowners	Flood (inland)	3,5	Medium	2029	Local
City of Fort Bragg	(FB18) Flood Mitigation Educational Campaign. Develop and implement a Public Education Program on Flood Risks annually in the spring, leveraging existing public outreach events and social media platforms to share information, increase community awareness, and promote preparedness for flood-related emergencies.	City Emergency Manager		Flood (inland)	5,6	Medium	2029	Local
City of Fort Bragg	(FB19) Flood Mitigation Educational Campaign for Ocean Lake Adult Mobile Home Community. Develop a comprehensive public outreach program to educate property owners in areas at risk—including those outside official flood zones—about various hazard risks, including flooding, and the benefits of voluntary flood insurance. This program will specifically target communities like Ocean Lake Mobile Home Park to raise awareness and encourage proactive measures for disaster preparedness and risk reduction (past action ma-FL-FB-232)	City Manager		Flood (inland)	1,5	High	2026	Local
City of Fort Bragg	(FB20) Reinforce Transportation Infrastructure. Reinforce county and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding. (past action ma-FL-FB-10)	Director of Public Works/Engineering		Flood (inland)	2,4,6	High	2030	Local, FEMA HMGP, CDBG DRI
City of Fort Bragg	(FB22) Retrofit Well and Water Delivery Pipes. Retrofit well and water delivery pipes frequently subjected to landslides. (past action ma-SF-FB-237)	Director of Public Works		Mass Earth Movements	1,3,6	High	2030	Local, FEMA HMGP, State Water Board, USDA

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Fort Bragg	(FB21) Enhancement and Hardening of Water Delivery Systems. Enhancement and Hardening of Water Delivery Systems on Steep Slopes to Ensure Reliable Service and Minimize Vulnerabilities During Hazard Events.	Director of Public Works		Mass Earth Movements	1,6	Medium	2029	Local, FEMA HMGP, State Water Board, USDA
City of Fort Bragg	(FB23) Landslide Susceptibility Study. Initiate process to understand landslide susceptibility for emergency egress, including land ownership and Caltrans funding opportunities. Locations include North Harbor Drive, north of Fort Bragg (Hwy 1), and east of Fort Bragg (Hwy 20).	Director of Public Works		Mass Earth Movements	1,6	Medium	2030	Local, FEMA HMGP, State Water Board, USDA
City of Fort Bragg	(FB26) Underground Utilities. Install underground utilities or clear right-of-way for utilities that provide power and communication to critical facilities and are at-risk to failure during a winter storm event. (past action ma-EW-FB-13)	Director of Public Works		Severe Storms	1,3,6	High	2031	Local, FEMA HMGP, CDBG DRI
City of Fort Bragg	(FB24) Development of an Internet and Communications Redundancy Plan. Development of an Internet and Communications Redundancy Plan to Ensure Continuous Connectivity and Reliable Communication During Emergencies.	City Emergency Manager		Severe Storms	2,3,4	Medium	2030	Local, California Advanced Services Fund (CASF) Broadband Infrastructure Grant Account
City of Fort Bragg	(FB25) Installation of Backup Generators at Fuel Stations. Installation of Backup Generators at Fuel Stations to Maintain Critical Fuel Supply During Power Outages.	City Emergency Manager		Severe Storms	1,2	Medium	2030	Local, FEMA HMGP
City of Fort Bragg	(FB28) Upgrade and Modernize the Tsunami Siren System. Upgrade and Modernize the Tsunami Siren System at Ocean View RV Park in Coordination with County Authorities to Enhance Early Warning Capabilities.	City Emergency Manager	County of Mendocino	Tsunami	3,5	High	2027	Local, FEMA HMGP
City of Fort Bragg	(FB27) Develop a Project to Mitigate Increased Salinity in Drinking Water Intakes. Develop a Project to Mitigate Increased Salinity in Drinking Water Intakes Caused by Reduced River Levels from Drought, Combined with Sea Level Rise and Tsunami Impacts.	Director of Public Works		Tsunami	3,6	Medium	2030	Local, FEMA HMGP, BOR, USDA
City of Fort Bragg	(FB30) Fire Flow Deficiency Projects. Implementation of "Fire Flow Deficiency" projects identified in the 2025 Water Distribution System Master Plan, including the Willow Street Pump Station upgrade and the Cedar Street Water Line Replacement Projects, is necessary to ensure pressure and pipe velocities during fire flow conditions meet expected growth conditions. The Master Plan includes additional fire flow deficiency projects which should be undertaken after these two priority projects are completed.	Director of Public Works		Wildfire	2,5	High	2030	Local, FEMA HMGP, CAL FIRE

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Fort Bragg	(FB29) Develop and Improve Evacuation Routes and Public Education for Emergency Evacuations. Develop and enhance additional evacuation routes to improve accessibility and ensure efficient resident evacuation during emergencies. Following the development of these routes, implement a public education campaign to inform community members about evacuation options, procedures, and safe egress during hazardous events.	City Emergency Manager		Wildfire	3,6	Low	2029	Local
City of Fort Bragg	(FB31) Vulnerable Water Supply Infrastructure. Develop a plan to protect the most vulnerable water supply infrastructure (the treatment plant and storage tanks), which are located in east Fort Bragg near dense woodland areas. Additionally, Fire Station #2 is located on Highway 20 and is vulnerable to wildfire.	Director of Public Works		Wildfire	1,2,5	Medium	2031	Local, FEMA HMGP, CAL FIRE
City of Fort Bragg	(FB32) Backup Power at Evacuation Shelters. There is a need for backup power at evacuation shelters, specifically requiring a high school facility to be equipped. The senior center already has backup power in place, and the middle school has a contingency plan for power through the Emergency Operations Center (EOC). Additionally, collaboration with Noyo Harbor is underway to secure a 20-ton flake ice machine to support backup food storage.	City Emergency Manager	Noyo Habor District	Multiple	2,3	High	2027	Local, FEMA HMGP
City of Fort Bragg	(FB33) Conduct a Site Selection and Feasibility Study for a Resiliency Center. Conduct a site selection and feasibility study for a Resiliency Center to provide a community accessible hub capable of maintaining essential services before, during, and after hazard events. The center will serve as a backup power facility to remain operational during hazard events and can provide emergency communications and charging stations during power outages. The center will meet seismic safety and evacuation standards.	City Emergency Manager		Multiple	All	High	2029	Local, Cal OES Community Resilience Centers Grant Program, Governor's Office of Land Use and Climate Innovation
City of Fort Bragg	(FB34) Study on Impacts of Sea Level Rise and Tsunami Events on Drinking Water. Develop a project to address increased salinity in drinking water intakes due to reduced river levels (drought) paired with king tides, sea level rise, or tsunami effects. (past action ma-CC-FB-204)	Director of Public Works/Engineering		Multiple	1,2,6	High	2030	Local, FEMA HMGP, DWR, BOR, USDA
City of Point Arena	(PA1) Develop a Sea Level Rise Adaptation Plan. Develop a sea level rise adaptation plan to minimize losses during extreme weather events.	City Manager		Coastal Hazards	1,2,6	Medium	2027	Local, Ocean Protection Council (OPC)
City of Point Arena	(PA2) Managed Retreat of Cove Parking Lot. Complete managed retreat of the cove parking lot by relocating infrastructure away from vulnerable areas, incorporating resilient design and natural buffers to reduce flood and erosion risks, building on 2017 improvements.	City Manager		Coastal Hazards	1,2,6	High	2029	Local, FEMA HMGP

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Point Arena	(PA3) Develop a Model Water Ordinance. Develop and implement a model water ordinance to promote sustainable water use and enhance drought resilience.	City Manager / City Planner		Drought	1,2,6	Low	2028	Local, State Water Board
City of Point Arena	(PA4) Feasibility Study for Secondary Water Source. Conduct a feasibility study to identify and develop a secondary water source for the city to ensure supply reliability.	City Manager		Drought	1,2	Low	2028	Local, FEMA HMGP, DWR— Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program, BOR
City of Point Arena	(PA5) Improve Water Piping Infrastructure. Collaborate with Point Arena Water Works to upgrade and improve water piping infrastructure for enhanced reliability and efficiency for the City of Point Arena.	City Manager	Point Arena Water Works	Drought	1,2,4	Medium	2030	Local, State Water Board
City of Point Arena	(PA6) Seismic Retrofit of City Hall. Ongoing seismic retrofit or replacement of critical public works and emergency response facilities—especially the City Hall/Law Enforcement/EOC—to ensure functionality during and after disasters. (past action ma-EQ-PA-41)	City Manager		Earthquake	3,4	High	2028	Local, FEMA HMGP, State General Obligation (GO) Bonds for Public Buildings
City of Point Arena	(PA7) Seismic Retrofitting of Large Water Tank Upstream of Town. The City will coordinate with Point Arena Water Works to assess the need for seismic retrofitting of the large water tank located upstream of town, and will carry out retrofitting as needed to ensure its resilience. Point Arena Water Works controls the water tank located upstream of the town. Coordination with both Point Arena Water Works and the county would be necessary. (past action ma-EQ-PA-212)	City Manager	Point Arena Water Works	Earthquake	1,3,6	High	2029	Local, FEMA HMGP, State Water Board
City of Point Arena	(PA8) Study on Wastewater Treatment Plant. Conduct a study on the wastewater treatment plant to assess and mitigate risks of discharge into the Point Arena Creek during hazard events.	City Manager/City Wastewater Treatment Plant Lead Plant Operator		Earthquake	1,3,6	Medium	2029	Local, FEMA HMGP, BOR
City of Point Arena	(PA9) Retrofit Wastewater and Potable Water Facilities Subject to Flooding. Retrofit wastewater and potable water facilities that are subject to flooding. Retrofitting activities may include elevating vulnerable equipment, electrical controls, and other equipment, fastening and sealing manhole covers to	City Manager		Flood (inland)	1,2,6	High	2027	Local, FEMA HMGP

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	prevent floodwater infiltration, and protecting wells and other potable water from infiltration and flood damage by raising controls and well pipes. (past action ma-FL-PA-39)							
City of Point Arena	(PA10) Study on Riparian Creek Areas. Conduct a study on riparian creek areas to assess and improve hydrological health, aiming to reduce flood-related losses.	City Manager		Flood (inland)	1,2,6	Medium	2031	Local, FEMA HMGP, DWR, BOR
City of Point Arena	(PA11) Install Warning Signage on Cliffsides. Install warning signage on cliffsides to enhance public safety and prevent accidents.	City Manager		Mass Earth Movements	3,5	Low	2028	Local
City of Point Arena	(PA12) Implement Microgrid Infrastructure and Electrical Redundancy for Critical Facilities. Design and install microgrid infrastructure and electrical redundancy systems at critical facilities in the City of Point Arena to ensure operations continue during storm-related power outages. This action will strengthen local energy resilience by enabling islanding and providing dependable backup power, reducing service disruptions during severe storm events.	City Manager		Severe Storms	1,2,4	Medium	2031	Local, FEMA HMGP, The Microgrid Incentive Program (MIP)
City of Point Arena	(PA13) Structural Improvements to Evacuation Centers and Shelter Locations. Implement necessary structural improvements to evacuation centers and shelter locations to harden facilities against hazard events, including upgrades to roofing, windows, and foundations to enhance durability and ensure continued operation during emergencies. (past action ma-PN-PA-220)	City Manager	Local NGO and County Coordinator	Severe Storms	3,4	High	2027	Local, FEMA HMGP
City of Point Arena	(PA14) Tsunami Signage. Install clear and visible signage to inform residents and tourists about tsunami risks and safety procedures, enhancing awareness and preparedness during tsunami events.	City Manager	The Redwood Coast Fire Protection District	Tsunami	3,5	Low	2029	Local
City of Point Arena	(PA15) Fire Road Access/Roadside Vegetation Removal Program. Develop a fire road access/roadside vegetation removal program or fuel break program in which live native vegetation should be thinned and/or moved and dead vegetation should be removed within a 50-foot distance of each side of a road. Roads to be included in this program include those located in high or very high areas of this MHMP or defined by Mendocino County Fire Safe Council. (past action ma-WF-PA-43)	City Manager	Mendocino County Fire Safe Council	Wildfire	1,5,6	Medium	2030	Local, FEMA HMGP, CAL FIRE
City of Point Arena	(PA16) Implement Fuel Reduction Projects. Partner with the Redwood Coast Fire Protection District to implement fuel reduction projects that minimize wildfire risk and enhance community safety.	City Manager	The Redwood Coast Fire Protection District	Wildfire	1,3,6	Medium	2030	Local, FEMA HMGP, CAL FIRE
City of Point Arena	(PA17) Wildfire Mitigation Educational Campaign. Partner with the Fire Safe Council to deliver public education and outreach programs annually aimed at increasing community awareness and preparedness for wildfire risks.	City Manager	Fire Safe Council	Wildfire	1,5	Medium	2028	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Point Arena	(PA18) Backup Generator at City Hall. Construct backup generators at critical facilities (City Hall) and sheltering locations to respond to hazard events in loss of power. (past action ma-AH-PA-286)	City Manager		Multiple	2,3,4	High	2027	Local, FEMA HMGP
City of Point Arena	(PA19) Rechannelization and Habitat Restoration for Arena Creek Along Port Road. Conduct rechannelization and habitat restoration for Arena Creek along Port Road, where the stream channel has been clogged due to the discontinuation of historic meadows along the creek, causing flooding and blocking egress from Arena Cove. (past action ma-AH-PA-211)	City Manager		Multiple	1,2,6	High	2031	Local, FEMA HMGP, DWR, BOR
City of Point Arena	(PA20) Tourist All-Hazard Mitigation Educational Campaign. Partner with the Fire Safe Council and the Point Arena Merchants Association to implement a coordinated tourist education program. This effort will include sharing emergency preparedness information on partner websites and distributing hard-copy flyers through local businesses and at monthly Fire Safe Council events (first Wednesday of the month) to promote visitor enrollment in local emergency alert and warning systems.	City Manager	Fire Safe Council, Point Arena Merchants Association	Multiple	3,5	Medium	2029	Local, FEMA HMGP
City of Point Arena	(PA21) Wastewater Treatment Plant. Assess and retrofit as needed wastewater treatment plan, including for berming that separates wastewater treatment facility from Arena Creek and could be subject to breach in earthquake or with extreme weather events, and for other necessary seismic retrofits. (past action ma-AH-PA-211)	City Manager/Lead Plant Operator		Multiple	1,3,6	High	2028	Local, FEMA HMGP, State Water Board
City of Ukiah	(UK1) Dam Incident Coordination & Planning. Coordinate with County OES and dam operators to improve public education, alert, and warning procedures, and emergency response planning for potential dam-failure events affecting downstream communities.	Chief Resilience Officer	County of Mendocino, Dam operators	Dam and Levee Incident	1,2,3,5	Low	2031	Local
City of Ukiah	(UK2) Intertie Water Systems. Physically intertie disconnected neighboring water systems.	Deputy Director of Water Resourcces	Systems owners	Drought	1,2,4	High	2031	Local, State Water Board, FEMA HMGP
City of Ukiah	(UK3) Managed Aquifer Recharge Program. Assess implementation of a Flood-MAR (Managed Aquifer Recharge) program.	Chief Resilience Officer	Property owners	Drought	1,2,6	Low	2031	Local, FEMA HMGP
City of Ukiah	(UK17) Landscaping Water. Continue the installation of purple pipes throughout the City to supply untreated irrigation water to City landscaping (ma-CC-UK-297)	Public Works Director		Drought	2,3,5	Low	2030	Local, FEMA HMGP
City of Ukiah	(UK4) Unreinforced Masonry Building Educational Campaign. Develop an outreach and education program for owners and tenants in downtown unreinforced masonry buildings to understand earthquake risks and precautions and, for owners, to understand retrofitting options and available funding mechanisms. This annual campaign will occur in the fall coinciding with Great ShakeOut activities. (past action ma-EQ-UK-280)	Chief Resilience Officer		Earthquake	3,5	Medium	2028	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Ukiah	(UK18) Critical Facility Seismic Retrofits. Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency. (ma-EQ-UK-77)	Public Works Director		Earthquake	1,2,3	High	2028	Local, FEMA HMGP
City of Ukiah	(UK19) Private Critical Facility Seismic Assessments. Encourage privately owned critical facilities (e.g. churches, hotels, other gathering facilities) to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified. (ma-EQ-UK-277)	Emergency Services Coordinator		Earthquake	1,2,3,5		2031	Local
City of Ukiah	(UK5) Warming Center Educational Campaign. Develop an educational campaign to inform at-risk populations annually during the Winter about warming center resources. Efforts will include coordination with warming centers run by area non-profits and religious organizations.	Emergency Services Coordinator		Extreme Cold or Freeze	1,5	Low	2031	Local
City of Ukiah	(UK6) Tree Canopy Expansion. Implement tree canopy increases as identified in the 2025 Climate Action Plan. The goals is to plant 200 new trees / year.	Chief Resilience Officer	CAL FIRE	Extreme Heat	1,2,6	High	2029	Local, Extreme Heat and Community Resilience Program
City of Ukiah	(UK7) Waterway Flood Mitigation. Vegetation removal and channel maintenance along city waterways.	Public Works Director	CDFW	Flood (inland)	1,6	Medium	2031	Local, FEMA HMGP
City of Ukiah	(UK20) Water System Retrofits. Retrofit wastewater and potable water facilities that subject to flooding. Retrofitting activities may include elevating vulnerable equipment, electrical controls, and other equipment, fastening and sealing manhole covers to prevent floodwater infiltration, and protecting wells and other potable water from infiltration and flood damage by raising controls and well pipes. (ma-FL-UK-75)	Public Works Director		Flood (inland)	1,2,3	Medium	2031	Local, FEMA HMGP
City of Ukiah	(UK21) Reinforce Transportation Infrastructure. Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding. (ma-FL-UK-78)	Public Works Director		Flood (inland)	2,4,6	Medium	2030	Local, FEMA HMGP, CDBG DRI
City of Ukiah	(UK8) Localized Landslide Risk Assessment. Develop improved, localized landslide risk data to guide future mitigation efforts.	Chief Resilience Officer		Mass Earth Movements	1,4,6	Low	2030	Local, FEMA HMGP
City of Ukiah	(UK9) Right of Way / Lifeline Vegetation Management. Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities and power lines in order to reduce the risk of tree failure and property damage. Efforts will also help to avoid the creation of wind acceleration corridors within vegetated areas. (past action ma-FL-UK-62)	Electirc Utility Director		Severe Storms	1,3,6	High	2031	Local
City of Ukiah	(UK10) Weather Reporting Sensors. Improve wind/weather forecating through purchase and installation of additional weather sensors.	Chief Resilience Officer		Severe Storms	2,4	Medium	2031	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Ukiah	(UK11) City Building Wildfire Assessment Program. Develop regular inspection program of city buildings to recommend and implement structural hardening and defensible space activities.	Fire Chief		Wildfire	3,4,5	Medium	2031	Local, FEMA HMGP, CAL FIRE
City of Ukiah	(UK12) Evacuation Center Coordination. Coordinate with the county on identifying designated evacuation shelters outside of the city limits in event of wildfire. (past action ma-WF-UK-285)	Fire Chief	County of Mendocino	Wildfire	3,4,5	Medium	2028	Local
City of Ukiah	(UK13) Home Wildfire Mitigation Educational Campaign. Develop an annual public education campaign focused on encouraging structural hardening and defensible space to be broadcast from the Spring through Fall.	Fire Chief		Wildfire	3,4,5	High	2031	Local
City of Ukiah	(UK14) Mobile Dispatch / Command Center. Aquire a mobile dispatch/command center.	Fire Chief		Wildfire	5,6	Low	2030	Local
City of Ukiah	(UK15) Hazard Area Pre-application Review. Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas. (ma-AH-UK-70)	Fire Chief		Wildfire	1,2,3,5,6	Low	2029	Local
City of Ukiah	(UK22) Fuels Reduction Program. Implement a fuel modification program and code requirements. (ma-WF-UK-60)	Emergency Services Coordinator		Wildfire	1,2,3,5	High	2027	Local
City of Ukiah	(UK23) Under-resourced Resident Vegetation Management. Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes. (ma-WF-UK-74)	Fire Chief		Wildfire	1,2,3,4,5	Medium	2031	Local, FEMA HMGP, CAL FIRE
City of Ukiah	(UK24) CWPP Implementation. Implement CWPP projects in partnership with County, Fire Safe Council, and CAL FIRE. (ma-WF-UK-289)	Fire Chief		Wildfire	1,2,3,4,5	High	2031	Local, FEMA HMGP, CAL FIRE
City of Ukiah	(UK25) Home Hardening & Defensible Space Grants. Develop a cost share program for residential mitigation and retrofits to be more fireproof. (ma-WF-UK-296)	Fire Chief		Wildfire	1,2,3,4,5	Medium	2031	Local, FEMA HMGP, CAL FIRE
City of Ukiah	(UK16) Critical Facility Generators. Construct backup generators at critical facilities (fire stations, Adventist Health Ukiah Valley) and pump stations to respond to hazard events in loss of power. (ma-AH-UK-276)	Public Works Director		Multiple	1,2,3	High	2029	Local, FEMA HMGP
City of Willits	(WL2) Morris Dam Dredging. Dredge the Morris Dam to increase reservoir capacity.	Public Works Director		Dam and Levee Incident	2,6	High	2031	Local, FEMA HMGP (Any project progress will be dependent on external

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
								funding opportunities)
City of Willits	(WL3) Morris Dam Risk Assessment. HHPD: Perform risk assessment of the aging Morris Dam to identify mitigation solutions.	Public Works Director		Dam and Levee Incident	1,2,6	High	2031	Local, FEMA HHPD (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL1) Morris Dam Capacity Improvements. Increase the Morris Dam height to increase reservoir capacity.	Public Works Director		Dam and Levee Incident	1,2,6	Medium	2031	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL4) Groundwater System Enhancements. Enhancements to the groundwater system to increase capacity & storage of the system.	Public Works Director	County of Mendocino	Drought	1,2,6	High	2031	Local, FEMA HMGP, State Water Board, DWR, BOR, USDA (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL5) Water Storage Capacity Improvements. Upgrade existing storage by developing new sites and expanding existing. This will enable the city to achieve adequate water pressure throughout the water system for emergency fire response and so fire sprinkler systems in buildings can function properly. (ma-WF-WL-291)	Public Works Director		Drought	2,6	High	2031	Local, FEMA HMGP, State Water Board, DWR, BOR, USDA (Any project progress will be dependent on external

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
								funding opportunities)
City of Willits	(WL31) Improve Water Supply. Implement water supply contingency projects, explore and acquire alternative water supplies, and retrofit water supply systems in order to improve water supply and delivery and conserve water. (ma-DR-WL-264)	Public Works Director		Drought	1,2,3	Medium	2029	Local, FEMA HMGP, State Water Board, DWR — Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL33) Drought Resistent Landscaping. Replace existing water intensive landscaping with drought resistant landscaping. (ma-DR-WL-265)	Public Works Director		Drought	3,5	Medium	2028	Local
City of Willits	(WL6) Gasline Shutoff Valves. Install gasline shutoff valves on all city facilities. (past action ma-EQ-WL-267)	Public Works Director		Earthquake	1,3	Medium	2031	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL7) Seismic Risk Inspections. Conduct seismic inspections of City facilities to determine what retrofits are needed to make facilities more resilient to seismic events. (past action ma-EQ-WL-294)	Public Works Director		Earthquake	4	Medium	2028	Local, FEMA HMGP
City of Willits	(WL8) Retrofit Critical Facilities. Retrofit / Harden City-owned critical facilities and buildings and their ability to withstand earthquakes. (past action ma-EQ-WL-268)	Public Works Director		Earthquake	1,2,3,4	Medium	2031	Local, FEMA HMGP
City of Willits	(WL9) Private Critical Facility Assessments. Encourage privately owned critical facilities to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified. (past action ma-EQ-WL-270)	Public Works Director		Earthquake	5	Medium	2031	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Willits	(WL10) Warming Center Educational Campaign. Develop an educational campaign to inform at-risk populations annually during the Winter about warming center resources. Efforts will include coordination with warming centers run by area non-profits and religious organizations.	Planning Director		Extreme Cold or Freeze	1,5	Low	2029	Local
City of Willits	(WL11) Cooling Center Educational Campaign. Develop an educational campaign to inform at-risk populations annually during the Summer about cooling center resources. Efforts will include coordination with cooling centers run by area non-profits and religious organizations.	Planning Director		Extreme Heat	1,5	Low	2029	Local
City of Willits	(WL12) Automatic Annual Maintenance Permits. Coordinate automatic annual maintenance permits from CDFW to allow for the city to implement mitigation.	Public Works Director	CDFW	Flood (inland)	1,4,6	High	2027	Local
City of Willits	(WL13) Private Property Owner Waterway Maintenance. Coordinate with private property owners on maintenance of local waterways (Caltrans Outlet Creek & Skunk Train Creek along Walnut)	Public Works Director		Flood (inland)	1,6	High	2028	Local
City of Willits	(WL14) Reduce Flooding Exposure. Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain. There is one Repetitive Loss structure in the city. (past action ma-FL-WL-93)	Public Works Director		Flood (inland)	1,2,3,4,6	Medium	2031	Local, FEMA FMA (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL15) Elevate & Retrofit Bridges and Culverts. Elevate and retrofit bridges and culverts to allow proper stormwater/100-YR flows. (past action ma-FL-MCOE-274)	Public Works Director		Flood (inland)	2,4,6	Medium	2029	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL35) Floodproofing & Drainage System Assessment. Perform a feasibility study for flood proofing options and analyze the drainage systems City-wide. (ma-EW-WL-271)	Public Works Director		Flood (inland)	1,2,3,4	Medium	2029	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Willits	(WL37) Stormwater Channel Inspection Program. Routinely inspect storm water channels for vegetation build up or encroachment, trash and debris, silt and gravel build up, and erosion or bank failure. (ma-EW-WL-272)	Public Works Director		Flood (inland)	1,2,3	High	2031	Local
City of Willits	(WL41) Water System Retrofits. Retrofit wastewater and potable water facilities that are subject to flooding. Retrofitting activities may include elevating vulnerable equipment, electrical controls, and other equipment, fastening and sealing manhole covers to prevent floodwater infiltration, and protecting wells and other potable water from infiltration and flood damage by raising controls and well pipes. (ma-FL-WL-96)	Public Works Director		Flood (inland)	1,2,3	Medium	2031	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL43) Continued NFIP Participation. Continue to participate in the NFIP program by enforcing the floodplain management ordinance to reduce future flood damage. In addition, join the Community Rating System (CRS) program. A community that participates in additional floodplain management activities, such as those outlined in the CRS program, will reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. (ma-FL-WL-103)	Planning Director		Flood (inland)	2,5,6	High	2031	Local
City of Willits	(WL16) Brooktrail Access Road Landslide Mitigation. Construct improvements to the Brooktrail access road to eliminate mass earth movement risk.	Public Works Director		Mass Earth Movements	1,3,6	High	2031	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL17) Lightning Impact Study of the Water System. Scoping for mitigation options to reduce/eliminate lightning strike impacts on water treatment systems.	Public Works Director		Severe Storms	1,3,4	Low	2031	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL18) Tree Maintenance Educational Campaign. Develop an annual public education campaign to launch in the Spring encouraging tree and limb mitigation to reduce impacts to private residents.	Planning Director		Severe Storms	5,6	Medium	2029	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Willits	(WL39) Tree Removal Program. Implement a tree removal program for trees that are at a high risk to snapping in wind events around city facilities and infrastructure. (ma-EW-WL-273)	Public Works Director		Severe Storms	1,2,3	Medium	2027	Local
City of Willits	(WL20) Home Wildfire Mitigation Educational Campaign. Develop an annual public education campaign focused on encouraging structural hardening and defensible space to be broadcast from the Spring through Fall.	Planning Director		Wildfire	3,4,5	High	2031	Local
City of Willits	(WL22) Harden City Facilities. Retrofit city facilities with fireproof building materials to better withstand potential impacts of wildfire. (past action ma-WF-WL-275)	Public Works Director		Wildfire	1,2,3,4	High	2029	Local, FEMA HMGP, CAL FIRE (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL24) Water Plant & Airport Defensible Space. Regularly implement defensible space treatments for the water treatment plant and on the airport grounds.	Public Works Director		Wildfire	1,3,6	High	2031	Local, FEMA HMGP, CAL FIRE (Any project progress will be dependent on external funding opportunities)
City of Willits	(WL19) General Plan Wildfire Annex. Develop a Wildfire Annex to the EOP Element to address evacuation and sheltering.	Planning Director		Wildfire	3,4,5	Medium	2028	Local, FEMA HMGP
City of Willits	(WL21) Under-resourced Resident Vegetation Management. Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes. (past action ma-WF-WL-92)	Planning Director		Wildfire	1,2,3,4,5	Medium	2031	Local, FEMA HMGP, CAL FIRE
City of Willits	(WL23) Implement Mendocino County CWPP. Implement Mendocino County CWPP Mitigation Projects (Battalion 2: Willits) Including shaded fuel break to protect Willits water system, construct replacement fire station, and replace 1 aging fire apparatus. (past action ma-WF-WL-288)	Public Works Director		Wildfire	1,2,3,4	Medium	2028	Local, FEMA HMGP, CAL FIRE
City of Willits	(WL45) Vegetation Management Program. Develop vegetation management program to remove under story brush and excessive fuels around City roads, evacuation routes, and buildings. (ma-WF-WL-284)	Planning Director		Wildfire	1,2,3	High	2028	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
City of Willits	(WL25) Expedited Generator Permitting. Develop a program that allows for expedited permitting and review process for backup power generation at facilities that are considered critical during a natural disaster (grocery stores, gas stations, cell/communication towers). (ma-AH-WL-258)	Planning Director		Multiple	2,6	Low	2030	Local
City of Willits	(WL27) Expedited Permitting for Home Retrofits. Develop a program that creates incentives, through expedited permitting/review and reduced/waived permit fees, for homeowners and business owners to retrofit their homes and businesses to be more resilient to natural disasters. (ma-AH-WL-259)	Planning Director		Multiple	2,6	Low	2030	Local
City of Willits	(WL29) Vulnerable Population Outreach. Conduct outreach to the general public to better understand where vulnerable populations live within the City of Willits so that they can be better served by the city with hazard-related outreach. (ma-AH-WL-260)	Planning Director		Multiple	1,3,5	Medium	2031	Local
Covelo Fire Protection District	(CF1) New Fire Station. Replacement of the existing station with a new building constructed to updated building codes.	Fire Chief		Earthquake	1,3,6	High	2031	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
Covelo Fire Protection District	(CF2) Replacement Generator for Existing Fire Station. Purchase a replacement generator for the station, as the current generator has reached its useful life.	Fire Chief		Earthquake	1,2,4	High	2030	Local, FEMA HMGP (Any project progress will be dependent on external funding opportunities)
Covelo Fire Protection District	(CF3) Engine Bay Insulation & Heating. Insulate the entire engine bay and purchase/install heaters.	Fire Chief		Extreme Cold or Freeze	1,3	High	2031	Local, FEMA HMGP
Covelo Fire Protection District	(CF4) Engine Heaters. Purchase and install block heaters for the engines.	Fire Chief		Extreme Cold or Freeze	1,3	High	2029	Local
Covelo Fire Protection District	(CF5) Fire Station Grading. Regrade the land surrounding the station and re-route the existing irrigation system.	Fire Chief		Flood (inland)	1,2,6	High	2028	Local, FEMA HMGP
Covelo Fire Protection District	(CF6) Fire Station Sprinklers. Purchase and installation of a sprinkler system inside of the station.	Fire Chief		Wildfire	1,3	High	2031	Local
Covelo Fire Protection District	(CF7) Wildfire Education Campaign. Develop a public education campaign on wildfire mitigation. Materials will be distributed as part of the ongoing	Fire Chief		Wildfire	1,5,6	Medium	2031	Local

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	public engagement that will take place annually at community functions, including rodeos and festivals.							
Noyo Harbor District	(NH1) Develop and Implement a Dredge Management Plan. Develop and implement a dredge management plan, including a sediment removal project and a feasibility study to identify environmentally and logistically suitable disposal or reuse sites.	Noyo Harbormaster		Coastal Hazards	1,2,6	High	2028	Local
Noyo Harbor District	(NH2) Upgrade and Harden Sediment De-Watering Cell. Upgrade and, if necessary, harden the sediment de-watering cell to ensure continued functionality.	Noyo Harbormaster		Coastal Hazards	1,3,6	High	2030	Local, Economic Development Agency's Disaster Supplementals
Noyo Harbor District	(NH3) Coordinated Emergency Egress Route. Establish a coordinated emergency egress route from the north harbor across adjacent tribal land. Collaborate closely with tribal authorities to design, approve, and maintain this critical evacuation pathway, enhancing safe and efficient emergency access and egress for the community.	Noyo Harbormaster	Tribal Authorities	Tsunami	3,5,6	High	2031	Local
Noyo Harbor District	(NH4) Coordination with the Sheriff's Office and Local PD. Increasing coordination with the Sheriff's office and local PD is critical for crowd control measures during a tsunami event.	Noyo Harbormaster	Sheriff's Office, Fort Bragg PD	Tsunami	3,4,5	Medium	2026	Local
Noyo Harbor District	(NH5) Enhance Early Warning Systems for Vessel Owners in Noyo Harbor. Improve early alert and warning systems to ensure vessel owners in the Noyo Harbor District receive timely notifications of hazardous conditions. Early alerts provide operators with sufficient time to secure vessels or move offshore before coastal storms, tsunami warnings, or extreme wave events occur. This action includes strengthening communication systems, establishing direct notification protocols, and promoting enrollment in local and regional alert platforms to enhance maritime safety and reduce the risk of vessel damage.	Noyo Harbormaster	Cal OES, US Coast Guard	Tsunami	2,3,5	Medium	2031	Local
Noyo Harbor District	(NH6) Upgrade and Replace Aging Harbor Infrastructure. Upgrade and replace aging harbor infrastructure to withstand seismic events, severe storms, and increased wave action, while also accommodating larger and heavier vessels now using the port. Improvements will include reinforcing docks, piers, and bulkheads with modern, resilient materials and designs that meet current engineering and safety standards.	Noyo Harbormaster		Multiple	1,3,6	High	2031	Local, Infrastructure State Revolving Fund (ISRF) Program, Port Infrastructure Development Program

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
Redwood Coast Fire	(RC1) Feasibility Study for Secondary Water Source. Conduct a feasibility study to identify and develop a secondary water source for the fire protection district to ensure supply reliability.	Fire Chief	City of Point Arena	Drought	1,2,6	High	2028	Local, FEMA HMGP, DWR — Small Community Drought Relief Program, DWR — Urban Community Drought Relief Program, BOR, USDA
Redwood Coast Fire	(RC2) Improve Water Piping Infrastructure. Collaborate with Point Arena Water Works and the City of Point Arena to upgrade and improve water piping infrastructure for enhanced reliability and efficiency for the fire district.	Fire Chief	City of Point Arena, Point Arena Water Works	Drought	1,2,4	Medium	2030	Local
Redwood Coast Fire	(RC3) Study on Seismic Safety of Fire Stations. Conduct a study to assess and update fire stations to address seismic safety concerns.	Fire Chief		Earthquake	3,4	High	2028	Local, FEMA HMGP
Redwood Coast Fire	(RC4) Backup Generators for Fire Stations. Install backup generators on fire stations.	Fire Chief		Severe Storms	1,2,4	High	2029	Local, FEMA HMGP
Redwood Coast Fire	(RC5) Implement Microgrid Infrastructure and Electrical Redundancy for Critical Facilities. Design and install microgrid infrastructure and electrical redundancy systems at fire stations and critical facilities within the district boundaries to ensure operations continue during storm-related power outages. This action will strengthen local energy resilience by enabling islanding and providing dependable backup power, reducing service disruptions during severe storm events.	Fire Chief	City of Point Arena	Severe Storms	1,2,4	High	2031	Local, FEMA HMGP, The Microgrid Incentive Program (MIP)
Redwood Coast Fire	(RC6) Install Gate at Cove. Install a gate at the cove to be closed during tsunami events, enhancing public safety by preventing access and protecting people from potential hazards.	Fire Chief	City of Point Arena	Tsunami	1,3,6	High	2029	Local
Redwood Coast Fire	(RC7) Tsunami Signage. Install clear, visible signage to inform residents and tourists about tsunami risks within the district boundaries, outside the City of Point Arena, and safety procedures, thereby enhancing awareness and preparedness during tsunami events.	Fire Chief	City of Point Arena	Tsunami	3,5	Low	2029	Local, FEMA HMGP
Redwood Coast Fire	(RC8) Wildfire Mitigation Educational Campaign. Partner with the Fire Safe Council to conduct public outreach and education annually on defensible space around homes and businesses within the district boundaries.	Fire Chief	Fire Safe Council	Wildfire	1,5,6	Medium	2028	Local, FEMA HMGP
Redwood Coast Fire	(RC9) Fuel Reduction and Chipper Projects. Implement fuel-reduction and community-chipper projects in high-wildfire-risk areas within the fire	Fire Chief	CAL FIRE	Wildfire	1,3,6	Medium	2030	Local, FEMA HMGP, CAL FIRE

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
	protection district to reduce hazardous vegetation and support defensible-space efforts.							
Mendocino County Office of Education	(MCOE2) Conduct a localized vulnerability study for all facilities at risk from coastal hazards.	MCOE M&O Director		Coastal Hazards	1,4	Medium	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE4) Elevate at risk infrastructure and buildings.	MCOE M&O Director		Coastal Hazards	1,2,3	Low	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE5) Participate in the county-wide warning system program, led by the county as a participating jurisdiction. (previously ma-DF-MCOE-256)	MCOE M&O Director		Dam and Levee Failure	1,3,4,5	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE6) Emergency planning and studies for dam/levee failure scenarios.	MCOE M&O Director	Mendocino County	Dam and Levee Failure	1,2,4	Low	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE7) Identify secondary water sources or additional water storage for schools on wells. Leggett is a priority.	MCOE M&O Director		Drought	1,2,4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE8) Develop a drought management/contingency plan to minimize the adverse impacts of drought on faculty, students, and facilities. (previously ma-DR-MCOE-232)	MCOE M&O Director		Drought	1,2,3,4	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE9) Replace sports fields with irrigated turf grass with artificial turf that doesn't require watering. (previously ma-DR-MCOE-229)	MCOE M&O Director		Drought	1,2	Low	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE10) Retrofit landscape with drought tolerant plant species and ground cover to minimize water use. (previously ma-DR-MCOE-230)	MCOE M&O Director		Drought	1,2	Medium	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE11) Install infrastructure to permit the use of reclaimed water for landscaping.	MCOE M&O Director		Drought	2,4	Low	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE12) Conduct building seismic assessments for all schools. To include a review of unsecured contents and non-structural elements of all buildings. (previously ma-EQ-MCOE-249)	MCOE M&O Director		Earthquake	1,2,4	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE13) Complete DSA Retrofits for non-wood frame structures built before July 1, 1978 (Category 2 Buildings) on AB300 list that require detailed seismic evaluation. (previously ma-EQ-MCOE-250)	MCOE M&O Director		Earthquake	1,2,4	High	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE14) Repair and Seismically Upgrade, or remove from inventory, and Replace with permanent buildings, Portable Classrooms AND other essential facilities in portable structures. Structurally reinforce (by securing to the ground) certain portable classrooms for seismic conditions, where adequate per Code and cost-effective. Support additional portable classroom requirements in more cost-effective than permanent construction. (previously ma-EQ-MCOE-251)	MCOE M&O Director		Earthquake	1,2,3,4	High	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE15) Coordinating countywide MOUs through Mendocino OES for all districts.	Risk Manager	County OES	Earthquake	4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE16) Install gas shutoff valves on all buildings. (previously ma-EQ-MCOE-252)	MCOE M&O Director		Earthquake	1,2,3	High	2029	Local, FEMA HMGP

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
Mendocino County Office of Education	(MCOE17) Retrofit non-compliant suspended ceilings in district buildings. This includes Non-Structural Suspended Gypsum Dry-Wall & Cement Plaster Ceilings built 1950-1974. (previously ma-EQ-MCOE-253)	MCOE M&O Director		Earthquake	1,2,3	High	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE18) Draft and adopt an emergency operations plan that identifies and plans for alternative transportation routes in case of a natural disaster during school operating hours. (previously ma-EQ-MCOE-254)	MCOE M&O Director		Earthquake	1,3,4	Medium	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE19) Conduct an assessment of insulation and heating needs for remote and smaller schools.	MCOE M&O Director		Extreme Cold or Freeze	4	Low	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE20) Purchase equipment for sports teams to address heat stress.	Risk Manager		Extreme Heat	1,3	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE21) Continue to develop and update Heat Injury Illness Prevention Plans (HIIPP).	Risk Manager		Extreme Heat	1,2,3,4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE22) Upgrade/retrofit buses to include air conditioning. Ensure this is a standard feature on all new vehicles.	MCOE M&O Director		Extreme Heat	1,3	Medium	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE23) Upgrade HVAC systems that are adequate to handle projected future temperature increases and heat waves. (previously ma-EW-MCOE-257)	MCOE M&O Director		Extreme Heat		Medium		Local, FEMA HMGP
Mendocino County Office of Education	(MCOE24) Regrade selected sites to facilitate better drainage. (previously ma-FL-MCOE-247)	MCOE M&O Director		Flood (Inland)	1,2,3	High	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE25) Repair and maintain erosion on retention and detention basins for school sites. (previously ma-FL-MCOE-248)	MCOE M&O Director		Flood (Inland)	1,2	High	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE26) Conduct planning to identify transportation and access issues that can impact all schools. Develop mitigation solutions to these problems.	MCOE M&O Director		Flood (Inland)	1,3,4	Low	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE27) Install retaining walls or implement site-specific mitigation for schools in affected areas. Whale Gulch is a Priority.	MCOE M&O Director		Mass Earth Movements		Medium	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE28) Develop a formal vegetation removal and tree management program. (previously ma-EW-MCOE-209).	MCOE M&O Director		Severe Storms	1,2,3,4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE29) Rehabilitate school site drainage systems. (previously ma-FL-MCOE-245)	MCOE M&O Director		Severe Storms	1,2	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE30) Hardening of all schools to include necessary roof and window replacements.	MCOE M&O Director		Severe Storms	1,2,3	High	2031	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE31) Conduct evacuation planning for all coastal schools, including how to address transportation logistics. Point Arena and coastal charter schools are a priority.	MCOE M&O Director		Tsunami	1,3,4	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE32) On-going annual student and faculty training and education on communication protocols and siren coverage.	Risk Manager		Tsunami	1,3,4,5	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE33) Evaluate the need for backup communication systems for tsunami alerts.	Risk Manager		Tsunami	1,3,4,5	High	2028	Local, FEMA HMGP

Local Government	Mitigation Action	Local Government Lead	Partnering Organization(s)	Primary Hazard Mitigated	Relevant Goals	Priority	Timeframe for Estimated Completion	Potential Funding Source(s)
Mendocino County Office of Education	(MCOE34) Enhance building ventilation systems for wildfire smoke by improving air filtration options. (previously ma-WF-MCOE-241)	Risk Manager		Wildfire	1,3,4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE35) Assessment of schools in Wildland Urban Interface (WUI) and/or new high/extreme fire zones per updated CAL FIRE maps.	MCOE M&O Director		Wildfire	1,3,4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE36) Hardening all structures in high hazard zones.	MCOE M&O Director		Wildfire	1,2,3	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE37) Conduct an assessment to identify which schools require priority upgrades or hardening. (previously ma-WF-MCOE-242)	MCOE M&O Director		Wildfire	1,2,4	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE38) Upgrade fire notification systems where needed. Whale Gulch is a priority.	MCOE M&O Director		Wildfire	1,3,4,5	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE39) Vegetation and fuel reduction around school properties to ensure adequate defensible space. (previously ma-WF-MCOE-240)	MCOE M&O Director		Wildfire	1,2,3,6	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE40) Conduct an ingress/egress study of all schools to determine the prioritization of constructing additional roadways.	MCOE M&O Director		Wildfire	1,3	High	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE1) Purchase and install backup generators for all schools.	MCOE M&O Director		Multi-Hazard	1,2,3,4,6	High	2030	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE3) Replacement and/or improvements to antiquated storm drain infrastructure.	MCOE M&O Director		Multi-Hazard	1,2,3	Medium	2029	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE41) Install back-up generators at essential district facilities that currently lack backup power generation. (previously ma-WF-MCOE-243)	MCOE M&O Director		Multi-Hazard	1,2,3	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE42) Develop disaster warning system framework to disseminate information to districts, faculty, students, and families before, during, and after natural hazard events. (previously ma-AH-MCOE-255)	MCOE M&O Director		Multi-Hazard	1,3,4,5	High	2027	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE43) Assess and institute necessary upgrades to critical facilities to allow for usage during emergencies, including adequately filtered ventilation, fresh air options, and physical barriers. (previously ma-PN-MCOE-244)	MCOE M&O Director		Multi-Hazard	1,2,3	High	2028	Local, FEMA HMGP
Mendocino County Office of Education	(MCOE44) Integrate annual communications lists, which include amateur radio operators, into Emergency Operations Plan to mitigate communications failures during regional disasters. (previously ma-AH-MCOE-169)	MCOE M&O Director		Multi-Hazard	1,2,3,4	Medium	2029	Local, FEMA HMGP

Appendix D – Core Planning Team

The following list presents those individuals and organizations invited to contribute to the HMP update process. An asterisk (*) denotes those who participated in a planning meeting or workshop.

[to be added following final workshop]

Appendix E – Hazus Earthquake Summary Reports

Hazus: Earthquake Global Risk Report

Region Name: MendoEQ_Shakemap

Earthquake Scenario: M7.4-Maacama-Garberville v3

Print Date: October 06, 2025

Disclaimer:
Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

Table of Contents

General Description of the Region

Hazus-MH is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

California

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 3,542.50 square miles and contains 23 census tracts. There are over 36 thousand households in the region which has a total population of 91,601 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 37 thousand buildings in the region with a total building replacement value (excluding contents) of 22,748 (millions of dollars). Approximately 87.00 % of the buildings (and 63.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 4,343 and 1,896 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 37 thousand buildings in the region which have an aggregate total replacement value of 22,748 (millions of dollars) . Appendix B provides a general distribution of the building value by Total Region and County.

In terms of building construction types found in the region, wood frame construction makes up 78% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 141 beds. There are 72 schools, 50 fire stations, 9 police stations and 1 emergency operation facilities. With respect to high potential loss facilities (HPL), there are no dams identified within the inventory. The inventory also includes no hazardous material sites, no military installations and no nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 6,239.00 (millions of dollars). This inventory includes over 327.46 miles of highways, 356 bridges, 12,093.12 miles of pipes.

Table 1: Transportation System Lifeline Inventory

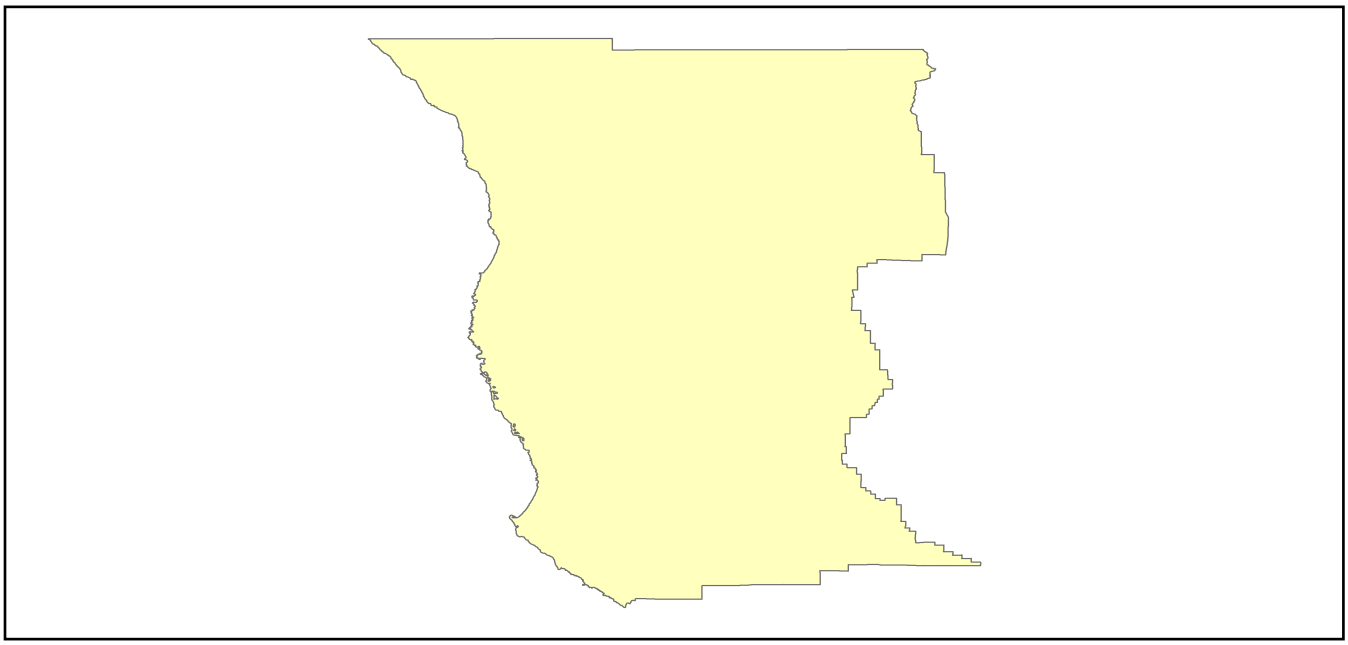
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	356	1008.0821
	Segments	55	2216.9999
	Tunnels	0	0.0000
		Subtotal	**3225.0820**
Railways	Bridges	103	586.0700
	Facilities	0	0.0000
	Segments	66	429.5919
	Tunnels	0	0.0000
		Subtotal	**1015.6619**
Light Rail	Bridges	0	0.0000
	Facilities	0	0.0000
	Segments	0	0.0000
	Tunnels	0	0.0000
		Subtotal	**0.0000**
Bus	Facilities	3	7.0323
		Subtotal	**7.0323**
Ferry	Facilities	0	0.0000
		Subtotal	**0.0000**
Port	Facilities	10	38.1184
		Subtotal	**38.1184**
Airport	Facilities	5	26.5000
	Runways	6	31.2019
		Subtotal	**57.7019**
		Total	**4,343.60**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	242.3246
	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**242.3246**
Waste Water	Distribution Lines	NA	145.3947
	Facilities	6	1031.7108
	Pipelines	0	0.0000
		Subtotal	**1177.1055**
Natural Gas	Distribution Lines	NA	96.9298
	Facilities	0	0.0000
	Pipelines	1	268.1122
		Subtotal	**365.0420**
Oil Systems	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**0.0000**
Electrical Power	Facilities	2	109.8713
		Subtotal	**109.8713**
Communication	Facilities	15	1.7700
		Subtotal	**1.7700**
		Total	**1,896.10**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.



Scenario Name	M7.4-Maacama-Garberville v3
Type of Earthquake	
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	0.00
Latitude of Epicenter	0.00
Earthquake Magnitude	7.40
Depth (km)	0.00
Rupture Length (Km)	0.00
Rupture Orientation (degrees)	0.00
Attenuation Function	

Direct Earthquake Damage

Building Damage

Hazus estimates that about 3,049 buildings will be at least moderately damaged. This is over 8.00 % of the buildings in the region. There are an estimated 8 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Damage Categories by General Occupancy Type

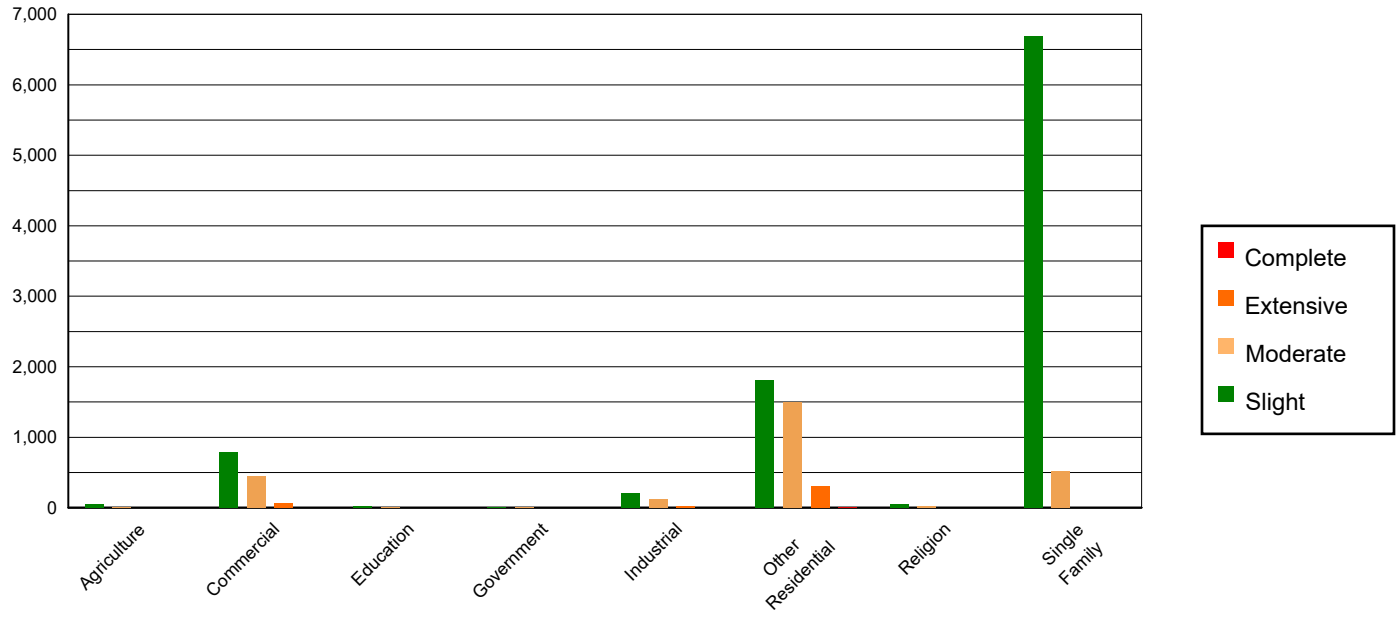


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	126.06	0.50	43.89	0.46	12.74	0.48	1.29	0.33	0.02	0.28
Commercial	2123.82	8.41	796.01	8.27	456.23	17.24	58.96	14.94	0.97	10.99
Education	78.37	0.31	17.81	0.18	4.70	0.18	0.12	0.03	0.00	0.00
Government	56.94	0.23	13.77	0.14	10.57	0.40	1.70	0.43	0.02	0.23
Industrial	519.33	2.06	207.24	2.15	124.24	4.69	17.82	4.51	0.36	4.14
Other Residential	3423.54	13.56	1815.28	18.86	1502.94	56.79	310.82	78.73	7.42	84.20
Religion	141.24	0.56	49.79	0.52	22.96	0.87	2.00	0.51	0.01	0.16
Single Family	18772.93	74.37	6682.00	69.42	512.00	19.35	2.08	0.53	0.00	0.00
Total	**25,242**		**9,626**		**2,646**		**395**		**9**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	21104.95	83.61	7769.02	80.71	655.95	24.79	3.52	0.89	0.00	0.00
Steel	611.31	2.42	225.34	2.34	190.11	7.18	37.92	9.60	1.00	11.34
Concrete	675.77	2.68	253.04	2.63	132.12	4.99	13.97	3.54	0.08	0.89
Precast	426.60	1.69	194.53	2.02	158.11	5.97	22.23	5.63	0.40	4.50
RM	1046.99	4.15	282.86	2.94	174.13	6.58	16.01	4.05	0.06	0.68
URM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH	1376.61	5.45	900.99	9.36	1335.96	50.48	301.14	76.28	7.28	82.60
Total	**25,242**		**9,626**		**2,646**		**395**		**9**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 141 hospital beds available for use. On the day of the earthquake, the model estimates that only 63 hospital beds (45.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 88.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	4	0	0	1
Schools	72	6	0	38
EOCs	1	0	0	0
PoliceStations	9	0	0	3
FireStations	50	0	0	36

Transportation Lifeline Damage

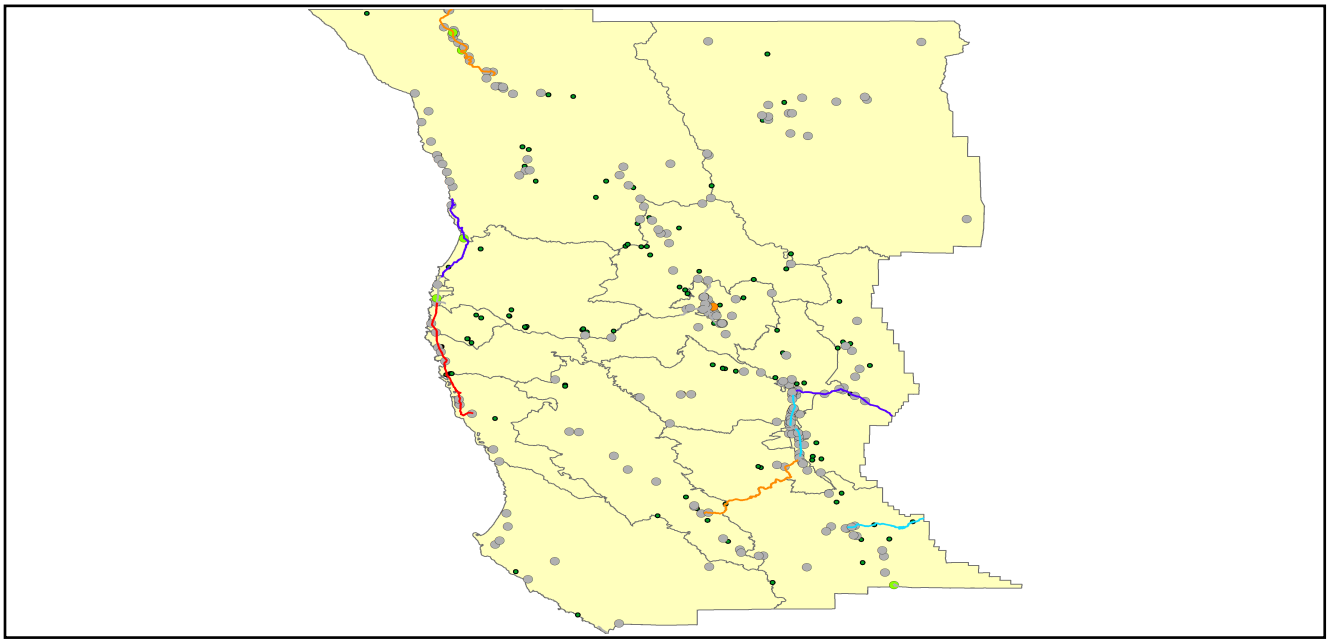


Table 6: Expected Damage to the Transportation Systems

System	Component		Number of Locations			
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	55	0	0	55	55
	Bridges	356	2	0	353	355
	Tunnels	0	0	0	0	0
Railways	Segments	66	0	0	66	66
	Bridges	103	0	0	103	103
	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	3	2	0	3	3
Ferry	Facilities	0	0	0	0	0
Port	Facilities	10	0	0	10	10
Airport	Facilities	5	2	0	5	5
	Runways	6	0	0	6	6

Table 6 provides damage estimates for the transportation system.

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	6	2	0	4	6
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	2	2	0	0	2
Communication	15	6	0	11	15

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	7,529	0	0
Waste Water	4,517	0	0
Natural Gas	47	0	0
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	36,280	0	0	0	0	0
Electric Power		14,022	8,567	3,292	257	19

Induced Earthquake Damage

Fire Following Earthquake

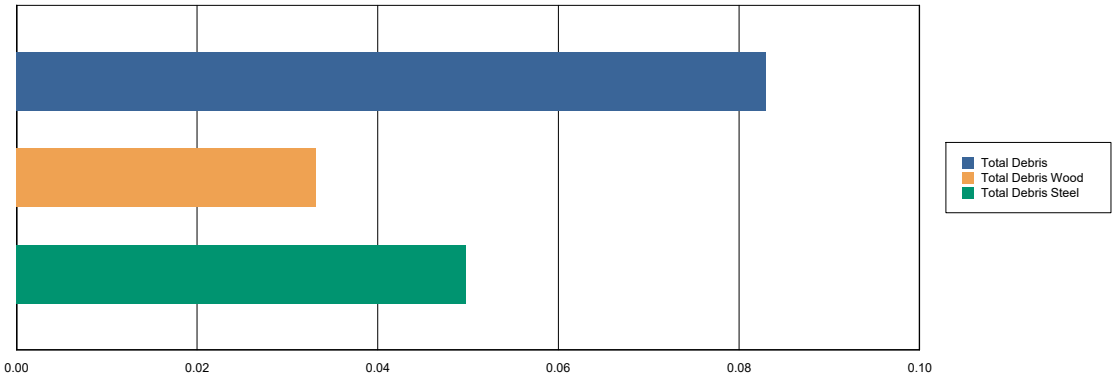
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will 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 handle the debris.

The model estimates that a total of 83,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 40.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 3,320 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



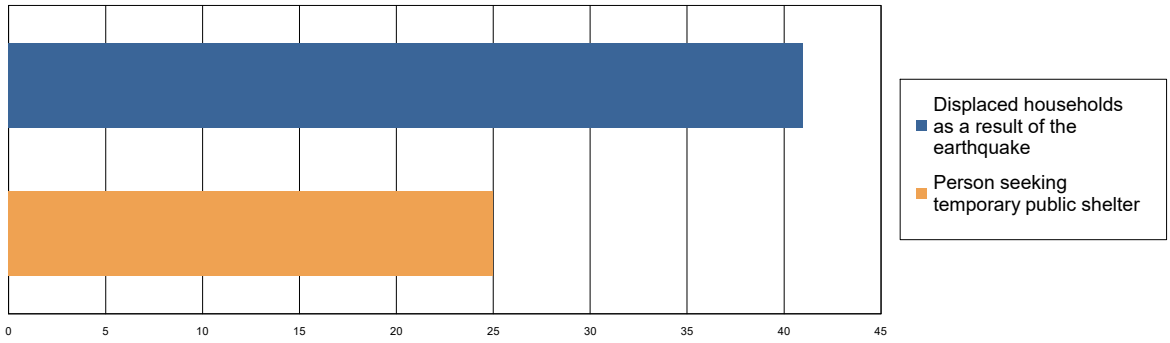
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
0.03	0.05	0.08	3,320 (@25 tons/truck)

Social Impact

Shelter Requirement

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 41 households to be displaced due to the earthquake. Of these, 25 people (out of a total population of 91,601) will seek temporary shelter in public shelters.

Displaced Households/ Persons Seeking Short Term Public Shelter



Displaced households as a result of the earthquake	Persons seeking temporary public shelter
41	25

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- 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.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0.36	0.04	0.00	0.00
	Commuting	0.01	0.01	0.02	0.00
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.01	0.00	0.00	0.00
	Industrial	0.36	0.04	0.00	0.00
	Other-Residential	19.94	2.01	0.03	0.04
	Single Family	13.19	0.47	0.00	0.00
	Total	**34**	**3**	**0**	**0**
2 PM	Commercial	22.14	2.19	0.05	0.09
	Commuting	0.09	0.13	0.20	0.04
	Educational	6.67	0.61	0.01	0.02
	Hotels	0.00	0.00	0.00	0.00
	Industrial	2.65	0.27	0.01	0.01
	Other-Residential	6.18	0.62	0.01	0.01
	Single Family	4.20	0.15	0.00	0.00
	Total	**42**	**4**	**0**	**0**
5 PM	Commercial	13.92	1.36	0.03	0.05
	Commuting	1.49	2.24	3.47	0.69
	Educational	0.62	0.04	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	1.65	0.17	0.00	0.01
	Other-Residential	7.15	0.72	0.01	0.01
	Single Family	4.79	0.18	0.00	0.00
	Total	**30**	**5**	**4**	**1**

Economic Loss

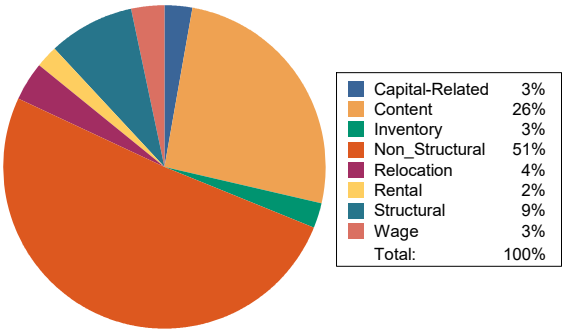
The total economic loss estimated for the earthquake is 1,070.34 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: 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 earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 863.37 (millions of dollars); 12 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 41 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Earthquake Losses by Loss Type ($ millions)



Earthquake Losses by Occupancy Type ($ millions)

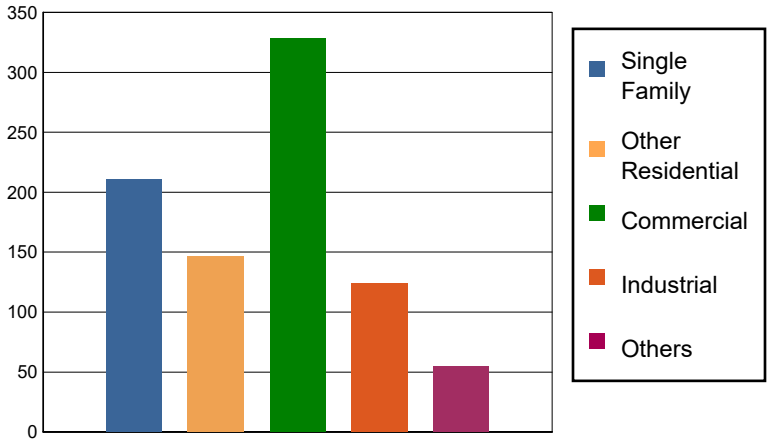


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	1.4102	24.7051	0.9827	0.9251	28.0231
	Capital-Related	0.0000	0.5997	21.5739	0.6217	0.2199	23.0152
	Rental	1.6646	3.9698	11.4361	0.6663	0.3888	18.1256
	Relocation	4.5366	6.3342	17.1718	3.3041	2.8377	34.1844
	Subtotal	**6.2012**	**12.3139**	**74.8869**	**5.5748**	**4.3715**	**103.3483**
Capital Stock Losses							
	Structural	18.3156	14.0993	27.8167	10.0427	5.3161	75.5904
	Non_Structural	130.9062	93.0569	130.8572	57.5367	27.1028	439.4598
	Content	55.5272	26.7397	80.8949	44.2070	15.6010	222.9698
	Inventory	0.0000	0.0000	13.3832	6.5692	2.0541	22.0065
	Subtotal	**204.7490**	**133.8959**	**252.9520**	**118.3556**	**50.0740**	**760.0265**
	Total	**210.95**	**146.21**	**327.84**	**123.93**	**54.45**	**863.37**

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. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Table 12: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2216.9999	0.0000	0.00
	Bridges	1008.0821	24.4102	2.42
	Tunnels	0.0000	0.0000	0.00
	Subtotal	**3225.0820**	**24.4102**	
Railways	Segments	429.5919	0.0000	0.00
	Bridges	586.0700	8.7299	1.49
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**1015.6619**	**8.7299**	
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	7.0323	2.5485	36.24
	Subtotal	**7.0323**	**2.5485**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	38.1184	3.0474	7.99
	Subtotal	**38.1184**	**3.0474**	
Airport	Facilities	26.5000	6.0978	23.01
	Runways	31.2019	0.0000	0.00
	Subtotal	**57.7019**	**6.0978**	
	Total	**4,343.60**	**44.83**	

Table 13: Utility System Economic Losses

(Millions of dollars)

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	242.3246	0.0002	0.00
	Subtotal	**242.3246**	**0.0002**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	1031.7108	119.4756	11.58
	Distribution Lines	145.3947	0.0001	0.00
	Subtotal	**1177.1055**	**119.4757**	
Natural Gas	Pipelines	268.1122	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	96.9298	0.0000	0.00
	Subtotal	**365.0420**	**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	109.8713	42.2232	38.43
	Subtotal	**109.8713**	**42.2232**	
Communication	Facilities	1.7700	0.4355	24.60
	Subtotal	**1.7700**	**0.4355**	
	Total	**1,896.11**	**162.13**	

Appendix A: County Listing for the Region

Mendocino,CA

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
California					
	Mendocino	91,601	14,237	8,510	22,748
Total Region		**91,601**	**14,237**	**8,510**	**22,748**

Hazus: Earthquake Global Risk Report

Region Name: MendoEQ_Shakemap

Earthquake Scenario: M7.8-N. San Andreas; North Coast + Penin

Print Date: October 06, 2025

Disclaimer:
Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

Table of Contents

General Description of the Region

Hazus-MH is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

California

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 3,542.50 square miles and contains 23 census tracts. There are over 36 thousand households in the region which has a total population of 91,601 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 37 thousand buildings in the region with a total building replacement value (excluding contents) of 22,748 (millions of dollars). Approximately 87.00 % of the buildings (and 63.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 4,343 and 1,896 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 37 thousand buildings in the region which have an aggregate total replacement value of 22,748 (millions of dollars) . Appendix B provides a general distribution of the building value by Total Region and County.

In terms of building construction types found in the region, wood frame construction makes up 78% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 141 beds. There are 72 schools, 50 fire stations, 9 police stations and 1 emergency operation facilities. With respect to high potential loss facilities (HPL), there are no dams identified within the inventory. The inventory also includes no hazardous material sites, no military installations and no nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 6,239.00 (millions of dollars). This inventory includes over 327.46 miles of highways, 356 bridges, 12,093.12 miles of pipes.

Table 1: Transportation System Lifeline Inventory

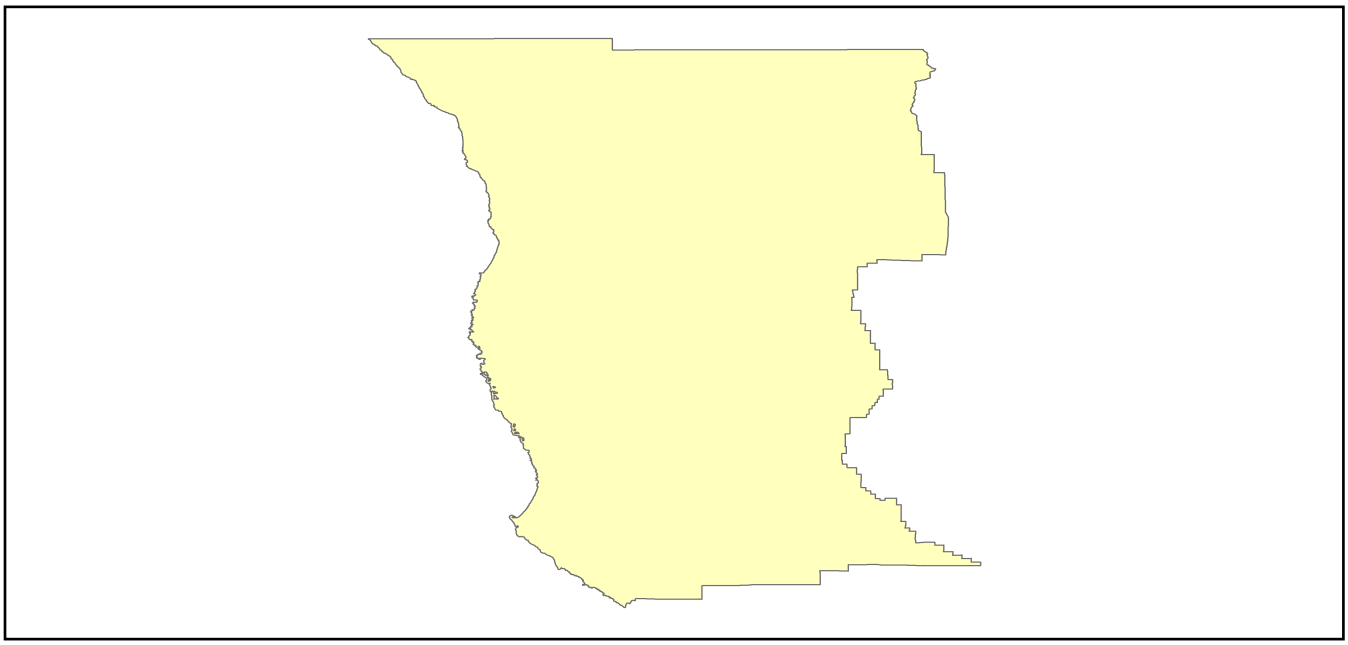
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	356	1008.0821
	Segments	55	2216.9999
	Tunnels	0	0.0000
		Subtotal	**3225.0820**
Railways	Bridges	103	586.0700
	Facilities	0	0.0000
	Segments	66	429.5919
	Tunnels	0	0.0000
		Subtotal	**1015.6619**
Light Rail	Bridges	0	0.0000
	Facilities	0	0.0000
	Segments	0	0.0000
	Tunnels	0	0.0000
		Subtotal	**0.0000**
Bus	Facilities	3	7.0323
		Subtotal	**7.0323**
Ferry	Facilities	0	0.0000
		Subtotal	**0.0000**
Port	Facilities	10	38.1184
		Subtotal	**38.1184**
Airport	Facilities	5	26.5000
	Runways	6	31.2019
		Subtotal	**57.7019**
		Total	**4,343.60**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	242.3246
	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**242.3246**
Waste Water	Distribution Lines	NA	145.3947
	Facilities	6	1031.7108
	Pipelines	0	0.0000
		Subtotal	**1177.1055**
Natural Gas	Distribution Lines	NA	96.9298
	Facilities	0	0.0000
	Pipelines	1	268.1122
		Subtotal	**365.0420**
Oil Systems	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**0.0000**
Electrical Power	Facilities	2	109.8713
		Subtotal	**109.8713**
Communication	Facilities	15	1.7700
		Subtotal	**1.7700**
		Total	**1,896.10**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.



Scenario Name	M7.8-N. San Andreas; North Coast + Penin
Type of Earthquake	
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	0.00
Latitude of Epicenter	0.00
Earthquake Magnitude	7.80
Depth (km)	0.00
Rupture Length (Km)	0.00
Rupture Orientation (degrees)	0.00
Attenuation Function	

Direct Earthquake Damage

Building Damage

Hazus estimates that about 462 buildings will be at least moderately damaged. This is over 1.00 % of the buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Damage Categories by General Occupancy Type

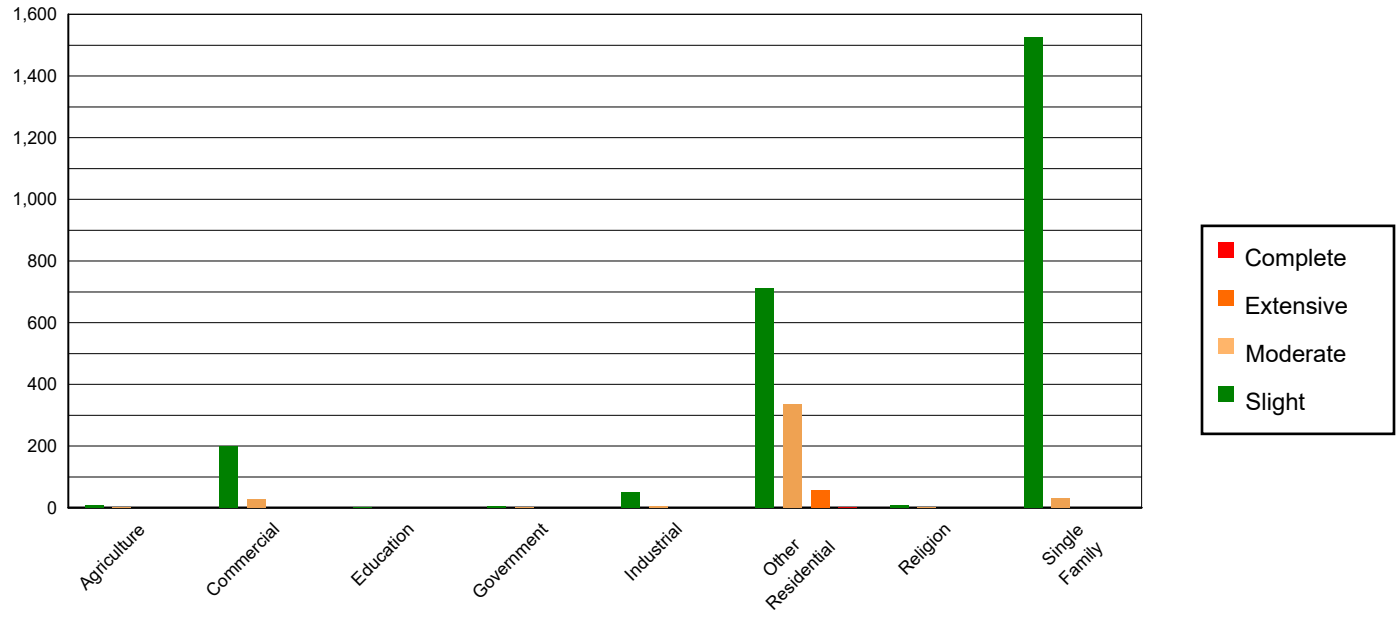


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	175.53	0.50	7.62	0.30	0.84	0.21	0.01	0.02	0.00	0.00
Commercial	3206.97	9.18	200.44	7.99	28.33	7.03	0.26	0.45	0.00	0.00
Education	99.18	0.28	1.74	0.07	0.08	0.02	0.00	0.00	0.00	0.00
Government	76.12	0.22	6.00	0.24	0.88	0.22	0.01	0.01	0.00	0.00
Industrial	814.07	2.33	48.81	1.94	6.08	1.51	0.04	0.07	0.00	0.00
Other Residential	5954.97	17.04	710.57	28.31	335.14	83.15	58.52	99.44	0.80	100.00
Religion	205.07	0.59	9.93	0.40	0.99	0.25	0.01	0.01	0.00	0.00
Single Family	24413.52	69.86	1524.76	60.75	30.71	7.62	0.00	0.00	0.00	0.00
Total	**34,945**		**2,510**		**403**		**59**		**1**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	27823.04	79.62	1677.08	66.82	33.32	8.27	0.00	0.00	0.00	0.00
Steel	965.54	2.76	83.90	3.34	16.03	3.98	0.21	0.36	0.00	0.00
Concrete	1016.83	2.91	54.38	2.17	3.75	0.93	0.01	0.02	0.00	0.00
Precast	726.05	2.08	62.74	2.50	12.97	3.22	0.10	0.18	0.00	0.00
RM	1452.86	4.16	59.74	2.38	7.42	1.84	0.03	0.04	0.00	0.00
URM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH	2961.12	8.47	572.03	22.79	329.55	81.76	58.49	99.39	0.80	100.00
Total	**34,945**		**2,510**		**403**		**59**		**1**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 141 hospital beds available for use. On the day of the earthquake, the model estimates that only 138 hospital beds (98.00%) 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 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	4	0	0	4
Schools	72	0	0	71
EOCs	1	0	0	1
PoliceStations	9	0	0	9
FireStations	50	0	0	45

Transportation Lifeline Damage

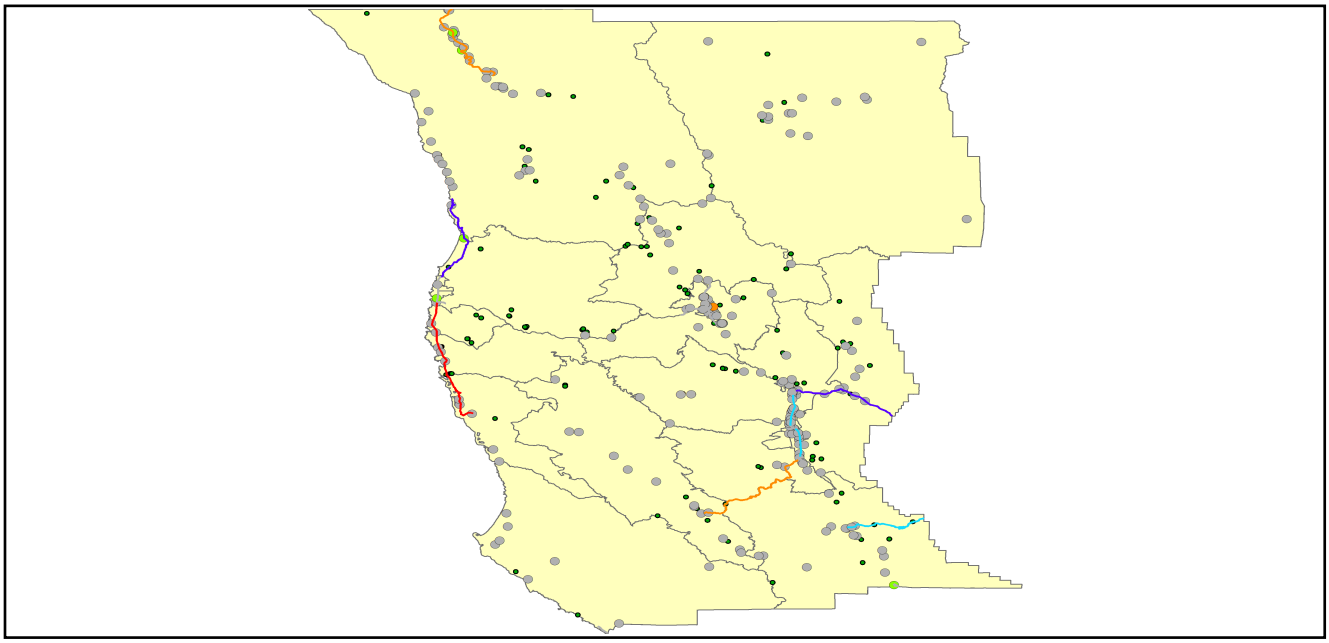


Table 6: Expected Damage to the Transportation Systems

System	Component		Number of Locations			
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	55	0	0	55	55
	Bridges	356	0	0	356	356
	Tunnels	0	0	0	0	0
Railways	Segments	66	0	0	66	66
	Bridges	103	0	0	103	103
	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	3	0	0	3	3
Ferry	Facilities	0	0	0	0	0
Port	Facilities	10	0	0	10	10
Airport	Facilities	5	0	0	5	5
	Runways	6	0	0	6	6

Table 6 provides damage estimates for the transportation system.

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	6	1	0	4	6
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	2	0	0	2	2
Communication	15	2	0	14	15

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	7,529	0	0
Waste Water	4,517	0	0
Natural Gas	47	0	0
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	36,280	0	0	0	0	0
Electric Power		1,226	705	241	14	2

Induced Earthquake Damage

Fire Following Earthquake

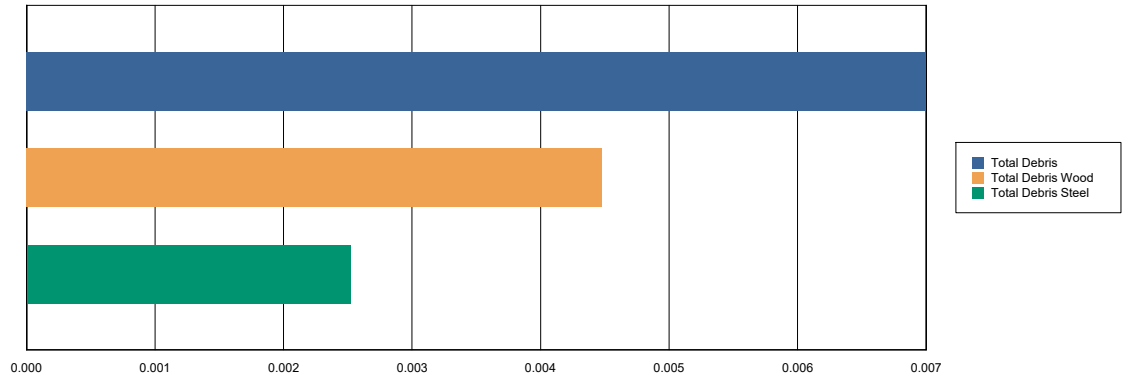
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will 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 handle the debris.

The model estimates that a total of 7,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 64.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 280 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
0.00	0.00	0.01	280 (@25 tons/truck)

Social Impact

Shelter Requirement

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 0 households to be displaced due to the earthquake. Of these, 0 people (out of a total population of 91,601) will seek temporary shelter in public shelters.

Displaced Households/ Persons Seeking Short Term Public Shelter

Displaced households as a result of the earthquake	Persons seeking temporary public shelter
0	0

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- 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.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0.02	0.00	0.00	0.00
	Commuting	0.00	0.00	0.00	0.00
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.03	0.00	0.00	0.00
	Other-Residential	3.61	0.33	0.00	0.00
	Single Family	1.59	0.02	0.00	0.00
	Total	**5**	**0**	**0**	**0**
2 PM	Commercial	1.62	0.08	0.00	0.00
	Commuting	0.01	0.01	0.02	0.00
	Educational	0.32	0.01	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.22	0.01	0.00	0.00
	Other-Residential	1.36	0.12	0.00	0.00
	Single Family	0.57	0.01	0.00	0.00
	Total	**4**	**0**	**0**	**0**
5 PM	Commercial	1.01	0.05	0.00	0.00
	Commuting	0.14	0.17	0.30	0.06
	Educational	0.03	0.00	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.13	0.01	0.00	0.00
	Other-Residential	1.28	0.12	0.00	0.00
	Single Family	0.57	0.01	0.00	0.00
	Total	**3**	**0**	**0**	**0**

Economic Loss

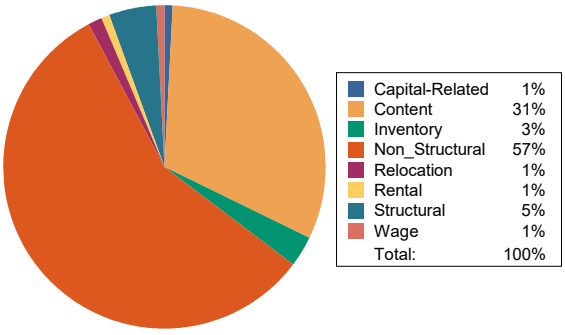
The total economic loss estimated for the earthquake is 263.65 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: 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 earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 162.02 (millions of dollars); 4 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 49 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Earthquake Losses by Loss Type ($ millions)



Earthquake Losses by Occupancy Type ($ millions)

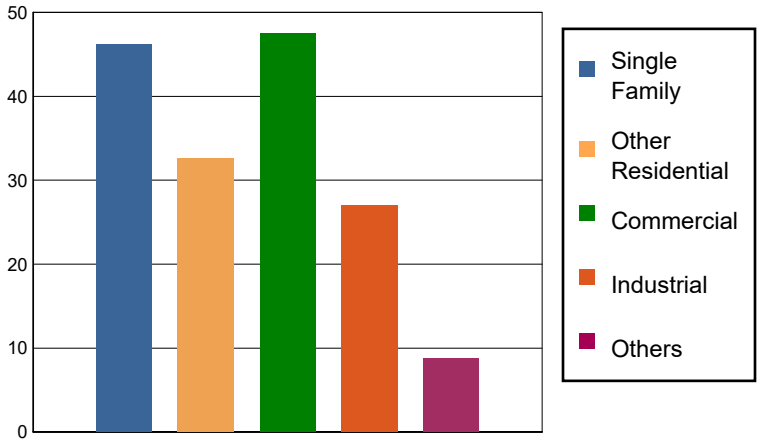


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	0.0882	1.0936	0.0547	0.1176	1.3541
	Capital-Related	0.0000	0.0374	1.1674	0.0350	0.0142	1.2540
	Rental	0.1895	0.5677	0.6554	0.0367	0.0331	1.4824
	Relocation	0.2572	1.0306	0.5045	0.1308	0.1031	2.0262
	Subtotal	**0.4467**	**1.7239**	**3.4209**	**0.2572**	**0.2680**	**6.1167**
Capital Stock Losses							
	Structural	3.0208	2.2054	1.4265	0.7323	0.2969	7.6819
	Non_Structural	29.0725	21.6101	23.2394	13.8090	4.7217	92.4527
	Content	13.6731	7.0224	16.6052	10.4900	3.1883	50.9790
	Inventory	0.0000	0.0000	2.8012	1.6838	0.3065	4.7915
	Subtotal	**45.7664**	**30.8379**	**44.0723**	**26.7151**	**8.5134**	**155.9051**
	Total	**46.21**	**32.56**	**47.49**	**26.97**	**8.78**	**162.02**

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. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Table 12: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2216.9999	0.0000	0.00
	Bridges	1008.0821	1.3766	0.14
	Tunnels	0.0000	0.0000	0.00
	Subtotal	**3225.0820**	**1.3766**	
Railways	Segments	429.5919	0.0000	0.00
	Bridges	586.0700	0.0354	0.01
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**1015.6619**	**0.0354**	
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	7.0323	0.7727	10.99
	Subtotal	**7.0323**	**0.7727**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	38.1184	4.8204	12.65
	Subtotal	**38.1184**	**4.8204**	
Airport	Facilities	26.5000	3.2921	12.42
	Runways	31.2019	0.0000	0.00
	Subtotal	**57.7019**	**3.2921**	
	Total	**4,343.60**	**10.30**	

Table 13: Utility System Economic Losses

(Millions of dollars)

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	242.3246	0.0001	0.00
	Subtotal	**242.3246**	**0.0001**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	1031.7108	76.5650	7.42
	Distribution Lines	145.3947	0.0001	0.00
	Subtotal	**1177.1055**	**76.5651**	
Natural Gas	Pipelines	268.1122	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	96.9298	0.0000	0.00
	Subtotal	**365.0420**	**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	109.8713	14.4728	13.17
	Subtotal	**109.8713**	**14.4728**	
Communication	Facilities	1.7700	0.2893	16.34
	Subtotal	**1.7700**	**0.2893**	
	Total	**1,896.11**	**91.33**	

Appendix A: County Listing for the Region

Mendocino,CA

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
California					
	Mendocino	91,601	14,237	8,510	22,748
Total Region		**91,601**	**14,237**	**8,510**	**22,748**

Appendix F – Plan Maintenance Resources

This appendix is provided to help guide and facilitate the annual plan monitoring and maintenance process.

Annual Maintenance Email Template

From: The County of Mendocino's Chief Recovery and Resiliency Officer

To: The County of Mendocino's Hazard Mitigation Planning Partners (FEMA-approved Local Governments)

Subject: Hazard Mitigation Plan Annual Review Meeting

Hello,

You have been identified as the primary contact for your organization relating to the County of Mendocino's Hazard Mitigation Plan (HMP). If there is an updated point of contact, please let me know.

This email relates to the annual maintenance process of the HMP. The county will be facilitating this plan review process, which is scheduled to follow the county's attendance at the California Financing Coordinating Committee's Fall Funding Fair.

Following is the meeting's agenda:

- Funding opportunities
- Recent hazard events (capture loss details)
- Past action status reporting
- New actions
- Cross-jurisdictional projects
- Review of action prioritization
- Mitigation successes (actions not captured in HMP) & benefits of implementation
- Integration with other planning mechanisms
- Needed plan amendments
- CRS overview and alignment with the HMP

This year's HMP review meeting will be held on xx/xx/xxxx [In-person, Hybrid, or Virtually]. In preparation for this meeting, you are asked to report on the implementation status of your organization's mitigation strategy. Attached is a guide and associated reporting spreadsheet to help Planning Partners capture this information.

Annual Maintenance Guide

This guide has been developed to assist Planning Partners in annual maintenance reporting. Please return this information prior to the annual maintenance meeting.

Planning Partner:

Past Action Status Reporting

Provide status updates for each of your local government's mitigation actions identified in the 2026 HMP. See the separately provided spreadsheet for reporting. Planning Partners can use this opportunity to reprioritize any of the actions.

Mitigation Progress (if applicable)

Use this section if Planning Partners would like to document any additional mitigation progress. This can include grant funding secured and the benefits of completed projects (losses avoided, etc.).

New Mitigation Actions (if applicable)

Planning Partners can use this annual HMP maintenance process to identify additional mitigation actions to document in the plan. Provide the following details for any new actions to be included in the HMP.

Mitigation Action & Details:

Local Government Lead:

Partnering Organization(s) – If applicable:

Primary Hazard Mitigated:

Priority (High, Medium, or Low):

Timeframe for Completion:

Potential Funding Sources – If applicable:

Mitigation Challenges (if applicable)

Use this section if Planning Partners would like to document any additional mitigation implementation challenges.