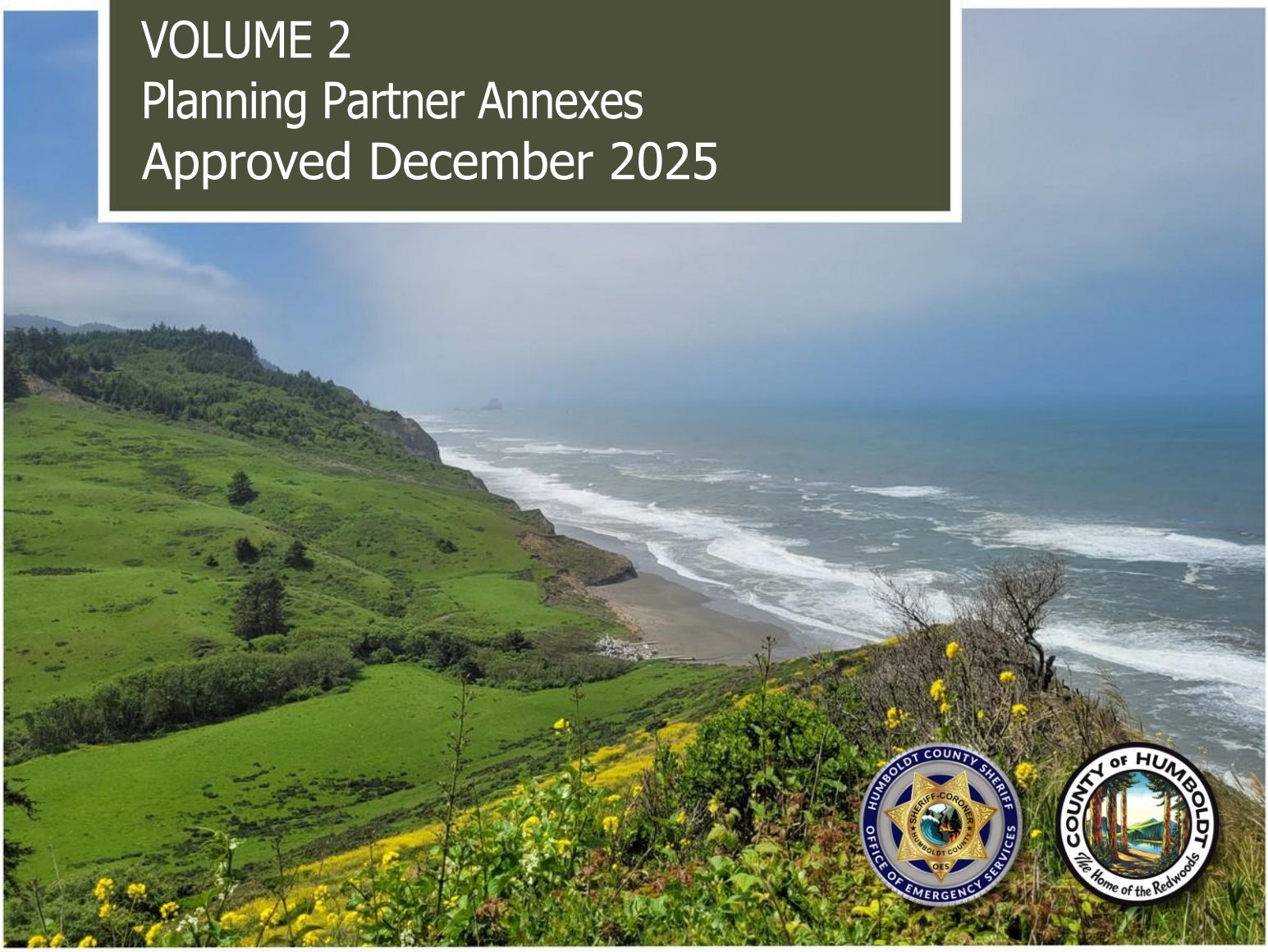
Humboldt County Operational Area

Hazard Mitigation Plan

VOLUME 2
Planning Partner Annexes
Approved December 2025



Cover photo courtesy of Lindsey Esh

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1. Unincorporated Humboldt County Annex

1.1. Planning Process

1.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including Humboldt County, the stakeholders and the public. Humboldt County was represented during the planning process by the following individuals listed in Table 1.

Table 1: Humboldt County Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Patric Esh	Program Coordinator	Humboldt County Sheriff's Office of Emergency Services (OES)	pesh2@co.humboldt.ca.us (707) 268-2500
Ryan Derby	Emergency Services Program Manager	Humboldt County Sheriff's OES	rderby@co.humboldt.ca.us 707) 268-2500

1.1.2. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 1 illustrates how the public was encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages. Humboldt County utilized a variety of communication channels that are free and easily accessible, such as Facebook and Instagram. Also, Figure 1 shows the flyer posted on public transportation and in locations easily accessible to the public.

Figure 1: Public Outreach Methods

In addition, the Hazard Mitigation Survey flyer was circulated to Patrick Creek Community Service District residents (see Figure 2).

Heidi Aldoroty
Patrick Creek Community Services District
5135 Patrick creek Dr.
Mckinleyville, CA 95519

707-840-9226 Land Line
HeidiAldoroty@gmail.com

March 3, 2025

Patrick Creek Community Services District
CC/BCC Block: All Residents
Enclosure: Board Meeting Notes (See reverse side)

Dear Community Members,

We need your help!

PCCSD is working with Humboldt County to secure funding for critical infrastructure improvements, including roads, water, and power. Our priorities include:

1. Improving drainage on Patrick Creek Dr. and Little River Dr. to prevent flooding.
2. Stabilizing these roads to reduce landslide and earthquake risks.
3. Implementing wildfire mitigation, including shaded fuel breaks and vegetation management.
4. Developing wildfire and tsunami evacuation plans with educational resources.

To support these efforts, please **complete the survey** at www.Humboldtgov.org/HazardMitigation ("Take the Survey," see reverse). Your input will help us secure county funding to address flooding, maintain water access, and ensure emergency services remain uninterrupted.

Thank you for your participation!

Sincerely,

Heidi Aldoroty

Heidi Aldoroty

Director Board President
Patrick Creek Community Services District

Figure 2: Patrick Creek Community Service District Letter

1.1.2.1. VULNERABLE POPULATION OUTREACH

Some Humboldt County residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Humboldt County may have less access to information and resources to help mitigate risk and

increase preparedness for emergencies. To better understand the risks and vulnerabilities the county residents face, this planning update developed a bilingual public survey in English, Spanish and Hmong languages that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels. Figure 3 illustrates how the county partnered with tribal governments to advertise the survey specifically to vulnerable populations.

Figure 3: Bear River Band of Rohnerville Rancheria Tribal Government Social Media Post

Some other outreach methods included resources like Nextdoor and website news flashes, as these are more frequently used by underserved populations, including seniors. Humboldt County sent an email to 408 contacts. A press release went out to the County Administrative Office's listserv, which has 4,389 subscribers, including all of the press contacts, and the Sheriff's Office listserv, which has 686 subscribers, including press contacts. The Sheriff's Office and the Office of Emergency Services (OES) sent out three social media posts throughout the survey period. The Department of Health and Human Services received more than 200 flyers to distribute to its clients via standard mail. The Food for People organization received over 100 flyers to distribute to its clients. In addition, information about the Humboldt County Hazard Mitigation update and hazard survey was sent to the publication of Humboldt Senior Resource Center, Senior News, to be published in their newsletter for distribution to their subscribers (see Figure 4).

Senior News • March 2025 March On! Page 23

Opinion

Stop Congress' Attack on Medicaid (Medi-Cal)

By Maggie Kraft

Republicans in Congress have announced budget-cut proposals that could dramatically curtail the Medicaid program (referred to as Medi-Cal in California) These plans call for cutting nearly $900 billion in federal spending, putting Medicaid funding at grave risk. The irony is that Medicaid is extremely popular among Americans, with 77% viewing the program favorably.

Medicare and Medicaid are not the same things, but were created by the same legislation that was added to the Social Security Act in 1965. Medicaid is a government health insurance program for people with low incomes and adults and children with disabilities. Medicare generally covers people 65 and older. Low-income older adults 65 and older often qualify for both.

More than 79 million people receive services from Medicaid or the closely related Children's Health Insurance Program and 20 percent of the U.S. population qualify, mostly due to low incomes, along with 40 percent of U.S. children. Of those under 65 who qualify, 40 percent are white, 30 percent Hispanic, 19 percent Black, and 1 percent Indigenous people.

Medicaid expansion occurred when the Affordable Care Act of 2010 allowed more people to qualify. The intent was to provide health insurance access for millions who didn't receive insurance through an employer or who were denied due to pre-existing health conditions. States were offered federal incentives to add people to the program and the funds helped pay for the expansion.

The federal government matches at least 50 percent of state spending. Less wealthy states receive a higher match. For example, in Mississippi the federal government picks up 77 percent of the cost of Medicaid.

Through the program, hundreds of billions of federal dollars flow to the states each year. In 2023, states spent only about 15 percent of their own budgets on Medicaid. Without federal funding, many states will not be able to continue Medicaid coverage for millions of their residents, young or old.

Healthcare systems, particularly in rural areas, survive thanks to a mix of payers for healthcare services. For many of those healthcare systems, Medicaid funding is the lion's share of their funding and without it, they may not have the money to pay their medical practitioners for all of us, regardless of our insurance source.

Medicaid is not just a safety net; it is a lifeline for seniors. Without it, many seniors could not afford home-based or nursing facility care and would struggle to meet high out-of-pocket costs associated with Medicare. The proposed cuts would starve Medicaid, forcing states to reduce spending by cutting access to these essential benefits, leaving older adults without health care and support they need.

Lawmakers must reject any budget that would be at the expense of the well-being of older adults, people with disabilities and children. Call your lawmakers to demand they ensure continued access to the care and supports so many need and protect Medicaid: 866-426-2631.Talk to your friends in other states, who may not know the impact this will have on their lives, even if they aren't receiving Medicaid.

Thank you to Justice in Aging and KFF Health News for the information used in this article.

Maggie Kraft, MSW *is the Executive Director of the Area 1 Agency on Aging in Eureka, CA.*

Gratitude

To the Editor:

Thank you, Ted and Senior News, for a ray of warmth and hope in these pages. I especially loved "Grateful for the World of My Youth" (January 2025, p 10), Jean Paulson's sublime prose poem celebrating the landscape of her childhood in Wisconsin, which was also mine. And Jackie Ginn's poem, "Humboldt County" (November 2024, p 23), celebrating where we are now, the magic of our special place.

Fran Ransley, *Eureka*

Life Journey

Thank you so much, John Heckel, for your insightful article this month ("The Value of Life," February 2025, p 10). I am beginning the journey with my beloved wife and dealing with the mental and physical changes in both of us. Her lack of balance has resulted in yet another fall and hospital visit, then to rehabilitation. To be present as she declines mentally is a daily and different experience. You have given me insight and I thank you.

Kent Wrede, *Fortuna*

What Are Your Hazard-Mitigation Priorities?

The Humboldt County Sheriff Office of Emergency Services (OES) invites community members' input regarding the 2025 update to the county's Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP), used to reduce potential risks from natural disasters.

Detailed information, as well as the survey, can be found online at https://humboldtgov.org/3587/2025-Local-Hazard-Mitigation-Plan. The survey is available until Monday, March 24 at 8 pm. The survey takes approximately 15 minutes to complete, and all responses will remain confidential. Questions? Email oes@co.humboldt.ca.us or call 707-268-2500.

Figure 4: Humboldt Senior Resources – Senior News

1.1.3. Plan Integration

1.1.3.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 2.

Table 2: Previous Plan Integration for Humboldt County

Plan Name	Description
General Plan Safety Element	The county recently updated the General Plan. This plan directly referenced the last mitigation plan's summary of the hazards the county faced and incorporated mitigation actions from the last hazard mitigation plan, including all the high-priority actions.
Community Wildfire Protection Plan (CWPP)	There have been efforts to cross-reference the CWPP and the Local Hazard Mitigation Plan (LHMP). The data and analysis presented in the risk assessment were among several sources that informed CWPP priority actions. The wildfire goals in the mitigation plan incorporated those of the CWPP by reference.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 3 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 3: Future Types of Plan Integration for Humboldt County

Type of Plan	Integration Method
Alignment of projects between the HMP, CAP, CWPP, DRP and EOP	The county is updating the CWPP; the current plan will expire soon if it has not already. The county is in the final stages of adopting a Climate Action Plan (CAP), which may have projects that align with mitigation strategies. A Drought Resilience Plan (DRP) is also in its final stages, and it may have projects that align with mitigation strategies. The Emergency Operations Plan (EOP) is currently being updated. This plan sets the framework for emergency response and recovery operations in Humboldt County.
Desire to integrate LHMP and CWPP	The data and analysis presented in the risk assessment were among several sources that informed CWPP priority actions. The wildfire goals in the mitigation plan incorporated those of the CWPP by reference.

1.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 4 and Table 5. For further information about these hazards, including extent, please refer to Volume 1 of this Hazard Mitigation Plan (HMP).

Table 4: Humboldt County Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	Yes	N/A

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 5: Humboldt County Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Medium	High	Medium	Medium	High
Drought	High	Low	Low	Low	Medium
Earthquake	High	High	High	High	High
Extreme Temperatures	Medium	Medium	Medium	Low	Medium
Flooding	High	High	Medium	Medium	High
Landslide	High	Medium	Medium	Low	High
Tsunami	Medium	High	Medium	High	High
Wildfire	High	High	Medium	Medium	High
Wind	High	Medium	Medium	Medium	High
Winter Weather	High	Medium	Medium	Low	High

Note: The process used to assign risk rankings is described in Volume 1.

1.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in Humboldt County. Other hazard events that broadly affected the entire planning area, including Humboldt County, are listed in the risk assessments in Vol. 1.

1.2.1.1. HISTORICAL EVENTS

Humboldt County received a Federal Disaster Declaration awarding public assistance grants under DR-4434 for Severe Winter Storms, Flooding, Landslides and Mudslides on May 18, 2019. Local reports indicate approximately $6,110,000 in public assistance grant funds was obligated for damages from this hazard event.[1]

Table 6 presents a summary of the storm events that have occurred in Humboldt County from Nov. 1, 2019 to Dec. 31, 2024, according to the National Centers for Environmental Information (NCEI) database.

[1] Federal Emergency Management Agency. Disaster Declarations, DR-4434-CA. 2025. https://www.fema.gov/disaster/4434

Table 6: NCEI Storm Event Database for Humboldt County (2019–2024)

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Northern Humboldt Interior	1/26/2021	Strong wind	0	0	$6,000.00	$0.00
Northern Humboldt Coast	4/9/2022	Strong wind	0	0	$7,500.00	$0.00
Northern Humboldt Coast, Southern Humboldt Interior	12/10/2022	Strong wind	0	0	$12,000.00	$0.00
Southwestern Humboldt, Northern Humboldt Coast	12/26/2022	Strong wind	0	0	$13,000.00	$0.00
Southwestern Humboldt, Northern Humboldt Coast, Southern Humboldt Interior, Northern Humboldt Interior	12/27/2022	Strong wind	0	0	$23,000.00	$0.00
Southwestern Humboldt, Southern Humboldt Interior, Northern Humboldt Coast, Northern Humboldt Interior	1/4/2023	Strong wind, high wind	0	0	$179,000.00	$0.00
Southern Humboldt Interior, Southwestern Humboldt, Northern Humboldt Interior	1/5/2023	Strong wind	0	0	$6,000.00	$0.00
Northern Humboldt Coast, Southern Humboldt Interior	1/7/2023–1/9/2023	Strong wind	0	0	$8,000.00	$0.00
Southern Humboldt Interior	1/14/2023	Strong wind	0	0	$1,000.00	$0.00
Northern Humboldt Coast	3/5/2023	High wind	0	0	$1,000,000.00	$0.00
Northern Humboldt Coast	3/14/2023	High wind	0	0	$1,000,000.00	$0.00

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Northern Humboldt Coast	3/27/2023	High wind	0	0	$8,000,000.00	$0.00
Southwestern Humboldt, Northern Humboldt Coast, Southern Humboldt Interior, Northern Humboldt Interior	3/1/2024–3/3/2024	High wind	0	0	$58,100.00	$0.00
Humboldt County, Trinidad	3/1/2024	Thunderstorm wind	0	0	$1,000.00	$0.00
Humboldt County, Fernbridge	3/1/2024	Thunderstorm wind	0	0	$1,000.00	$0.00
Southwestern Humboldt, Northern Humboldt Coast, Southern Humboldt Interior, Northern Humboldt Interior	3/1/2024-3/3/2024	Winter weather	0	0	$1,500.00	$0.00
Northern Humboldt Coast, Northern Humboldt Interior	3/23/2024	High wind	0	0	$2,000.00	$0.00
Northern Humboldt Coast, Southwestern Humboldt	11/1/2024	High wind	0	0	$15,000.00	$0.00
Northern Humboldt Coast, Northern Humboldt Interior	11/19/2024–11/20/2024	High wind	0	0	$17,500.00	$0.00
Northern Humboldt Coast	12/13/2024	High wind	0	0	$1,000.00	$0.00
Northern Humboldt Coast	12/13/2024	High wind	0	0	$1,000.00	$0.00

The NCEI database does not always capture localized hazard data. To address this gap, Humboldt County has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **2021–2023:** Damaged grazing land for livestock. Impacts to local fishing industry due to restrictions, potential impacts on water systems.

EARTHQUAKE

- **Dec. 5, 2024:** Business interruption. Residents reported minor damages.
- **Dec. 20, 2022:** Approximately 25% of City of Rio Dell's housing was impacted and major damage to the city's water lines. The City of Eureka and Fortuna experienced some building damage
- **Dec. 20, 2022:** Two fatalities and multiple injuries, damaged critical infrastructure, business interruption, caused landslides that caused road closures, damaged communications cell towers and caused power outages. Governor signed a State Proclamation.

EXTREME COLD

- **January–March, 2024:** No reported damage.
- **November, 2023:** No reported damage.
- **February–March, 2023:** No reported damage.

EXTREME HEAT

- **July, 2024:** Cooling centers opened in Hoopa, Willow Creek and Garberville.

FLOODING

- **Jan. 13, 2024:** Business interruption and structural damage. High flows from inflow and infiltration at wastewater treatment plant. Many roadways impassible. Agricultural lands inundated with water.
- **December, 2022-February, 2023:** Business interruption and structural damage. High flows from inflow and infiltration at wastewater treatment plant. Many roadways impassable. Agricultural lands inundated with water.

- **October–December, 2021:** Business interruption and structural damage. High flows from inflow and infiltration at wastewater treatment plant. Many roadways impassable. Agricultural lands inundated with water.
- **January–February, 2019:** Business interruption and structural damage. High flows from inflow and infiltration at wastewater treatment plant. Many roadways impassable. Agricultural lands inundated with water.
- **Feb. 27, 2019:** Deep-layer westerly flow aided in a persistent influx of moisture across the steep coastal terrain of northwest California. Heavy rain occurred as a result, leading to rapid rises on creeks, streams and rivers. Numerous instances of flooding were observed, which resulted in road closures and one fatality. One fatality of an individual crossing floodwaters on the Eel River. Water was reported to be 4 to 5 feet deep and fast-moving.

LANDSLIDE

- **January–March, 2024:** Isolation from main highways (101 and 299) being impassable; road closures. Heavy sediment loads flowing into waterways.
- **Jan. 6, 2023:** Isolation from Highway 101 at Last Chance Grade being impassable. Heavy sediment loads flowing into waterways.
- **Jan. 2, 2023:** Isolation from Highway 299 being impassable. Heavy sediment loads flowing into waterways.
- **Dec. 20, 2022:** Landslides which caused road closures. Governor signed a State Proclamation.
- **Jan. 14, 2021:** Isolation from Highway 299 being impassable. Heavy sediment loads flowing into waterways.
- **Feb. 25, 2019:** Isolation from Highway 299 being impassable. Heavy sediment loads flowing into waterways.

TSUNAMI

- **Dec. 5, 2024:** Business interruption; no damages reported.
- **Jan. 6, 2022**: Business interruption; no damages reported.

WILDFIRE

- **July–August, 2024:** Hill Fire affected the Willow Creek area. Evacuations were conducted and roads were closed.
- **July, 2024**: Point Fire affected the area near Garberville. One structure was damaged, evacuations were conducted and roads were closed.
- **August, 2024:** Boise Fire affected the Orleans area. Evacuations were conducted and roads were closed.

- **August–October, 2023:** Six Rivers (SRF) Lightning Complex and Redwood Lightning Complex fires affected 50,000 acres and included 15 confirmed fires.
- **August, 2023:** Bighill #2, Hoopa Valley Tribe, 14 miles northwest of Willow Creek. Timber and brush, minimal fire behavior with smoldering. Structures and communication infrastructure were threatened. Area and road closures were in effect.
- **August, 2022:** SRF Lightning Complex Fire affected the Hoopa and Willow Creek area. Law enforcement enforced evacuation plans and roadblocks, and shelters were created.
- **April–June, 2021:** Knob Fire affected the Willow Creek area. Evacuations were conducted, law enforcement enforced roadblocks, and shelters were created.
- **August–November, 2020:** Public safety power shutoff events, with extended power shutoffs. Business interruption. Food spoilage.

WIND

- **March 5, 2023:** Steep pressure gradients accompany active winter weather with non-thunderstorm related peak winds and wind gusts, causing $1 million in property damage and road closures as well as accumulation of precipitation. A fallen tree halted traffic across Highway 101, 1 mile northeast of Orick.
- **March 14, 2023:** Non-thunderstorm-related wind damage felled a tree 25 to 30 inches in diameter and 100 plus feet in length, blocking the northbound lane of Highway 101. Property damage was reported at $1 million.
- **March 27, 2023:** Mid- to late March continued with more winter weather and moderate snow accumulations, as well as non-thunderstorm-oriented high winds. Wind damage from gusts not associated with convective cells produced damaging winds 1 mile east-southeast of Carlotta and Tompkins Hill Road. Power lines and trees were downed.

WINTER WEATHER

- **Jan. 13, 2024:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.
- **December, 2022–February, 2023:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.
- **November–December, 2021:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.
- **January–February, 2019:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.

1.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 7 provides information on a few key vulnerabilities and impacts on the jurisdiction.

Table 7: Humboldt County Vulnerabilities and Impacts

Hazard	Vulnerabilities
Dam Failure	*Vulnerabilities:* Communities, recreational areas and campgrounds downstream of several dams in Humboldt County including those along the Mad River, Eel River and Big Lagoon, are at-risk. Tourists, outdoor enthusiasts and residents in dam inundation areas are vulnerable, particularly those who would have difficult evacuating. Community lifelines, such as water systems that rely on water from Eel River, are vulnerable. *Impacts:* Dam failure can destroy structures, infrastructure and natural resources. Water supply can be contaminated. Additionally, dam failures can result in loss of life or injury.
Drought	*Vulnerabilities:* Water supply, ecosystems, agriculture and livelihoods are at-risk of drought. Communities which rely on ground water are particularly susceptible. Many community members rely on private wells, while others use public water systems based on the collection and treatment of groundwater runoff. This has been a vulnerable area for the last several years. Agricultural areas, such as the Eel River Valley, could be affected by prolonged dry periods. Garberville and Redway could be vulnerable to prolonged drought because of their reliance on small water systems and domestic wells. *Impacts:* Drought can disrupt water infrastructure, ecosystems and economic activities, particularly agriculture and water-based industries. Water conservation measures might be required and utility rates can rise.
Earthquake	*Vulnerabilities:* Humboldt County is highly vulnerable to earthquakes due to its location near the Mendocino Triple Junction, where three tectonic plates meet. All people, property and infrastructure in the planning area is vulnerable to this hazard. *Impacts:* Earthquakes of magnitude 7.5 or greater cause concern for all communities and affect critical infrastructure, transportation routes and bridges. Coastal areas may face additional risks from tsunamis, while inland regions could experience landslides and liquefaction, disrupting daily life and emergency response efforts.
Extreme Cold	*Vulnerabilities:* During the winter months, eastern and southern Humboldt communities are vulnerable to extreme cold, which includes disruptions to water systems and domestic wells. *Impacts:* Extreme cold events could result in loss of life or injury. Infrastructure, particularly water and power community lifelines, could be damaged or disrupted.

Hazard	Vulnerabilities
Extreme Heat	*Vulnerabilities:* Summer heat poses risks to communities, especially the elderly, the unhoused and individuals with health conditions, although cooling stations and shelters are effective mitigation strategies. *Impacts:* Excessive heat can lead to increased demand on county resources, requiring cooling stations to accommodate sheltering needs for the population with no access to air cooling systems. Extreme heat temperatures can put a stress on the local electrical grid and impact the water supply levels from increase in demands, resulting in county mandated rationing and restriction policies. Also county populations may be impacted during prolonged service disruptions during power outages.
Flooding	*Vulnerabilities:* Many communities along the Eel River, Mad River and Humboldt Bay face flood vulnerabilities, which are primarily in low-lying coastal areas and river floodplains. Communities like Fields Landing, King Salmon and Ferndale are particularly at risk due to rising water levels, storm surges and potential levee breaches. The cascading hazards, such as landslides and debris flows, cause additional hazards to those communities and roadways. Both people and infrastructure in this area are vulnerable. Furthermore, flooding can happen anywhere across the county. *Impacts:* Floods can damage or destroy structures infrastructure, kill or injury people and cause significant economic losses.
Landslide	*Vulnerabilities:* Transportation routes, water pipes, power utilities and community ease of movement are vulnerable to landslides. People, particularly traveling along transportation routes such as U.S. Highway 101, may be in danger. *Impacts:* Transportation routes can be closed temporarily or for extended periods of times, resulting in delays for first responders and economic losses. Community lifelines, including water and energy infrastructure, can be damaged or destroyed. People can be injured or killed, particularly along at-risk roadways.

Hazard	Vulnerabilities
Tsunami	*Vulnerabilities:* Low-lying coastal areas, proper communication, identified tsunami hazard areas and drinking water are all vulnerable. Community assembly points also are vulnerable along dedicated tsunami evacuation paths and trails and are exposed to the elements during the event. Communities on the Samoa Peninsula, King Salmon, Fields Landing and parts of Eureka are significantly vulnerable to tsunamis. The unhoused and other vulnerable populations with more limited ability to evacuate are more vulnerable. *Impacts:* Tsunamis can damage or destroy property and infrastructure. Tsunami waves can kill, injure or displace people. Depending on the event, people may be displaced for hours or days at a time. More extensive losses could have significant economic and environmental impacts.
Wildfire	*Vulnerabilities:* Power infrastructure, critical facilities, community structures, transportation routes, cultural and historical areas and communications towers have vulnerable locations, all designated in the wildland urban interface zones. Eastern and southern county communities have higher risk of wildfire. These communities include Willow Creek, Hoopa, Garberville, Redway and other smaller communities. Secondary effects, such as smoke and air quality, affect those communities and the rest of the county. The environment and economy, particularly activities in the outdoors are vulnerable. *Impacts:* Critical facilities, community lifelines and property can be damaged or destroyed. People can be killed or injured. Furthermore, people, including vulnerable populations like people with preexisting conditions, can experience health impacts due to smoke and poor air quality. The landscape can experience significant changes, exposing communities to further subsequent hazards like flooding and landslides post wildfire. Economic activities can be hampered, including both those directly affected by the wildfire as well as any within reach of wildfire smoke.
Wind	*Vulnerabilities:* Power infrastructure, critical facilities, community structures, transportation routes, cultural and historical areas and communications towers are in vulnerable locations in the timber harvest zone. People are vulnerable across the county. *Impacts:* High winds can topple trees, potentially damaging structures and infrastructure, delaying travel and causing power outages. People can be injured or killed including from wind-blown debris such as tree limbs.

Hazard	Vulnerabilities
Winter Weather	*Vulnerabilities:* Below-freezing temperatures, rain and wind create many vulnerabilities across the county, particularly in remote communities. People, especially vulnerable populations like the elderly and people who rely on powered electrical devices, are at risk across the county. *Impacts:* Every year, these events strain resources, affect vulnerable populations and cause road closures and power outages, affecting every community. Rural and remote communities often face the greatest challenges, as heavy snowfall, icy roads and power outages can cut off access to essential services, including medical care and food supplies. People across the planning area can be injured or killed, including by car crashes due to icy roads.

1.2.2.1. DEVELOPMENT CHANGES

Table 8 summarizes development trends in Humboldt County since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 8: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	In the last 5 years, there have been 557 residential permits.	• Condominium development in Samoa • New neighborhoods in McKinleyville	Slightly increased
Commercial	In the last 5 years there have been 84 permits for new commercial buildings.	• Expecting 5–7 new permits per year	Increased
Industrial	1–3 new buildings	• Offshore wind • Nordic aquifers	Increased

1.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. Humboldt County performed an assessment of its existing capabilities

for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

1.3.1. Planning and Regulatory Capabilities

Table 9 and Table 10 summarize Humboldt County's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 9: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes	N/A	Last Update: 10/23/2017 Next Update: 10/2037
Recovery Plan	Yes	By reviewing the plan annually, conducting training annually and updating it on a quarterly basis. The document emphasizes the importance of hazard mitigation in recovery, with the Local Disaster Recovery Manager coordinating these efforts. It outlines federal disaster assistance programs such as Small Business Administration Mitigation Loans, Hazard Mitigation Assistance, Hazard Mitigation Grant Programs (HMGPs), Fire Management Assistance Grants and HMGP Post-Fire Assistance. Guidance is provided to encourage homeowners to use hazard mitigation programs through the Individual and Households Program. The availability of post-disaster Public Assistance federal funding and State Public Assistance funding for local hazard mitigation projects under Government Code § 8686.4 is highlighted. Engagement with California's Department of Housing and Community Development Department Disaster Recovery and Mitigation program is encouraged. The plan promotes collaboration with federal and state recovery and mitigation experts, including Cal OES Hazard Mitigation.	Last Update: 02/2016 Next Update: 05/2025
Capital Improvement Plan	No	Prioritize projects that increase resilience, like seismic equipment/flex coupling attached to reservoirs for example. When there is a new capital improvement project, be mindful and incorporate design in infrastructure in anticipation of disasters/hazards. Plan to harden influent treatment points and effluent discharge points at our water treatment and wastewater treatment facilities to reduce flood and storm surge risks.	Last Update: 04/2016 Next Update: 10/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Regional Climate Action Plan (CAP)	Yes	This plan provides a framework for reducing greenhouse gas emissions through targeted strategies such as renewable energy adoption, energy efficiency and sustainable transportation. These strategies can be integrated into local hazard mitigation plans to reduce climate-related risks like wildfires, drought and sea-level rise. By aligning mitigation actions with the CAP, jurisdictions can access funding opportunities, streamline planning efforts and enhance community resilience.	Last Update: 11/21/2024 Next Update: 11/2029
Community Wildfire Protection Plan	No	The history of fires in our jurisdiction found in our wildfire hazard assessment and Firewise action plan is helpful. We are currently improving our storage capability, prioritizing exploratory well drilling, both of which we are currently performing in our district.	Last Update: 07/2020 Next Update: 07/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Economic Development Plan	Yes	Humboldt County can utilize its Comprehensive Economic Development Strategy (CEDS) to implement mitigation actions by focusing on several key areas: • **Infrastructure Improvements:** Enhancing transportation and broadband infrastructure to improve resilience against natural disasters. • **Workforce Development:** Supporting workforce development programs to ensure a skilled labor force capable of responding to and recovering from disasters. • **Industry Clusters:** Focusing on industry clusters such as building and systems construction, diversified healthcare, specialty food and niche manufacturing to create resilient economic sectors. • **Tourism and Forest Products:** Promoting sustainable tourism and forest management practices to reduce the risk of wildfires and other natural hazards. • **Public-Private Partnerships:** Encouraging collaboration between public and private sectors to leverage resources and expertise for disaster preparedness and recovery.	Last Update: 2018 Next Update: 05/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Land Use Plan	Yes	Humboldt County can utilize its Land Use Plan to implement mitigation actions by focusing on several key areas: • **Zoning Regulations:** Ensuring that land use decisions consider natural hazard risks and promote safe development practices. • **Environmental Protection:** Protecting natural resources and ecosystems that can act as buffers against natural hazards. • **Infrastructure Planning:** Planning and investing in resilient infrastructure that can withstand natural hazards. • **Community Services:** Enhancing emergency services and disaster preparedness programs to better respond to and recover from disasters. • **Public Health and Safety:** Ensuring that all developments meet public health and safety standards, including proper sewage disposal and water management.	Last Update: 09/2017 Next Update: 09/2024

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Local Emergency Operations Plan	Yes	The Local Emergency Operations Plan (EOP) can be a valuable tool for implementing mitigation actions in Humboldt County by providing a structured framework for coordinating efforts before, during and after emergencies. Here's how it can support mitigation efforts: • **Integration of Mitigation Strategies**: The EOP can align with the HMP to ensure mitigation priorities, such as flood risk reduction or wildfire management, are part of emergency preparedness and response activities. • **Resource Allocation**: It identifies available resources, agencies and partnerships critical for implementing mitigation actions, such as upgrading infrastructure to withstand seismic activity or improving drainage systems in flood-prone areas. • **Training and Exercises**: The EOP supports training programs and simulation exercises that incorporate mitigation scenarios, allowing agencies to practice proactive measures and enhance resilience. • **Public Awareness and Outreach**: By including communication strategies, the EOP helps educate the community on mitigation actions, such as evacuation planning, securing properties or reducing fire hazards. • **Cross-Agency Coordination**: The plan fosters collaboration among local, state and federal agencies, ensuring mitigation efforts are comprehensive and consistent with broader emergency management goals.	Last Update: 04/2015 Next Update: 11/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Stormwater Management Plan	Yes	Humboldt County's stormwater management program is limited to the jurisdictions of McKinleyville and the unincorporated Eureka area; it is not countywide. • **Pollution Reduction:** Implementing measures to reduce pollutants in stormwater runoff from construction sites, commercial and industrial facilities and other sources. • **Public Education and Outreach:** Conducting public education campaigns to inform residents about the importance of stormwater management and how they can contribute to reducing pollution. • **Infrastructure Improvements:** Investing in infrastructure improvements such as stormwater detention basins, permeable pavement and green roofs to manage stormwater more effectively. • **Illicit Discharge Detection and Elimination:** Identifying and eliminating illicit discharges, such as improperly connected septic systems and illegal dumping, to prevent pollution. • **Technical Review and Inspections:** Conducting technical reviews of property development designs and performing regular inspections of facilities to ensure compliance with stormwater management regulations.	Last Update: 07/2021 Next Update: 07/2027

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Transportation Plan	Yes	Managed through the Humboldt County Association of Governments, the county participates in the Regional Transportation Plan. Humboldt County can utilize its Transportation Plan to implement mitigation actions by focusing on several key areas: • **Infrastructure Resilience:** Enhancing the resilience of transportation infrastructure to withstand natural hazards such as floods, landslides and earthquakes. • **Emergency Preparedness:** Developing and updating emergency response plans for transportation systems to ensure quick and effective action during natural disasters. • **Public Safety:** Implementing safety measures such as improved signage, lighting and road design to reduce the risk of accidents during natural hazards. • **Sustainable Transportation:** Promoting sustainable transportation options like public transit, biking and walking to reduce the environmental impact and improve community resilience. • **Collaboration and Coordination:** Working closely with local, state and federal agencies to ensure a coordinated approach to disaster preparedness and response.	Last Update: 12/2021 Next Update: 12/2026
Substantial Damage Plan	Yes	Can be used to implement mitigation actions in areas where there is continual substantial damage from floods.	Last Update: 10/2019 Next Update: 05/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Debris Management Plan	Yes	Humboldt County can utilize its Debris Management Plan to implement mitigation actions by focusing on several key areas: • **Pre-Disaster Planning:** Developing and updating pre-disaster debris management plans to ensure efficient and effective response during emergencies. • **Public Education:** Informing the public about proper debris disposal practices and the importance of keeping debris away from storm drains and waterways. • **Coordination with Agencies:** Collaborating with local, state and federal agencies to ensure a coordinated approach to debris management. • **Resource Allocation:** Securing resources such as equipment, personnel and disposal sites to manage debris effectively. • **Environmental Protection:** Implementing measures to protect the environment during debris removal, such as recycling and proper disposal of hazardous materials.	Initial draft created 2018 Next Update: 10/2027

Table 10: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	Yes	Yes	Last Update: 05/2017 Next Update: Unknown
Floodplain Ordinance	Yes	Yes	Last Update: 09/2016 Next Update: 09/2026
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	Yes	Yes	Last Update: 05/2018 Next Update: 05/2026
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

1.3.2. Administrative and Technical Capabilities

Table 11 and Table 12 summarize Humboldt County's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 11: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	Yes	Yes	Yes
Grant Writer	Non-Vacant	No	No	Yes

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Non-Vacant	Yes	Yes	Yes
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Non-Vacant	Yes	Yes	Yes
Geographic Information System Coordinator	Non-Vacant	No	Yes	Yes
Planning Commission	Non-Vacant	Yes	Yes	Yes
Fire Safe Council	Non-Vacant	No	Yes	Yes
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Active Organizations Active in Disaster	Non-Vacant	Yes	Yes	Yes

Table 12: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	We annually use drought data from the U.S. Geological Survey, as well as several other organizations, which helps us to better anticipate and plan for future hazards, emergencies and disasters. For example, Humboldt County uses hazard data and information capabilities for risk assessment and mitigation through: • **Local Hazard Mitigation Plan:** Identifies resources, information and strategies for reducing risk from natural hazards. It includes detailed hazard assessments and mitigation strategies for various natural disasters such as earthquakes, floods, wildfires and landslides. • **MyHazards Tool:** Helps residents discover hazards in their area and take steps to reduce personal risk. • **Emergency Operations Plan:** Provides a framework for responding to emergencies and includes hazard-specific contingency plans. These plans help coordinate multiagency responses and ensure that resources are effectively utilized during disasters. • **Public Education:** Informs residents about natural hazards and disaster preparedness. • **Agency Collaboration:** Works with local, state and federal agencies to coordinate disaster preparedness and response. • **Community Wildfire Protection Plan:** Provides a data-driven assessment of factors that contribute to wildfire; explores issues such as structural ignitibility; and includes detailed information on what is at risk, fire history and behavior, response capacity and community preparedness in the face of wildfire. Informed by the risk assessment, the plan recommends countywide and planning unit-level priority actions.	Hazard data could help us plan for future projects, facilities or equipment that may be at risk. **Data Informed Priority Projects:** Develop mitigation projects in priority areas identified through risk and hazard data analysis and local knowledge.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Geographic Information System (GIS)	Yes	We use GIS to plan regularly scheduled maintenance, for example, using it for our sewer collection system cleaning and inspection through CCTV. Then, we add this information to the map, identifying "problem areas," which helps us focus and anticipate issues during an emergency. Humboldt is prone to natural disasters such as floods, landslides and wildfires. These maps help in planning and zoning decisions to minimize risk. • **Infrastructure Planning:** GIS data has been utilized to plan and design resilient infrastructure, ensuring that critical facilities and transportation routes are less vulnerable to natural hazards. • **Emergency Response:** During emergencies, GIS tools provide real-time information on affected areas, helping emergency responders allocate resources efficiently and prioritize rescue and relief efforts. • **Public Awareness:** GIS-based web mapping applications allow residents to access information about hazards in their area, promoting awareness and preparedness. • **Environmental Monitoring:** GIS is used to monitor environmental changes and track the impact of natural hazards over time, aiding in long-term risk mitigation strategies. Multi-agency access to shared data and visualization platforms improves situational awareness, response and integrated planning. Adaptive planning based on post-event spatial data collection and analysis can help assess treatment effectiveness and inform future projects. OES could probably provide a good emergency response example, but the same principle applies.	Keeping our map updated, utilizing it weekly, adding emergency features to the map itself and continuing training with all emergency staff. • **Real-time Hazard Monitoring:** Using GIS to provide real-time data on environmental conditions, enabling timely responses to emerging hazards. • **Predictive Modeling:** Implementing advanced predictive models to forecast potential hazard impacts and plan accordingly. • **Community Engagement:** Developing GIS-based applications for residents to report hazards and access safety information. • **Infrastructure Resilience:** Enhancing the design and maintenance of infrastructure by using GIS data to identify vulnerabilities. • **Climate Change Adaptation:** Utilizing GIS to assess the impacts of climate change and develop adaptive strategies.
Mutual Aid Agreements	Yes	We have engaged in mutual aid agreements with neighboring jurisdictions as needed.	Will seek mutual aid agreements with neighboring jurisdictions in the future as needed to increase capability.
Aerial Drone Technology	Yes	Drones help us identify things much quicker. For example, when conducting smoke detection/surveillance drones are much more efficient in locating the smoke than personnel on foot.	With continued training.

1.3.3. Financial Capabilities

Table 13 summarizes Humboldt County's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the county is important to determine the kinds of projects that are feasible given their cost.

Table 13: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Various activities	Yes	Yes
General Funds	Yes	Various activities	Yes	Yes
Hazard Mitigation Grant Program	Yes	Creating the Local Hazard Mitigation Plan	Yes	No
Flood Mitigation Assistance	No	N/A	Yes	No
Community Development Block Grant	Yes	Owner-Occupied Home Rehabilitation Program	Yes	Yes
Natural Resources Conservation Services Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers Programs	No	N/A	Yes	No
Property, Sales, Income or Special Purpose Taxes	Yes	Unknown	Yes	Yes
Stormwater Utility Fee	Yes	Unknown	Yes	Yes
Fees for Water, Sewer, Gas or Electric Services	Yes	Unknown	Yes	No

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Impact Fees from New Development and Redevelopment	Yes	Unknown	No	No
General Obligation or Special Purpose Bonds	Yes	The Southern Humboldt Defensible Space Project funded by a CAL FIRE prevention grant	Yes	Yes
Federal-Funded Programs	No	N/A	Yes	No
State-Funded Programs	Yes	• **Programs:** Flood Management Grant Program (FMGP), CAL FIRE's Fire Prevention Grant Program, California Fire Safe Council grant programs • **Activities:** Jacobs Avenue Levee Project, Eel River Floodplain Restoration, Garberville Veterans Hall Replacement Project, Ferndale Veterans Building HVAC (Heating, Ventilation and Air Conditioning) Replacement Project	Yes	Yes
Private Sector or Nonprofit Programs	Yes	The county partners with local nonprofit organizations, the Humboldt County Resource Conservation District and fire protection districts to leverage funds for CWPP implementation projects.	Yes	Yes

1.3.4. Education and Outreach Capabilities

Table 14 summarizes Humboldt County's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 14: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	No	
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	The county participates in the Great ShakeOut earthquake drills annually and supports Firewise communities through participation in the Humboldt County Fire Safe Council.
Public Meetings/Events	Yes	Yes	Board of Supervisors meetings, committee and commission meetings and public information/input meetings about county projects; county staff share hazard mitigation resources (e.g., local tsunami hazard zone maps) during public meetings, as applicable to the meeting agenda and content.
Emergency Management Listserv	Yes	No	Humboldt OES utilizes emergency alerting software to get information out to residents as quickly as possible.
Local News	Yes	No	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Insurance Disclosures/ Outreach	Yes	Yes	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	American Red Cross, Arcata House Partnership, Food for People, Community Organizations Active in Disaster (COAD), Centro del Pueblo, Comunidad Unida del Norte de Humboldt County (CUNA), Cumbre Humboldt, Area 1 Agency on Aging, others.
Social Media	Yes	Yes	Facebook, X, Instagram, YouTube

1.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 15. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 15: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	• The county is updating the 2019 Community Wildfire Protection Plan, and the current plan will expire soon if it has not done so already. The county is in the final stages of adopting a Climate Action Plan, which may have projects that align with mitigation strategies. • The Drought Resilience Plan is also in its final stages. This plan may also have projects that align with mitigation strategies. • The Emergency Operations Plan is currently being updated. This plan sets the framework for emergency response and recovery operations in Humboldt County. • Buildings used for emergency shelters are not large enough or accessible in compliance with the Americans with Disabilities Act (ADA) to sustain a large population.

Capability Type	Opportunity to Expand and/or Improve
Administrative and Technical	• The GIS function in Humboldt County is highly understaffed, leading to delays in data requests and underutilization of GIS systems for localized planning. • There is a lack of qualified building inspectors and structural engineers who would be able to assist with building inspection post-incident. • None of the seven municipalities have a dedicated emergency management program. This leads to an overburden on the planning and coordination responsibilities of the county OES. • The county EOC is small, antiquated and lacks the technology necessary to meet modern emergency management needs. • County administrative capacity fluctuates with the feast-and-famine nature of grant-funded work. More resources are needed to increase the county's capacity to seek and secure more grant funds for much-needed mitigation work while successfully completing existing projects.

Capability Type	Opportunity to Expand and/or Improve
Financial	• Lack of matching funding for various federal grants has led to multiple missed funding opportunities, including HMGP and Flood Mitigation Assistance. • The thresholds for federal disaster relief are overwhelmingly high, making it very difficult for Humboldt County to qualify for a major disaster designation as a standalone county post-disaster. These thresholds and the subsequent lack of federal support leave community members and non-federal agencies to fund recovery efforts in the absence of various federal programs, such as federal Public Assistance and Individual Assistance. • Increasingly, it seems that state and federal grant programs are catering their funding opportunities toward nonprofits rather than jurisdictional emergency management agencies. This poses a barrier to future program growth and meeting the variety of new and unfunded mandates coming from the state legislature. • The County of Humboldt is operating with a roughly $12 million deficit, limiting future opportunities and causing programs and departments to evaluate where to cut expenditures in their already limited budgets. • The county could supplement its limited capacity to capture more grants by building more project development and implementation partnerships with other agencies and organizations. • More staff to apply for grants, manage grant-funded projects and identify matching funds could help the county access much-needed funding streams currently being missed.
Education and Outreach	• Past outreach efforts have not included much mitigation other than fire resilience. County public information officers will make an effort to include mitigation strategies and efforts in the future. • As the severity of impacts from natural hazards increases, the county will need to increase public awareness about personal responsibility for preparedness, situational awareness and taking advantage of available resources.

1.4. National Flood Insurance Program

Humboldt County has been a participant in the National Flood Insurance Program (NFIP) since 1977. Details of NFIP policies in Humboldt County are in Table 16. Additional information is in Table 17 through Table 19. Continued compliance with NFIP standards is expected for Humboldt County.

Table 16: Humboldt County NFIP Details

Community Name	Community Number	Total Premium + FPF[2]	Total Policy Count	Total Coverage	Total Losses
Humboldt County	060060	$100,374.00	371	$87,662,000.00	171

Table 17: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	The floodplain manager for Humboldt County is the Public Works Roads Division Manager. Managing floodplain responsibilities is a secondary role, as their primary role involves overseeing the county's roads division.
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Floodplain management ordinance of 2024. The County of Humboldt enforces its floodplain rules through a combination of permitting, inspections and compliance monitoring. Here's how enforcement typically works: • **Permitting Process:** Before any construction or development in a floodplain, property owners must obtain the necessary permits. This ensures that proposed projects meet the county's floodplain regulations. • **Inspections:** The county conducts inspections during and after construction to verify compliance with approved plans and floodplain standards. • **Monitoring Compliance:** The county actively monitors developments in flood-prone areas to ensure ongoing adherence to floodplain management rules. • **Addressing Violations**: If violations are identified, the county takes corrective actions, which may include issuing notices of violation, requiring modifications to non-compliant structures.

[2] FPF: Federal Policy Fee

Question	Response
When was the community's most recent Community Assistance Visit (CAV)?	5/16/2019
Were any violations noted on the community's most recent CAV?	Minor potential violations were identified for follow-up assessment. All minor issues were resolved by 6/24/2020.
Is there an upcoming CAV? If no, is one needed?	No
When was the most recent floodplain management ordinance adopted?	December, 2024
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	• **Public Education and Outreach:** The county actively educates residents about flood risks and safety measures through workshops, informational materials and community events. • **Mapping and Regulation:** Humboldt ensures accurate floodplain mapping and enforces strict building codes to minimize flood damage. • **Flood Damage Reduction:** The county implements projects to reduce flood damage, such as maintaining drainage systems and restoring natural floodplains. • **Emergency Preparedness:** Humboldt has developed comprehensive flood response plans and conducts regular drills to prepare for flood emergencies. • **Environmental Protection:** The county promotes sustainable practices, such as preserving wetlands and open spaces, which help absorb floodwaters and protect ecosystems.
Who is responsible for permitting?	Humboldt County Planning and Building Department

Question	Response
How does the community issue development permits in the special flood hazard area?	In Humboldt County, issuing development permits in the special flood hazard area involves several steps: 1. **Application Submission:** Developers must submit a floodplain development permit application, including plans and documentation that detail the nature, location, dimensions and elevation of the proposed development. 2. **Review Process:** The Building Official reviews the application to ensure it meets floodplain management regulations, including floodproofing criteria and site safety from flooding. 3. **Public Safety and Environmental Impact:** The review process includes assessing whether the proposed development will adversely affect flood risk and ensuring that all necessary permits from other governmental agencies have been obtained. 4. **Approval or Denial:** Based on the review, the Building Official either approves or denies the permit. Approved permits come with conditions to ensure compliance with floodplain management standards.
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes. The County of Humboldt tracks the number of buildings in the special flood hazard area (SFHA) using tools like the Federal Emergency Management's (FEMA) Flood Insurance Rate Maps (FIRMs) and GIS. These resources help identify and monitor properties in flood-prone areas. The county's Planning and Building Department maintains records and updates them as new developments occur or as FEMA revises flood maps.
How many repetitive loss (RL) structures does the community have?	12, residential
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	0

Question	Response
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	The responsibility for making substantial damage and substantial improvement determinations in Humboldt County lies with the local building officials in the Planning and Building Department.
How does the substantial damage/substantial improvement process work in your community?	• **Assessment:** When a property in the SFHA is damaged or undergoes improvement, the local building officials assess the extent of the damage or the cost of the improvement. • **Determination:** If the cost of repairs or improvements exceeds 50% of the market value of the structure before the damage or improvement, it is considered substantial. • **Compliance:** For substantial improvements, the structure must be brought into compliance with current floodplain management regulations, which may include elevating the structure to 1 foot above the base flood elevation (BFE). • **Documentation:** The building official documents the assessment and determination, ensuring that all necessary permits and certifications are obtained. • **Approval:** Once compliance is achieved, the building official approves the permit, allowing the repair or improvement to proceed.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes

Question	Response
How are substantial damage/ substantial improvement requirements messaged to the public before and after an event?	The County of Humboldt communicates substantial damage and substantial improvement requirements to the public through various channels, both proactively and reactively: • Before an Event: › **Public Outreach:** The county provides educational materials, such as brochures and online resources, explaining the requirements for substantial damage and improvement in flood-prone areas. These materials are often available on the Planning and Building Department's website. › **Workshops and Meetings:** Community workshops and public meetings are held to inform residents about floodplain regulations and the importance of compliance. › **Permit Guidance:** The county offers guidance during the permitting process, ensuring property owners understand the rules for substantial improvements in flood zones. • After an Event: › **Damage Assessments:** Following a flood or disaster, the county conducts damage assessments to identify structures that meet the criteria for substantial damage. › **Direct Communication:** Property owners of affected structures are directly notified about the requirements for repairs or improvements, including the need to elevate or floodproof buildings. › **Support and Resources:** The county provides resources and assistance to help property owners navigate the compliance process, including information on financial aid or grants.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No

Question	Response
How will the community remain in compliance with the NFIP moving forward?	• Maintaining floodplain management policies that are current and accurately reflect flood risk areas. • **Enforcing Building Standards:** Requiring that all new construction and substantial improvements in flood-prone areas meet or exceed NFIP standards, such as anchoring, using flood-resistant materials and elevating structures. • **Public Outreach and Education:** Conducting ongoing public awareness campaigns to inform residents about flood risks and the importance of compliance with floodplain management regulations. • **Monitoring and Inspections:** Conducting regular inspections to ensure that properties in flood-prone areas comply with the regulations and taking corrective actions when necessary. • **Collaborating with Federal and State Agencies:** Working with agencies like FEMA and Cal OES to implement best practices and secure funding for flood mitigation projects.

Table 18: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	• **Community Engagement:** The county engages with the community to gather input and identify areas where map changes may be needed. • **Data Collection:** Relevant data, such as topographic surveys, flood risk assessments and historical flood records, is collected to support the request. • **Application Submission:** A formal application for a map change request is submitted to FEMA, including all supporting documentation and data. • **Review Process:** FEMA reviews the application and conducts its own analysis to determine if the requested changes are warranted. • **Public Hearings:** Public hearings may be held to allow community members to provide feedback and ask questions about the proposed changes. • **Decision and Implementation:** FEMA decides on the map change request and, if approved, updates the FIRMs accordingly.
When did the latest Flood Insurance Rate Map (FIRM) become effective?	06/21/2017
When was the latest FIRM adopted?	06/21/2017
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Yes, upon request.
Does the community use any Risk MAP (Mapping, Assessment and Planning) products? If so, describe.	Yes. • **FIRMs:** These maps identify areas at risk of flooding and are used to apply appropriate building regulations. • **Coastal Storm Modeling System:** This dynamic modeling approach provides detailed projections of coastal flooding due to sea-level rise and changing storm patterns. • **MyHazards Tool:** An online tool that shows the hazards in an area and helps to reduce personal risk.

Question	Response
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes, and yes.

Table 19: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	The County of Humboldt educates the public on floodplain management and the availability of flood insurance through a variety of methods: • **Public Outreach Campaigns:** The county organizes workshops, community meetings and informational sessions to raise awareness about flood risks and the importance of flood insurance. • **Educational Materials:** Brochures, flyers and online resources are distributed to inform residents about floodplain regulations, safety measures and insurance options. These materials are often tailored to address residents in and near the floodplain. • **Website Resources:** The county's official website provides detailed information on flood hazards, floodplain management and NFIP. It includes tools like FEMA's FIRMs to help residents understand their flood risk. • **Collaboration with FEMA and NFIP:** The county works closely with FEMA and the NFIP to ensure the community receives accurate and up-to-date information. • **Direct Communication:** Property owners in flood-prone areas may receive direct notifications about flood risks, insurance requirements and available resources.
How does the community engage with insurance agents on flood insurance?	• **Workshops and Training:** The county may host or participate in workshops to educate insurance agents about local flood risks, regulations and NFIP. • **Resource Sharing:** Providing agents with up-to-date floodplain maps, ordinances and other resources to help them guide their clients effectively. • Open communication

Question	Response
Does the community (or state) have flood hazard disclosure laws?	Yes
How familiar is the public with their flood insurance options?	Efforts to increase public awareness include community outreach programs, informational materials and collaboration with insurance agents to educate homeowners about the importance of flood insurance.
How many properties have flood insurance in the community?	371
Are there any areas where flood insurance is lacking?	No

1.5. Mitigation Strategy

Humboldt County has adopted the same goals and prioritization process found in Volume 1. Previous mitigation action items and their statuses are in Table 20, while new mitigation action items and those carried forward from the previous plan are in Table 21.

1.5.1. Previous Mitigation Actions

Table 20: Previous Mitigation Actions

Mitigation Action	Description	Status
HC1	Develop a countywide evacuation plan, including maps, community profiles and a multi-jurisdictional response plan covering the Humboldt Operational Area.	Completed, ongoing
HC2	Complete a Disaster Recovery Plan in collaboration with Operational Area jurisdictions, communities and businesses.	Completed

Mitigation Action	Description	Status
HC3	Implement priority recommendations from the CWPP, including, but not limited to, the management of hazardous vegetation along county roads and associated equipment; programs to support defensible space management and hardening homes against wildfire; and landscape-scale fuels reduction in priority areas. Implement wildfire mitigation, including shaded fuel breaks and vegetation management.	Completed
HC4	Replace existing tsunami sirens; continue to develop, implement and maintain redundant tsunami warning systems.	Deferred due to lack of funding
HC5	Retain dedicated GIS technical assistance for various all-hazards and hazard-specific planning efforts, including evacuation, emergency operations, debris management, mass care and public alert and warning.	Deferred due to lack of funding
HC6	Support county radio infrastructure upgrade, replacement of failing radio equipment and emergency backup power at tower sites.	Deferred due to lack of funding
HC7	Develop, implement and support public outreach and education campaigns to reduce community risk and promote resilience.	Completed
HC8	Develop a countywide, all-hazards Debris Management Plan in collaboration with responsible Operational Area entities.	Completed
HC9	Complete a feasibility study and develop a plan for a new County Emergency Operations Center and continue to develop and acquire mobile technology to augment existing capacity.	Completed and ongoing
HC10	Acquire and install emergency backup power at critical facilities lacking existing emergency power.	Completed
HC11	Support the development and construction of vertical tsunami evacuation structures in high-risk tsunami zones where timely evacuation on foot is not possible.	Deferred due to lack of funding

Mitigation Action	Description	Status
HC12	Support countywide mass care capacity development and planning, including identification and inspection of facilities and sites and acquisition of community-based supply caches to increase resilience in high-risk areas.	Completed, ongoing
HC13	Support development, training and maintenance of community volunteer resources, including CERT, AuxComm, disaster animal response and coordination with COAD organizations (community organizations active in disasters).	Completed, ongoing
HC14	Identify priority locations for landslide mitigation projects along key access routes and waterways. Move forward on implementing the most appropriate mitigation for each location.	Deferred due to lack of funding and staff
HC15	Identify priority road and bridge hazard mitigation projects and develop collaborative partnerships for implementation. Candidates for priority projects include (but are not limited to): Blue Slide Road (Price Creek), Elk River Road (Elk River), South Jetty Road, Old Arcata Road (Jacoby Creek), Meridian Road (Reas Creek), Hookton Road (Salmon Creek), Upper and Lower Cappell Roads near Hoopa (culvert needs), Ambrosini Lane (Williams Creek), King Salmon Avenue (Humboldt Bay) and roadways and culverts in communities such as Redway, Shelter Cove and Westhaven. Move forward on implementing the most appropriate mitigation for each location.	Completed, ongoing
HC16	Identify projects for sediment retention and/or floodplain connectivity where excessive sediment is a primary cause of flooding (restore natural floodplain processes) and secure property interests (fee title or easement) necessary for implementation.	Completed, ongoing

Mitigation Action	Description	Status
HC17	Secure funding and authorization to include seismic upgrades in planned major repairs of county buildings, especially buildings critical to emergency response and recovery (including designs and feasibility studies associated with the construction project).	Completed, ongoing
HC18	Protect, relocate and/or develop mobilization plans for PW maintenance yards with exposure to hazards (such as the heavy equipment and motor-pool facilities on Jacobs Ave.).	Deferred due to lack of funding and staff
HC19	Upgrade federal flood control projects to meet current FEMA and U.S. Army Corps of Engineers standards (Redwood Creek, Eel River, Mad River).	Deferred due to lack of staff and funding
HC20	Increase the current benefit assessment for County Service Area #4 to meet the rising cost of services.	Deferred. CSA #4 has a Consumer Price Index (CPI) factor built into its assessment. This CPI just hasn't kept up with the increase in costs of the actual service.
HC21	Develop Sea Level Rise Adaptation Plans for hydrographic areas around Humboldt Bay using the framework currently being applied for the Eureka Slough hydrographic area.	Completed, ongoing
HC22	Develop new land use policies and regulations to mitigate against all hazards.	Completed, ongoing
HC23	Integrate LHMP, CWPP and General Plan Safety Element.	Completed, ongoing

Mitigation Action	Description	Status
HC24	Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: • Enforcement of the adopted flood damage prevention ordinance • Participating in floodplain identification and mapping updates • Providing public assistance/information on floodplain requirements and impacts	Completed, ongoing

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1.5.2. Updated Mitigation Actions

Table 21: 2025 Mitigation Actions[3]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC1	Develop a countywide educational campaign focused on earthquake preparedness. This campaign may include the distribution of informational materials, online resources and public service announcements about earthquake safety, emergency kits and personal/family preparedness plans.	High	Humboldt County OES	Earthquake, tsunami	HMGP, EMPG, general funds, staff time	Under $100,000	1–2 years	Both	Yes	All
HC2	Implement a phased seismic retrofitting program for critical public infrastructure, including schools, hospitals, emergency services facilities and transportation networks (bridges, overpasses). The program will prioritize retrofitting older structures that do not meet current seismic standards.	High	Humboldt County OES, Public Works Department	Earthquake, tsunami	HMGP, EMPG, general funds, Earthquake Brace and Bolt program	Over $500,000	5+ years	Both	Yes	All

[3] BRIC: Building Resilient Infrastructure and Communities, DWR: Department of Water Resources, EMPG: Emergency Management Performance Grant, HMGP: Hazard Mitigation Grant Program, HSGP: Homeland Security Grant Program, OES: Office of Emergency Services, PDM: Pre-Disaster Mitigation, USGS: U.S. Geological Survey

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC3	Establish a community-wide wildfire education program that offers training sessions and public outreach on fire prevention strategies, the importance of defensible space and evacuation procedures. Partner with local fire departments to host hands-on fire safety workshops and community meetings. This would include fire safe councils and Firewise Communities.	High	Humboldt County OES, Public Works, Fire Safe Council	Wildfire	HMGP, EMPG, general funds, CAL FIRE grants	Under $100,000	1–2 years	Both	Yes	All
HC4	Update and refine floodplain maps for Humboldt County, identifying flood-prone areas with greater accuracy. This project will also evaluate and strengthen floodplain management practices, ensuring they align with best practices and updated flood risk data. It will include restricting development in high-risk flood zones and revising building codes to mitigate flood risk.	High	Public Works Department	Flooding, dam failure	HMGP, EMPG, general funds, DWR funding	$100,000-$500,000	3–5 years	Both	Yes	Transportation, Safety and Security, Energy
HC5	Upgrade existing stormwater infrastructure (culverts, drains, levees) in flood-prone areas to improve capacity and prevent urban flooding. New infrastructure will be designed to handle future climate impacts such as more intense storms and rising sea levels.	High	Public Works Department	Winter storm, flooding, dam failure	HMGP, EMPG, general funds, public works/roads funding	Over $500,000	5+ years	Both	Yes	Safety and Security, Transportation
HC6	Implement riparian restoration projects along key rivers and streams to restore natural floodplain function. These projects will focus on enhancing wetland areas to absorb excess water during storm events, reducing the risk of flooding in downstream communities.	High	Public Works Department	Flooding, winter storm	HMGP, EMPG, general funds, DWR funding	Over $500,000	5+ years	Both	Yes	Safety and Security, Transportation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC7	Develop and implement a comprehensive coastal erosion management plan that includes sand replenishment, landslide prevention, dune restoration and construction of seawalls, levees and other protective barriers. The project will prioritize vulnerable coastal communities and critical infrastructure at risk of coastal erosion.	High	Public Works Department, Planning and Building Departments	Landslide, tsunami, flooding	HMGP, general funds, USGS	$100,000-$500,000	5+ years	New	Yes	Safety and Security, Transportation
HC8	Obtain and install clear, accessible tsunami evacuation routes and signage along coastal roads and in vulnerable communities. The project will ensure that all residents and visitors are informed about the nearest evacuation routes and safe zones in the event of a tsunami.	High	Humboldt County OES	Tsunami	HMGP, EMPG, general funds, Cal OES Tsunami Program	$100,000-$500,000	3–5 years	Existing	Yes	Safety and Security, Transportation
HC9	Integrate and upgrade tsunami warning systems to improve real-time communication with coastal residents. This project will include the installation of weather-resistant sirens, automated text alerts and radio broadcasts. Additionally, a public outreach campaign will inform residents about tsunami risk and evacuation procedures.	High	Humboldt County OES	Tsunami	HMGP, BRIC, general funds	$100,000-$500,000	3–5 years	Existing	Yes	Safety and Security, Communications
HC10	Strengthen local building codes to encourage disaster-resilient construction practices, particularly in areas prone to wildfires, flooding and seismic hazards. Additionally, provide incentives for private developers and homeowners to build or retrofit structures using materials and designs that improve resilience to natural hazards.	High	Planning Department	Wildfire, flooding, earthquake	HMGP, BRIC, general funds, staff time	Under $100,000	3–5 years	Both	Yes	Transportation, Safety and Security, Energy, Food, Hydration and Shelter

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC11	Enhance energy resiliency in vulnerable communities across Humboldt County by installing backup power systems, including solar-powered battery storage, to provide reliable electricity during power outages caused by natural disasters (e.g., wildfires, storms, earthquakes and wind). The initiative will target rural, low-income and disaster-prone areas, ensuring that residents, community centers and essential services can continue to function during grid failures. By integrating renewable energy sources, this project will reduce reliance on traditional backup generators and improve long-term energy security.	High	Public Works Department, Planning and Building Departments	Wildfire, winter storm, earthquake, wind	HMGP, general funds	Over $500,000	5+ years	New	Yes	Safety and Security, Energy
HC12	Design and construct a new EOC to enhance Humboldt County's ability to manage and coordinate emergency response efforts during disasters. The EOC will be equipped with state-of-the-art communication and operational technologies, providing a centralized location for coordination among local, state and federal agencies. This facility will improve the county's emergency response times, information sharing and resource management, ensuring that critical services are maintained during major events such as dam failure, drought, wildfires, earthquakes and floods.	High	Humboldt County OES, Public Works Department	All hazards	HMGP, EMPG, general funds	$20,000,000	5+ years	New	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC13	Draft a drought resilience plan to ensure compliance with AB 552.	Medium	Environmental Health Department, Planning and Building Departments, Humboldt County OES	Drought	HMGP, EMPG, general funds	Under $100,000	1–2 years	Existing	Yes	Food, Hydration and Shelter, Water Systems
HC14	Support development and construction of vertical tsunami evacuation structures in high-risk tsunami zones where timely evacuation on foot is not possible.	Medium	Humboldt County OES, Planning and Building Departments	Tsunami	HMGP, EMPG, general funds, DWR funding	Over $500,000	5+ years	New	Yes	Safety and Security, Food Hydration Shelter
HC15	Retain dedicated GIS technical assistance for various all-hazards and hazard-specific planning efforts, including evacuation, emergency operations, debris management, mass care and public alert and warning.	Medium	Planning and Building Department	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM	$100,000	3–5 ears	Both	Yes	All
HC16	Protect, relocate and/or develop mobilization plans for Public Works maintenance yards with exposure to hazards, such as the heavy equipment and motor-pool facilities on Jacobs Ave.	Medium	Public Works Department	All hazards	General fund	$1,000,000	5+ years	Both	Yes	Transportation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC17	Identify priority locations for landslide mitigation projects along key access routes and waterways. Move forward on implementing the most appropriate mitigation for each location.	High	Public Works Department	Dam failure, landslide, earthquake, flooding, tsunami, wildfire	HMGP, EMPG, general funds, PDM, county road funds	$100,000-$500,000	5+ years	Both	Yes	Safety and Security, Transportation, Communications
HC18	Upgrade federal flood control projects to meet current FEMA and U.S. Army Corps of Engineers standards (Redwood Creek, Eel River, Mad River).	High	Public Works Department	Flooding	HMGP, general funds, FMA	$100,000-$500,000	5+ years	Existing	Yes	Safety and Security, Water Systems, Food, Hydration and Shelter
HC19	Identify, utilize and maintain community resilience centers.	High	Humboldt OES	Wind, winter storm, extreme temperatures	HMGP, EMPG, general funds, HSGP, Listos grants	Over $500,000	5+ years	New	Yes	Safety and Security, Food, Hydration and Shelter
HC20	Purchase and deploy water tenders/tanks for wildfires.	High	Humboldt OES, Fire Safe Council, local volunteer fire departments	Wildfire	HMGP, general funds, CAL FIRE grants	$100,000-$500,000	3–5 years	New	Yes	Safety and Security, Food, Hydration and Shelter
HC21	Support the county radio infrastructure upgrade, replacement of failing radio equipment and emergency backup power at tower sites.	High	Humboldt Sheriff's Office, Information Technology	Dam failure, earthquake, flooding, landslide, wind, winter storms, tsunami, wildfire	HMGP, PDM, general funds	Over $500,000	3–5 years	Both	Yes	Communications, Safety and Security

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HC22	Increase the current benefit assessment for County Service Area #4 to meet the rising cost of services.	Medium	County Administrative Office	Wildfire	Revised benefit assessment; General Funds	$100,000	3–5 Years	Both	Yes	All
HC23	Identify priority road and bridge hazard mitigation projects and develop collaborative partnerships for implementation. Candidates for priority projects include (but are not limited to): Blue Slide Road (Price Creek), Elk River Road (Elk River), South Jetty Road, Old Arcata Road (Jacoby Creek), Meridian Road (Reas Creek), Hookton Road (Salmon Creek), Upper and Lower Cappell Roads near Hoopa (culvert needs), Ambrosini Lane (Williams Creek), King Salmon Avenue (Humboldt Bay) and roadways and culverts in communities such as Redway, Shelter Cove and Westhaven. Improving drainage and stabilizing roads on Patrick Creek Dr. and Little River Dr. Move forward on implementing the most appropriate mitigation for each location.	High	Public works	All hazards	HMGP, PDM, General Funds, County Roads Funds	Over $500,000	5+ Years	Both	Yes	Transportation

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2. City of Arcata Annex

This section presents the jurisdictional annex for the City of Arcata. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The City of Arcata identified changes in priorities which reflect a broader approach to mitigation action development. This plan update had an increased emphasis on actions aimed at protecting life, in addition to property and critical infrastructure. For example, Arcata's updated action plan includes mitigation activities that benefit multiple populations in the community, such as implementing accessibility improvements at dedicated emergency shelters, developing programs that support the resilience of vulnerable communities, enhancing early warning systems, conducting community drills and improving tsunami evacuation planning.

2.1. Planning Process

2.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the City of Arcata, the stakeholders and the public. The City of Arcata was represented during the planning process by the following individuals listed in Table 22.

Table 22: City of Arcata Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Danielle Allred	Contracts & Special Projects Manager	City of Arcata	dallred@cityofarcata.org 707-825-2101
Merritt Perry	City Manager	City of Arcata	CityMgr@CityofArcata.org
Tabatha Miller	Assistant City Manager	City of Arcata	(707) 825-2120 tmiller@cityofarcata.org
Emily Sinkhorn	Director of Environmental Services	City of Arcata	(707) 825-2163 esinkhorn@cityofarcata.org
Doug Culbert	Deputy Director – Streets-Utilities	City of Arcata	(707) 825-2166 dculbert@cityofarcata.org
Netra Khatri	City Engineer	City of Arcata	(707) 825-2173 nkhatri@cityofarcata.org

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
David Caisse	Assistant City Engineer	City of Arcata	(707) 825-2175 dcaisse@cityofarcata.org

2.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 23: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Michiko Mares	General Manager	Humboldt Bay Municipal Water District	gm@hbmwd.com	1. Local and regional agencies involved in hazard mitigation activities
Chris Emmons	Fire Chief	Arcata Fire Protection District	cemmons@arcatafire.org	2. Agencies that have the authority to regulate development
Amos Pole	Director of Emergency Management	Yurok Tribe	apole@yuroktribe.nsn.us	3. Neighboring communities, including special districts
		Arcata Main Street	arcatamainstreet@gmail.com	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross – Northern CA	simon.knopf@redcross.org	5. Representatives of nonprofit organizations,

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
		Coastal Region		including community-based organizations

2.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 5 illustrates how the public was encouraged to participate in the survey. The City of Arcata utilized a variety of communications channels that are free and easily accessible such as Facebook and Instagram.

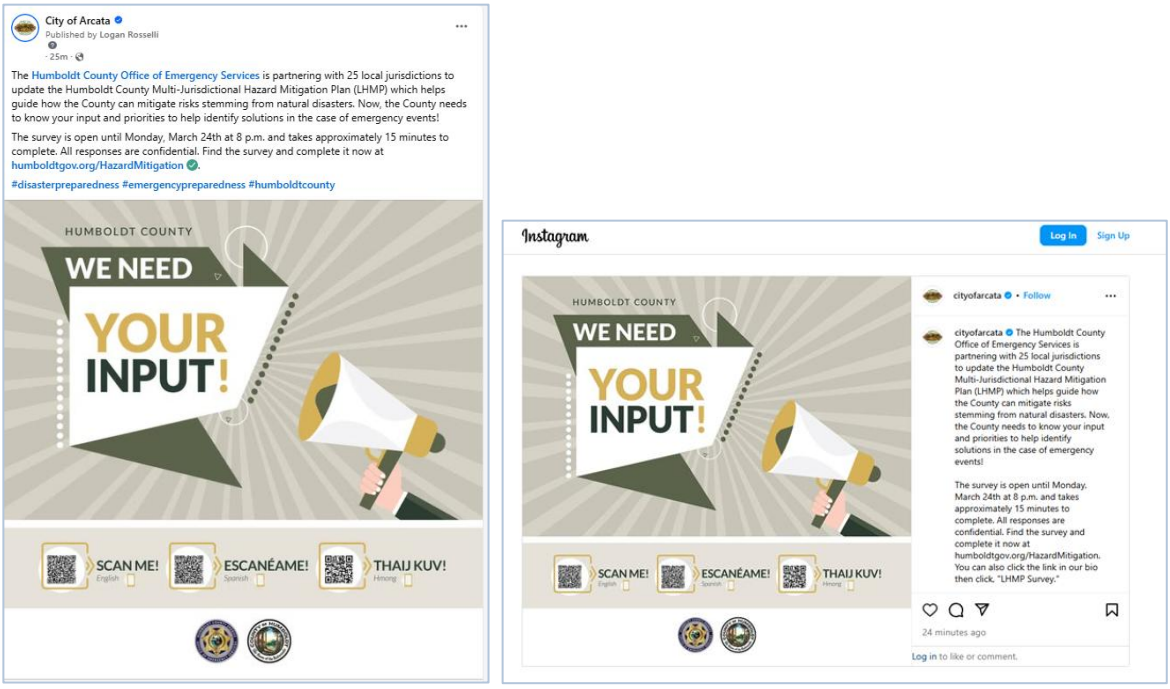


Figure 5: Public Outreach Methods

Public feedback was incorporated into the City of Arcata's risk assessment, as appropriate and the list of ideas which the city reviewed at the Mitigation Action Workshop for inclusion in the list of mitigation actions for this plan update. In particular, residents of the City of Arcata were concerned about the vulnerability of infrastructure in the city and housing. In terms of infrastructure, they felt that the community's infrastructure was not very well prepared for the impacts of climate change. They recommended actions to update infrastructure, such as

bridges, roads, power infrastructure and the water supply. These suggestions were integrated into the city's chosen mitigation actions.

2.1.3.1. VULNERABLE POPULATION OUTREACH

Some Arcata residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Arcata may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Figure 6 displays how the city advertised the survey specifically to vulnerable populations. Some outreach methods included resources such as Nextdoor and website newsflashes, since these are more frequently used by underserved populations, such as seniors. In addition to posting information about the HMP update and public input survey on the city's website and social media platforms, the city sent the flyers and requested they be posted at: Arcata House Partnership, a homeless services nonprofit organization; mobile home park owners and applicants of the city's Mobile Home Rehabilitation grant program; housing facilities, including low-income housing facilities; local businesses and community spaces including credit unions, grocery stores, city parks and community centers; the Potawot Health Village; and the city's community ambassadors, who maintain a presence in the downtown area and often interact with the homeless community, also carried flyers and encouraged survey participation.

Figure 6: Public Outreach to Vulnerable Populations

2.1.4. Plan Integration

2.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 24.

Table 24: Previous Plan Integration for the City of Arcata

Plan Name	Description
General Plan	The Public Safety Element of the General Plan states that it addresses "the protection of life and property from natural hazards" and lists all the hazards identified in the last HMP; it further states how those hazards may be intensified by climate change.

Plan Name	Description
Emergency Operations Plan	The Emergency Operations Plan (EOP) specifically addresses all the natural hazards identified in the last hazard mitigation plan and incorporates the hazard annexes directly from the HMP as appendices to the EOP.
Forest Management Plan	The Forest Management Plan Draft Update (2020) acknowledges increased risks of wildfire ignition from lower fuel moisture levels and increased human interaction in the forest, including recreational use, illegal camping and residential development in the Wildland-Urban Interface. The plan also addresses forest management practice techniques that improve forest resilience against wildfire.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 25 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 25: Future Types of Plan Integration for the City of Arcata

Type of Plan	Integration Method
Economic Strategic Development Plan Update	The new HMP can be integrated into the updated Economic Strategic Development Plan by informing desirable development trends and areas of avoidance.
Emergency Operations Plan Update	Information from the new HMP can be re-integrated into the next Emergency Operations Plan update with more current hazards exposure information and recommended plans of action.
Capital Improvement Program (CIP) Adaptation Plan	The updated HMP can inform the CIP Adaptation Plan by pairing priority action items with planned CIP projects.

2.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 26: City of Arcata Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	No	Historically, the City of Arcata has not experienced extreme heat due to the coastal cooling effect of Arcata Bay.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 27: City of Arcata Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	High	High	High	Medium
Drought	High	Medium	Medium	Medium	High
Earthquake	High	High	High	High	High
Extreme Cold	High	Low	Medium	Low	Medium
Flooding	High	Medium	Medium	Medium	High
Landslide	High	Medium	Low	High	High
Tsunami	Medium	High	High	High	High
Wildfire	High	Low	Medium	Medium	Medium
Wind	High	High	High	Medium	High
Winter Weather	High	High	High	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

2.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Arcata. Other hazard events that broadly affected the entire planning area, including the City of Arcata, are listed in the risk assessments in Volume 1.

2.2.1.1.HISTORICAL EVENTS

Table 28 presents a summary of the storm events that have occurred in the City of Arcata between Nov. 1, 2019 to Dec. 31, 2024 from the National Centers for Environmental Information (NCEI).

Table 28: NCEI Storm Event Database for the City of Arcata (2019–2024)

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Arcata Airport	5/8/2022	Hail	0	0	$5,000.00	$0

The NCEI database does not always capture localized hazard data. To address this gap, the City of Arcata has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **January–March, 2022:** Increase in Cyanobacteria in local rivers, causing danger to children and dogs.
- **May–October, 2021:** Local fishing industry restricted/impacted.

EARTHQUAKE

- **Dec. 5, 2024:** Business interruption.
- **Dec. 20, 2022:** Water tank #4 displacement and leak. Cracks on slab/tiles in Arcata Community Center. Leak in the roof of Phillips House Museum.

EXTREME COLD

- **December, 2024–January, 2025:** Residents with insecure housing, outdoor plants and animals at risk. No reported damage.
- **January–March, 2024:** Residents with insecure housing, outdoor plants and animals at risk. No reported damage.

- **November, 2023:** Residents with insecure housing, outdoor plants and animals at risk. No reported damage.
- **February–March, 2023:** Residents with insecure housing, outdoor plants and animals at risk. No reported damage.

FLOODING

- **Jan. 13, 2024:** Business interruption and structural damage. High flows from inflow and infiltration at the wastewater treatment plant. Many roadways were unpassable. Agricultural lands were inundated with water.
- **December, 2022-February, 2023:** Business interruption and structural damage. High flows from inflow and infiltration at the Wastewater Treatment Plant (WWTP). Many roadways were unpassable. Agricultural lands were inundated with water.
- **October–December, 2021:** Business interruption and structural damage. High flows from inflow and infiltration at WWTP. Many roadways were unpassable. Agricultural lands were inundated with water.
- **January–February, 2019:** Business interruption and structural damage. High flows from inflow and infiltration at WWTP. Many roadways unpassable. Agricultural lands inundated with water.

Figure 7: Locations of Flooded Areas in Arcata

Site 1: 14th Street crossing at Bob's Lumber

14th Street looking west to Bob's Lumber

Looking upstream at potential flood retention basin

Site 2: 11th Street crossing

11th Street looking west, probably 12 inches before overtopping sidewalk

From 11th Street looking north at potential restoration site

Site 3: Creekside Apartments, corner of 9th and J Streets

Both culverts pressurized

Site 4: Dead Reckoning Flooding, 8th and J Streets

Site 5: Breast and GYN Health Project flooding, 8th and J Streets

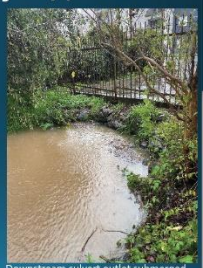
Flood peak on top of tidal backwater into culvert is causing flow to come out of storm drains and flood streets

Site 6: Daylighted Creek Project, corner of 7th and J Streets

Flood peak approximately 6 inches below storm runoff basin

Site 6: Daylighted Creek Project, 7th and J Streets

Upstream culvert outlet submerged and pressurized, tidal backwater



Downstream culvert outlet submerged, tidal backwater

Figure 8: Photos of Flooding Sites across Arcata

LANDSLIDE

- **January–March, 2024:** Isolation from main highways (101 and 299) being unpassable. Heavy sediment loads flowing into waterways.
- **Jan. 6, 2023:** Isolation from Highway 101 at Last Chance Grade being unpassable. Heavy sediment loads flowing into waterways.

- **Jan. 2, 2023:** Isolation from Highway 299 being unpassable. Heavy sediment loads flowing into waterways.
- **Jan. 14, 2021:** Isolation from Highway 299 being unpassable. Heavy sediment loads flowing into waterways.
- **Feb. 25, 2019:** Isolation from Highway 299 being unpassable. Heavy sediment loads flowing into waterways.

TSUNAMI

- **Dec. 5, 2024:** Business interruption from tsunami warning.

WILDFIRE

- **August–November, 2020:** Public safety power shutoff events with extended power outages. Business interruption. Food spoilage.
- **July–August, 2018:** Public safety power shutoff events with extended power outages. Business interruption. Food spoilage.

WIND

- **November–December, 2024:** Power outages. Downed trees on multiple roadways. Some roofs damaged.

WINTER WEATHER

- **Jan. 13, 2024:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.
- **December, 2022–February, 2023:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.
- **November–December, 2021:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.
- **January–February, 2019:** Power outages. Unsafe road conditions, leading to accidents and delays in travel.

2.2.2. Jurisdiction-Specific Vulnerabilities

This section provides information on a few key vulnerabilities for the jurisdiction.

Table 29: City of Arcata Vulnerabilities

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* Significant portions of Arcata are located in the inundation zone from the R.W. Matthews Dam, including critical transportation infrastructure and individuals living near the Mad River. The City of Arcata is located just south of the Mad River, which the R.W. Matthews Dam dams. *Impacts:* A dam failure would impact people, particularly underserved populations whose housing might not be adequate; structures, such as the city's wastewater treatment plant and Corporation Yard, additional critical water/wastewater infrastructure, multiple schools and Mad River Community Hospital. A dam breach could inundate portions of Boyd Road and the Mad River Parkway.
Drought	*Vulnerabilities:* Low water supply and/or restrictive water conservation measures could limit the city's potable water infrastructure and firefighting ability. The entire population is vulnerable to low water supply. *Impacts:* The City of Arcata is located between the Mad River to the North and Arcata Bay to the South. A drought would have serious implications on both of these bodies of water and, in turn, Arcata. These impacts include mandatory or voluntary/encouraged water restrictions, putting strain on the residents of Arcata. Agriculture and fishing industries could be seriously impacted by limited water supplies. Other capabilities could be diminished, such as water for firefighting and cultural practices and resources, particularly for the over 500 Indigenous residents of Arcata who rely on fishing. Boating and swimming might face the risk of exposure to Cyanobacteria.

Hazard	Vulnerabilities and Impacts
Earthquake	Vulnerabilities: The entire population, structures and critical infrastructure in Arcata are vulnerable to an earthquake from the Cascadia Subduction Zone. The city is situated near multiple active faults that could produce a major earthquake. Even with modern seismic building codes, structures, infrastructure and people in Arcata are vulnerable to major earthquakes. *Impacts:* In all four of the HAZUS earthquake scenarios run for this hazard mitigation plan, the City of Arcata suffered tens to hundreds of millions of dollars in damage. The impacts from these earthquakes include the following: people could suffer severe injuries or deaths. The entire 19,000+ population could be impacted, including visitors and students. Depending on the extent of the event, these impacts could be exacerbated by limited access to medical facilities. Historic buildings not seismically retrofitted could be seriously damaged. Critical infrastructure (e.g., water tanks) could stop functioning. Roadways could be damaged, limiting the effectiveness of emergency response. Power outages could lead to the loss of food resources and interruptions to communications and the economy. Fires and/or gas leaks could impact people and property.
Extreme Cold	*Vulnerabilities:* The unhoused population is vulnerable to extreme cold. Critical infrastructure such as the city's water system could be disrupted. Other structures and infrastructure is unlikely to be at risk. *Impacts:* People, especially those without homes to shelter in, are at risk of exposure and potentially death (30% of Arcata live in poverty and could find it difficult to afford heat during extreme cold. Agricultural damage from cold snaps can occur, and structural damage, such as from frozen pipes could occur.

Hazard	Vulnerabilities and Impacts
Flooding	*Vulnerabilities:* According to FEMA FIRM maps, the City of Arcata is primarily vulnerable to flooding in its southern section near Arcata Bay; along Jane's Creek, which bisects the city; and in its northern side near the Mad River. Populations and infrastructure in those areas are most vulnerable to flooding. Additionally, particularly vulnerable populations include people with disabilities (approximately 9% of Arcadia's population), low-income populations, and the unhoused who often camp near creeks and the bay which may flood. *Impacts:* People may be injured or killed. Businesses and homes could face significant flooding. Infrastructure could be overwhelmed. For instance, the wastewater treatment plant could face high inflow and infiltration. Roadways can become impassable, isolating residents, impacting businesses and impeding emergency access. Agriculture fields can be inundated. Erosion could impact natural resources and put roads and structures at risk.
Landslide	*Vulnerabilities:* The east side of Arcata is most vulnerable to landslides in the city. West of Highway 101 is more sloped, particularly around Arcata Community Forest. The infrastructure and people on this side of the City are most vulnerable to landslides. *Impacts:* Damaged roadways, like Highway 101, might be impassable, isolating residents, interrupting business because of a limited supply chain and impeding emergency access. Large sediment deposits into rivers and streams, like Jolly Giant Creek and Gannon Slough, can impact natural resources and the fishing industry. Conditions could be dangerous for people in residences and vehicles. Facilities like the Humboldt Senior Resource Center and California State Polytechnic University are at risk of impacts.

Hazard	Vulnerabilities and Impacts
Tsunami	*Vulnerabilities:* The City of Arcata is vulnerable to tsunamis, particularly in the southern side of the City close to Arcata Bay. Homes, residents and critical infrastructure close to Arcata Bay are vulnerable to flooding and wave action from a tsunami. *Impacts:* People in the tsunami hazard zone, especially vulnerable populations with limited mobility or lack of transportation may be injured or killed. Pets and livestock are also at risk and can be difficult to evacuate. Roadways, including South G St., Samoa Blvd., and Highway 101, may be impacted by tsunami and evacuation orders, causing bottlenecks and traffic backups, which can hinder emergency response. Critical facilities in the hazard zone include the Arcata Ambulance Services, the city's water/wastewater treatment infrastructure and its corporation yard, which includes heavy equipment and a large portion of the city's fleet.
Wildfire	*Vulnerabilities:* While the City of Arcata does not have a high level of vulnerability to wildfire, the eastern side of the city has a higher vulnerability than the western side. The area west of Highway 101 is rated as having moderate severity to wildfire according to CAL FIRE. The homes, businesses, people and infrastructure on this side of Arcata are at a higher vulnerability than other sections of the city. The U.S. Forest Service has identified approximately 70 percent of the City as a wildland–urban interface (WUI), which is the area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. *Impacts:* Smoke and poor air quality can affect people and agriculture (crops). Residents in the WUI abutting the Arcata Community Forest are at higher risk. However, redwood forests have high humidity, reducing the risk of wildfire. Wildfires in surrounding regions could impact transportation (such as road closures).
Wind	*Vulnerabilities:* The entire community is located in Wind Zone I which could experience winds up to 130 mph. All people, property and infrastructure is vulnerable to wind. Transportation routes are vulnerable to disruption due to downed trees and power lines. Infrastructure and facilities that do not have backup power supplies are vulnerable. *Impacts:* Downed power lines can lead to power outages and the loss of heat, food and economic activity. Downed trees can threaten structures and block roadways, causing transportation issues and hindering emergency response. They also pose a risk to people (life and limb).

Hazard	Vulnerabilities and Impacts
Winter Weather	*Vulnerabilities:* The unhoused population is a highly vulnerable to winter weather from both the cold and the potential for large amounts of snow. The elderly are at elevated vulnerability as well. Critical infrastructure such as the city's water system could be disrupted. Trees, power lines and roads are vulnerable. *Impacts:* Closed roadways can affect transportation, and there is greater potential for auto accidents. People, especially vulnerable and unhoused populations, are particularly vulnerable. Downed trees can damage transportation infrastructure and critical facilities. Economic activity might decline when it is challenging for people to go places or be outside.

2.2.2.1. DEVELOPMENT CHANGES

Table 30 summarizes development trends in the City of Arcata since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 30: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	(1) Craftsman's Mall – Student Housing Project (940 beds) (2) City's WWTP Upgrade	Gateway Project	(1) Potential increase due to denser development (2) Decreased vulnerability due to increased operability
Commercial	Cannabis farms declining and small business closures during and following COVID pandemic	Nordic Aquafarms	No change
Industrial	Humboldt State University became California State Polytechnic University, Humboldt	Offshore Wind Farm	No change

2.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Arcata performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory capabilities
- Administrative and Technical capabilities
- Financial capabilities
- Education and Outreach capabilities

2.3.1. Planning and Regulatory Capabilities

Table 31 and Table 32 summarize the City of Arcata's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 31: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes	Consider hazard exposures in development planning	Last Update: 07/2024 Next Update: 07/2045
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	Yes	By prioritizing projects that address multiple hazards and seeking FEMA funding	Last Update: 07/2023 Next Update: 06/2028
Climate Change Adaptation Plan	No	Pair Implementation Plan measures in the Climate Action Plan that help mitigate hazards	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	Consider impacts of natural hazards on economic opportunities in the region	Last Update: 2010 Next Update: 2026

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Land Use Plan	Yes	Consider the potential impacts of natural hazards on suitability/safety of various land uses in a given area	Last Update: 02/2022 Next Update: 02/2042
Local Emergency Operations Plan	Yes	Consider how natural hazards could both trigger the need for EOP implementation and how implementation of the EOP could be disrupted/impacted by natural hazard events	Last Update: 01/2021 Next Update: 01/2026
Stormwater Management Plan	Yes	Consideration of seismic hazards are included, but consideration of the potential impact of other natural hazards could be incorporated as well	Last Update: 02/2013 Next Update: 02/2026
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A
Forest Management Plan	Yes	Inform and support wildfire risk reduction strategies	Last Update: 12/1994 Next Update: 12/2026

Table 32: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 01/2023 Next Update: 01/2026
Flood Insurance Rate Maps	Yes	Yes	Last Update: 06/2017 Next Update: Unknown
Floodplain Ordinance	Yes	Yes	Last Update: 07/2017 Next Update: 07/2027
Subdivision Ordinance	Yes	Yes	Last Update: 10/2008 Next Update: 07/2026
Zoning Ordinance	Yes	Yes	Last Update: 09/2023 Next Update: 07/2026
Natural Hazard Specific Ordinance	No	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

2.3.2. Administrative and Technical Capabilities

Table 33 and Table 34 summarize the City of Arcata's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 33: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	Yes	Yes	No

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	Yes	No
Community Planner	Non-Vacant	Yes	No	Yes
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Non-Vacant	No	Yes	No
Geographic Information System (GIS) Coordinator	Non-Vacant	No	Yes	Yes
Planning Commission	Non-Vacant	Yes	Yes	Yes
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 34: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Informing priority hazard mitigation risk activities	Obtain and implement hazard mitigation grant projects
GIS	Yes	Identification and public education on zones at risk of natural hazards	In the assessment of mitigation project areas, permitting and implementation
Mutual Aid Agreements	Yes	By pooling resources and providing backup/redundant coverage of service areas during emergency situations	By developing plans for pooling resources and providing backup/redundant coverage of service areas to increase systems' resiliency

2.3.3. Financial Capabilities

Table 35 summarizes the City of Arcata's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 35: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Structural retrofitting, advanced technical assistance?
Capital Improvement Project Funding	Yes	Emergency water storage; waterline retrofits to improve resiliency; levee improvements to protect critical facilities; drainage improvements to mitigate flooding; police department radio system upgrades to improve emergency response communications	Yes	Yes
General Funds	Yes	Emergency operations planning; CERT training for staff; upgrading police radio system	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Retrofitting and advanced technical assistance	Yes	No
Building Resilient Infrastructure and Communities (BRIC)	Yes	Retrofitting and advanced technical assistance	Yes	No
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	Yes	Housing and Community Development	No	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Structural retrofitting, advanced technical assistance?
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Improvements and maintenance for roadways, parks and natural resource restoration	No	No
Stormwater Utility Fee	Yes	Stormwater management improvements for flood hazard mitigation	Yes	Yes
Fees for Water, Sewer, Gas or Electric Services	Yes	WWTP upgrade to improve treatment methods and eliminate hazards of chlorine gas storage at a critical facility that is vulnerable to sea level rise, coastal flooding, dam failure, earthquake and tsunami; levee improvements to protect WWTP; water infrastructure redundancy projects	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	No	No	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Structural retrofitting, advanced technical assistance?
General Obligation or Special Purpose Bonds	Yes	Long-term capital improvement projects, like water and wastewater infrastructure upgrades	No	No
Federal-Funded Programs	Yes	U.S. Environmental Protection Agency Brownfields Grant to remove contaminated soil from property in the coastal zone, vulnerable to sea level rise, coastal flooding, dam failure and tsunami	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	Yes	Emergency shelter facility use agreements; warming shelter provision agreements	Yes	Yes

Note: The potential to use any of the above funding types toward mitigation actions is subject to the city council's desire and approval to do so.

2.3.4. Education and Outreach Capabilities

Table 36 summarizes the City of Arcata's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 36: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	The city participates in the Great ShakeOut earthquake drills annually. The city holds a "Water Week" campaign annually, which includes water conservation education to reduce risk of drought.
Public Meetings/Events	Yes	Yes	City council meetings, committee and commission meetings and public information/input meetings about city projects; city staff share hazard mitigation resources (e.g., local tsunami hazard zone maps) during public meetings, as applicable to the meeting agenda and content
Emergency Management Listserv	Yes	Yes	The city has a link for residents to sign up for CodeRED emergency alerts/notifications on the city's website.
Local News	Yes	Yes	The city manager (as Public Information Officer [PIO]) sometimes accepts interviews from local journalists/newscasters.
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	American Red Cross, Arcata House Partnership, Centro del Pueblo, Arcata Playhouse, Comunidad Unida del Norte de Arcata (CUNA), Cumbre Humboldt
Social Media	Yes	Yes	Facebook, Instagram
Weekly Press Releases	Yes	Yes	Some press releases pertain to hazard warnings and mitigation strategies, such as notices about King Tides and potential flooding.

2.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 37: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The city's Stormwater Management Plan was developed in 2005. In 2012, the State mandate for municipal separate storm sewer systems (MS4s) replaced the city's plan, and the city is currently in year 12 of its Phase II MS4 permit. The city anticipates an updated permit and requirements from the Water Board within the next year. This planning effort will require significant staff or consultant resources drawn from a limited fund. Last year, the city contracted a local consultant to conduct a sea level rise vulnerability and adaptation analysis of Arcata shorelines. The final product will be a Capital Improvement Program Adaptation Plan that will inform mitigation strategies in future CIP and development planning. The city just updated its General Plan and is beginning the process of updating its Economic Strategic Development Plan (ESDP). The available space of expanded development is limited, and some of the industrially zoned area is in the tsunami hazard zone and vulnerable to coastal flooding and sea level rise. It will be important to ensure that the ESDP takes into consideration hazard exposures.
Administrative and Technical	The city currently has one full-time and one part-time staff dedicated to GIS. The full-time employee, who has a breadth of institutional knowledge, will likely retire soon. There is a significant need for another full-time equivalent (FTE) to cross-train and be prepared to step into this critical role. The Environmental Services Department is pursuing the creation of a new full-time utilities/GIS analyst position that would also focus on assessing and analyzing utility infrastructure. The floodplain manager is also the city engineer, who oversees the Building and Engineering Department, as well as the city's CIP projects. His role as floodplain manager is secondary to his primary duties, and therefore he has limited staff time to devote to these efforts.

Capability Type	Opportunity to Expand and/or Improve
Financial	One of the limiting factors in applying for additional and new grant programs is the limited staff resources to manage the application and grant administration (tracking, reporting, reimbursement requests, compliance with audit requirements, etc.). These costs are often excluded by the grants and are lost costs if the grant is not awarded to the city. Additional staff to support these efforts, as well as access to resources with successful experience in particular programs, would be helpful in expanding grant and program capacity. The city recently completed a Stormwater Rate Study to assess the potential for an additional drainage maintenance fee to fund needed stormwater improvements to decrease chances of flooding in certain areas of the city. An internal audit needs to be completed on current stormwater fee exemptions prior to pursuing implementation of a new additional fee. Stormwater funds are limited, and the audit will require significant dedication of limited staff time.
Education and Outreach	The city can continue to pursue partnerships to ensure vital hazard mitigation information is provided to the community in both English and Spanish. The city would like to expand its use of social media to help disseminate pertinent information on hazard mitigation and emergency preparedness. However, the city does not have a public information officer, and it contracts out social media management. Additional work to enhance hazard awareness efforts would increase the contract price.

2.4. National Flood Insurance Program

The City of Arcata has been a participant in the NFIP since 1983. Details of NFIP policies in the City of Arcata are in Table 38. Additional NFIP information is in Table 39 to Table 41. Continued compliance with NFIP standards is expected for the City of Arcata.

Table 38: City of Arcata NFIP Details

Community Name	Community Number	Total Premium + FPF[4]	Total Policy Count	Total Coverage	Total Losses
Arcata, City of	060061	$68,128.00	70	$18,482,000.00	18

Table 39: Floodplain Management

Floodplain Management	
Who is the floodplain manager? Is this their primary or secondary role?	City engineer, secondary role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	It is part of the planning and permitting process; plans are reviewed by a designated engineer to ensure construction is done per the adopted codes; the city also has code enforcement staff who ensure compliance per the code if there are violations reported
When was the community's most recent Community Assistance Visit (CAV)?	Unknown
Were any violations noted on the community's most recent CAV?	N/A
Is there an upcoming CAV? If no, is one needed?	Upcoming CAV?: No Is one needed?: No
When was the most recent floodplain management ordinance adopted?	06/2017
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	Yes By staying in compliance and adopting appropriate codes regularly
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Yes By adopting latest construction standards (methods, materials, proof of elevation certificates)

[4] FPF: Federal Policy Fee

Floodplain Management	
Who is responsible for permitting?	The city engineer and building official
How does the community issue development permits in the special flood hazard area?	Ensuring that flood certificates for the flood hazard areas are prepared by a licensed surveyor or engineer
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes N/A; the city has not seen any new construction in hazard areas.
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	1, residential
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	0
Have any RL/SRL properties been mitigated since the last plan update?	Yes
Who is responsible for making substantial damage/substantial improvement determinations?	The city engineer
How does the substantial damage/substantial improvement process work in your community?	It is a coordinated effort between the city's Environmental Services (i.e., Public Works), Engineering and Building Departments to ensure proper documentation is completed and that appropriate state and federal (Cal OES/FEMA) protocols are followed for such events.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	No
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	N/A
Have any substantially damaged/ substantially improved structures been mitigated since the last plan update?	No

Floodplain Management	
How will the community remain in compliance with the NFIP moving forward?	By ensuring that all new construction is done per the latest building and FEMA codes

Table 40: Floodplain Mapping

Floodplain Mapping	
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	By preparing a Letter of Map Amendment and sending it to FEMA staff
When did the latest Flood Insurance Rate Map (FIRM) become effective?	11/1997
When was the latest FIRM adopted?	11/2016
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Yes Through the city's GIS Parcel Finder web application
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No

Table 41: Flood Insurance and Outreach

Flood Insurance and Outreach	
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	By providing access to FEMA's FIRM through the city's GIS Parcel Finder web application
How does the community engage with insurance agents on flood insurance?	N/A
Does the community (or state) have flood hazard disclosure laws?	Yes

Flood Insurance and Outreach	
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	70
Are there any areas where flood insurance is lacking?	Yes Land areas adjacent to creeks

2.5. Mitigation Strategy

The City of Arcata has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1.

2.5.1. Previous Mitigation Actions

Table 42: Previous Mitigation Actions

Mitigation Action	Description	Status
ARC1	Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing any critical facilities and those structures that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	**Partially Completed. (Study for relocating WWTP out of tsunami/sea level rise [SLR] zone.)** **Carried forward into next Action Plan as two separate items (#2 & #3).**
ARC2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the Local Coastal Program, the Forest Management Plan, the Arcata General Plan Safety Element and the Arcata Land Use Code.	**Partially Completed**. *(Integrated into Forest Management Plan.)* **Carried forward into next Action Plan as #4.**
ARC3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	**Deferred – City of Arcata will join efforts of County of Humboldt and planning partnership to maintain this plan (Action Plan Item #1).**

Mitigation Action	Description	Status
ARC4	Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts. • Seek NFIP certification for a city staff person.	**Deferred – Carried forward into next Action Plan as #5.**
ARC5	Identify and pursue strategies to increase adaptive capacity to climate change, including but not limited to the following: • Conduct a vulnerability assessment on sea level rise. • Flood diversion and storage opportunities in wetlands and floodplains. • Public outreach and education regarding emergency preparedness and hazard risk awareness. • Shoreline protection measures and managed retreat from high-risk hazard areas.	**Partially Completed**. *(Hired Northern Hydrology to conduct Coastal Hazard Scenario elevations for Advanced Water Treatment Facility [AWTF]. Hired GHD for SLR vulnerability analysis and adaptation planning.)* **Deleted – Addressed in new Action Plan as multiple Action Items: #9, #19, #24, #30, #35, #36, #37.**
ARC6	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including Arcata Community Center and D Street Neighborhood Center.	**Partially Completed. (***Purchased generators for Arcata Community Center, D Street Neighborhood Center and portable generators for water/sewer pump/lift stations.)* **Deferred – Carried forward in new Action Plan as Item #6.**

Mitigation Action	Description	Status
ARC7	Implement projects in the city's Capital Improvement Plan that enhance hazard mitigation.	**Partially Completed.** *(21-03) Arcata Police Department Radio System Upgrade (improve emergency communications quality and resiliency);* *(48-07) Annie & Mary Trail Connectivity (increase alternative transportation/ reduce greenhouse gases [GHGs]);* *(48-21) Isaacson Sustainable Transportation Infrastructure Projects (increase alternative transportation/reduce GHGs);* *(63-06) Plunkett Waterline Improvements: Phase 2 (Cal OES Grant – replace aging infrastructure and increase seismic resiliency);* *(64-01) Water Storage Tank 1C (construction contract w/Mercer Fraser awarded Sept. 2022);* *(67-35) Levee Project to Protect WWTP (Cal OES grant), awarded to SHN Nov. 2022.* **Deferred – Carried forward in new Action Plan as Item #7.**
ARC8	Improve reliability of continued operations of critical water and wastewater facilities and infrastructure during emergencies, including the pump station on Alliance Road.	**Partially Completed.** *(Tank 1C Water Storage. Plunkett Waterline Retrofit.)* **Deferred – Carried forward in new Action Plan as Item #8.**
ARC9	Continue to support the Hazard Mitigation Plan partnership and the countywide initiatives identified in Volume 1 of this plan.	**Deferred – City of Arcata will join efforts of County of Humboldt and planning partnership to maintain this plan (Action Plan Item #1).**
ARC10	Continue to improve shoreline protections (including levees, seawalls, living shorelines, etc.) around risk critical facilities, including the Corporation Yard and WWTP.	**Deferred –** WWTP Levee Expansion Project analysis in still in progress. **Carried forward in new Action Plan as Item #9.**
ARC11	Develop a list of needed seismic retrofits for the city's critical facilities.	**Deferred** – **Carried forward in new Action Plan as Item #2.**

Mitigation Action	Description	Status
ARC12	Improve local radio and other emergency response and operational communications on a designated shared channel and support regional efforts to broaden communications capacity.	**Partially Completed.** *(APD Public Safety Radio Upgrades)* **Deferred – Carried forward in new Action Plan as Item #10.**
ARC13	Develop detailed lists of existing and needed emergency resources (shelters, food sources, etc.) and seek funds to develop resources that are identified as lacking.	**Deferred – Replaced in new Action Plan as Item #20**
ARC14	Continue to support the development and ongoing training of CERTs.	**Deleted, no longer relevant**
ARC15	Maintain updated hazard and emergency preparedness information on the city's website with a link to the county's website.	**Completed.**
ARC16	Develop semi-annual city staff training in community emergency response.	**Deferred – Carried forward in new Action Plan as Items #32 & #33**
ARC17	Increase emergency water storage capacity (fire protection, backup supply, etc.).	**Partially Completed.** *(Water Storage Tank 1C)* **Deferred – Carried forward in new Action Plan as Item #9.**
ARC18	Develop a debris management plan, including identifying hazardous waste storage locations.	**Deleted –** included in area-wide mitigation actions.
ARC19	Develop a city-wide evacuation plan and maps with pre-designated routes based on each area/zone of the city.	**Deferred – Carried forward in new Action Plan as Item #13.**
ARC20	Implement the "Priority Action Recommendations" identified in the Community Wildfire Protection Plan, Humboldt Bay Area Planning Unit Action Plan that are pertinent to Arcata.	**Deferred – Carried forward in new Action Plan as Item #23.**

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2.5.2. Updated Mitigation Actions

Table 43: 2025 Mitigation Actions[5]

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC1	Support the Countywide Actions identified in this HMP.	City Manager's Office	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds	Low	Medium-term	Both	Yes	Yes
ARC2	Assess the feasibility of seismic retrofitting or elevating of critical infrastructure and other structures located in high- or medium-risk hazard areas.	Building and Engineering Department	Medium	Earthquake, tsunami	General funds, PDM, HMGP	Medium	Short-term	Existing	Yes	Yes
ARC3	Support the purchase or relocation of critical infrastructure and other structures located in high- or medium-risk hazard areas, prioritizing any critical facilities and those structures that have experienced repetitive losses.	Environmental Services Department	Medium	Dam failure, earthquake, flooding, landslide, tsunami, wildfire	General funds, HMGP, PDM, PA mitigation, CDBG	High	Long-term	Both	Yes	Yes

[5] BRIC: Building Resilient Infrastructure and Communities, CDBG: Community Development Block Grant, FMA: Flood Mitigation Assistance, HMGP: Hazard Mitigation Grant Program, IIG: Infrastructure Investment Grant, PA: Public Assistance, PDM: Pre-Disaster Mitigation

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC4	Integrate the HMP into other plans, ordinances and programs that dictate land use decisions in the community, for example, the Local Coastal Program, the Forest Management Plan, the Arcata General Plan Safety Element and the Arcata Land Use Code	Community Development Department	Medium	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, HMGP, staff time	Low	Short-term	Both	Yes	Yes
ARC5	Maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: Enforce the flood damage prevention ordinance; Participate in floodplain identification and mapping updates; Provide public assistance/information on floodplain requirements and impacts; Seek NFIP certification for a City staff person.	Building and Engineering Department	Low	Flooding	General funds, FMA, staff time	Low	Medium-term	Both	Yes	Yes
ARC6	Support secondary power sources, such as generators and solar photovoltaic systems, that increase power resilience at critical facilities and infrastructure, such as temporary emergency shelter locations and water and sewer infrastructure, to mitigate the impact of hazards that may cause power outages.	Environmental Services Department	Medium	Dam failure, earthquake, extreme temperatures, flooding, tsunami, wildfire, wind	HMGP, general funds, BRIC, PDM	High	Medium-term	Existing	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC7	Implement projects identified in the City's Capital Improvement Plan that support hazard mitigation.	Building and Engineering Department	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Medium	Medium-term	Both	Yes	Yes
ARC8	Improve resilience and reliability of critical water and wastewater infrastructure and facilities for continued operability during and following natural hazard events; examples include the pump station on Alliance Road and First Street Pump Station.	Environmental Services Department	High	Dam failure, earthquake, flooding, tsunami, wildfire, winter weather	HMGP, general funds, PDM	Medium	Medium-term	Existing	Yes	Yes
ARC9	Implement shoreline protections (such as levees, seawalls, living shorelines, etc.) around critical facilities near Humboldt Bay, including the City's Corporation Yard and Wastewater Treatment Plant, to protect against and reduce impacts of erosion and storm surge.	Building and Engineering Department	High	Tsunami, flooding, winter weather	HMGP, PDM, general funds	High	Long-Term	Existing	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC10	Enhance local radio and other operational communications, such as handheld radios for City crews, necessary for sustaining coordination and response during and after natural hazard events and support regional efforts to broaden and coordinate communications capacity.	City Manager's Office, IT Division	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, enterprise funds, CDBG	Low	Short-term	New	Yes	Yes
ARC11	Develop and conduct semi-annual City staff training in incident response, emergency operations protocols and provide community assistance in emergencies.	City Manager's Office	High	Dam failure, earthquake, tsunami, wildfire	General funds, staff time	Low	Short-term	Both	Yes	Yes
ARC12	Increase emergency water storage capacity for fire protection and back-up supply to increase resiliency against drought and other natural hazard events.	Environmental Services Department	Medium	Drought, wildfire, earthquake	HMGP, IIG, State Revolving Fund, CDBG, Water Fund	$4,000,000	Medium-term	New	Yes	Yes
ARC13	Develop a city-wide evacuation plan and maps with pre-designated routes based on each area/zone of the city. Coordinate with adjacent jurisdictions on a regional evacuation response.	Building and Engineering Department	High	Dam failure, earthquake, tsunami, wildfire	HMGP, PDM, general funds	Low	Short-term	Both	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC14	Dedicated Emergency Shelters & Accessibility Improvements: Enhance accessibility of emergency shelters for compliance with ADA standards for mobility, communication and medical needs. Assess and implement accessibility improvements in a City facility to serve as a secondary emergency shelter during natural hazard events, such as the D Street Neighborhood Center.	Environmental Services Department	Medium	Earthquake, tsunami, dam failure, wildfire	CDBG, HMGP, PDM, general funds	High	Medium-term	Existing	Yes	Yes
ARC15	Upgrade emergency shelter infrastructure, including generator backups for critical facilities.	Environmental Services Department	Medium	Earthquake, tsunami, dam failure, wildfire	HMGP, PDM	High	Medium-term	Existing	Yes	Yes
ARC16	Assess the risk of hillside slope instability and liquefaction prone areas in high-risk hazard areas, particularly near Humboldt Bay, and develop an emergency response plan.	Building and Engineering Department	High	Earthquake, landslide	HMGP, PDM, general funds	Low	Long-term	Both	Yes	Yes
ARC17	Implement vegetation management to reduce potential erosion and landslides in high- and medium-risk areas.	Environmental Services Department	High	Landslide	HMGP, PDM, general funds	Low	Medium-term	Existing	Yes	Yes
ARC18	Conduct slope stabilization projects in landslide-prone areas.	Building and Engineering Department	Medium	Landslide	HMGP, PDM, general funds	High	Long-term	Both	Yes	Yes
ARC19	Work with community partners to enhance public awareness and education about the potential for natural hazard events, including earthquake, tsunami, dam failure and wildfire	City Manager's Office	High	Dam failure, earthquake, tsunami, wildfire	HMGP, PDM, general funds, staff time	Low	Medium-term	Both	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC20	Design and develop programs to increase support for and resilience of vulnerable populations during natural hazard events, such as warming and cooling centers during extreme temperature events, and distribution of food, water and medical supplies during natural hazard events that trigger home evacuations.	City Manager's Office	Medium	Dam failure, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire	HMGP, PDM, CDBG, general funds, staff time	Medium	Medium-term	Both	Yes	Yes
ARC21	Purchase enhanced-capability road signage, such as changeable message signs, to help increase public safety during an emergency	Environmental Services Department	High	Dam failure, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, general funds	Low	Short-term	Both	Yes	Yes
ARC22	Retrofit aging water supply system with newer technology and infrastructure to improve system resilience during natural hazard events, such as installing remote read water meters and ensuring sufficient water pressure for firefighting in outlying neighborhoods.	Environmental Services Department	High	Earthquake, Drought, Wildfire	HMGP, BRIC, general funds, Water Fund	$4,000,000	Short	New	Yes	Yes
ARC23	Implement additional fuels management along the wildland urban interface of the Arcata Community Forest Tracts	Environmental Services Department	Medium	Wildfire	CAL FIRE	$250,000	Medium-term	Existing	Yes	Yes
ARC24	Conduct stormwater management planning and implement multi-benefit projects along streams in Arcata and on City of Arcata properties to decrease flood potential and enhance habitat	Environmental Services Department	Medium	Flooding	HMGP, PDM	$15,000,000	Medium-term	Existing	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC25	Improve culvert capacity in areas with high-risk and historic flooding issues.	Environmental Services Department	Medium	Flooding	PA Mitigation, HMGP, general funds	High	Long-term	Existing	Yes	Yes
ARC26	Install additional seismic shut-off valves for gas lines in critical facilities.	Building and Engineering Department	High	Earthquake	HMGP, PDM, general funds	Low	Short-term	Existing	Yes	Yes
ARC27	Install additional seismic shut-off valves for water storage facilities and supply lines.	Environmental Services Department	High	Earthquake	HMGP, PDM, general funds	Medium	Medium-term	Existing	Yes	Yes
ARC28	Coordinate with Cal Poly Humboldt University for campus-specific hazard readiness and planning for evacuation shelters in the community	City Manager's Office	High	Earthquake, tsunami, dam failure, wildfire	HMGP, PDM, general funds, staff time	Staff Time	Medium-term	Existing	Yes	Yes
ARC29	Establish a Secondary Corporation Yard in a Safe Zone: Develop a plan to relocate essential emergency equipment (generators, heavy machinery, etc.) to a secure facility outside the tsunami and dam failure hazard zones. This ensures critical response capabilities remain intact even if the primary corporation yard is impacted. The plan should include site selection, funding strategies and operational logistics for rapid deployment during emergencies.	Environmental Services Department	Medium	Tsunami, dam failure	HMGP, PDM, general funds	High	Long-term	New	Yes	Yes
ARC30	Collaborate with Humboldt Bay Harbor District on bay resilience strategies.	Environmental Services Department	Medium	Tsunami, flooding, winter weather	HMGP, PDM	Staff Time	Medium-term	Both	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC31	Strengthen Tsunami Evacuation Infrastructure and Planning. Establish evacuation routes equipped with clear, durable signage, designated pedestrian paths and safe assembly areas on higher ground.	Building and Engineering Department	Medium	Tsunami	HMGP, PDM, general funds, staff time	Medium	Medium-term	Both	Yes	Yes
ARC32	Conduct Community Drills & Public Education. Conduct regular evacuation drills, especially for schools, businesses and at-risk neighborhoods. Provide education on hazard risks and mitigation strategies.	City Manager's Office	Medium	Earthquake, tsunami, dam failure, wildfire	HMGP, PDM, general funds, staff time	Staff Time	Medium-term	Both	Yes	Yes
ARC33	Conduct regular hazard drills in coordination with Cal Poly Humboldt and local agencies.	City Manager's Office	Medium	Dam failure, earthquake, tsunami, wildfire	General funds, staff time	Staff Time	Short-term	Both	Yes	Yes
ARC34	Enhance Early Warning Systems: Expand siren coverage, implement multilingual alerts, social media notifications and integrate real-time text and app-based notifications to ensure rapid warning dissemination.	City Manager's Office	Medium	Dam failure, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, general funds	Medium	Medium-term	Both	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC35	Targeted Emergency Communication & Outreach: Use multilingual alerts, ASL interpreters and alternative communication methods (e.g., door-to-door outreach, community radio, text alerts) to ensure all residents receive timely emergency information.	City Manager's Office	Medium	Dam failure, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, general funds	Low	Medium-term	Both	Yes	Yes
ARC36	Manage development in areas of the city that are rated high hazard severity for tsunami, flooding, landslides and wildfire.	Community Development Department	High	Tsunami, flooding, landslide, wildfire	HMGP, PDM, general fund	Medium	Short-term	New	Yes	Yes
ARC37	Coastal Land Use Planning & Managed Retreat: Restrict new development in high-risk tsunami zones and explore long-term relocation strategies for critical infrastructure and vulnerable populations.	Community Development Department	Medium	Tsunami, winter weather	HMGP, PDM, general funds, staff time	Staff Time	Long-term	New	Yes	Yes
ARC38	Increase On-Site Fuel Storage Capacity: Expand fuel storage at critical facilities (police, fire stations, public works yards) to ensure emergency vehicles and backup generators can operate for extended periods during and after natural disasters.	Environmental Services Department	Medium	Dam failure, earthquake, landslide, tsunami, wildfire, wind	HMGP, PDM, general funds	High	Medium-term	Both	Yes	Yes
ARC39	Strategic Fuel Reserves: Establish agreements with local fuel sources (suppliers/distributors) to secure priority access during shortages and emergency situations.	City Manager's Office	Medium	Dam failure, earthquake, landslide, tsunami, wildfire, wind	Staff time	Staff Time	Medium-term	Existing	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC40	Alternative Fuel Sources: Integrate biodiesel, propane or other alternative fuel sources to diversify power supply options during emergencies	Environmental Services Department	Medium	Dam failure, earthquake, landslide, tsunami, wildfire, wind	HMGP, PDM, general funds	High	Medium-term	Both	Yes	Yes
ARC41	Fuel Security & Access Planning: Harden fuel storage sites are against earthquakes, floods and other natural hazards, with secured access for authorized personnel.	Building and Engineering Department	Medium	Dam failure, earthquake, landslide, tsunami, wildfire, wind	HMGP, general funds	Medium	Long-term	Existing	No	Yes
ARC42	Microgrid & Renewable Energy Integration: Install solar and battery storage at emergency facilities to reduce dependence on fuel-based generators	Environmental Services Department	Medium	Dam failure, earthquake, landslide, tsunami, wildfire, wind	HMGP, PDM, general funds	High	Medium-term	Existing	Yes	Yes
ARC43	Assess Community Risk and Map Areas of Community Vulnerability	Community Development Department	Medium	Dam failure, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds, staff time	Low	Short-term	Existing	Yes	Yes
ARC44	Stockpile Essential Supplies Locally: Establish emergency supply caches with food, water, medical supplies and fuel at strategic locations in the city to sustain critical operations and vulnerable populations for at least 7–14 days.	City Manager's Office	Medium	Dam failure, earthquake, tsunami, landslide, wildfire	PDM, general funds	Medium	Short-term	Existing	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC45	Pre-Identify & Strengthen Alternative Supply Routes: Work with regional agencies to map out alternative road, air and maritime routes for emergency supply deliveries in case primary roads (e.g., Highway 101, 299, etc.) are damaged or inaccessible.	City Manager's Office	Medium	Dam failure, earthquake, tsunami, flooding, landslide, wildfire, wind	HMGP, PDM, general funds	Low	Medium-term	Both	Yes	Yes
ARC46	Coordinate with Local Businesses & Organizations: Develop agreements with grocery stores, gas stations and suppliers to prioritize emergency resource distribution and maintain essential stock during disasters.	City Manager's Office	Low	Dam failure, earthquake, landslide, tsunami, wildfire, winter weather	PDM, general funds	Low	Medium-term	Existing	Yes	Yes
ARC47	Improve Local Food Security & Resilience: Support community gardens, local agriculture and food preservation initiatives to reduce dependence on long-distance food supply chains.	City Manager's Office	Medium	Dam failure, earthquake, landslide, tsunami, wildfire	PDM, general funds	Low	Medium-term	Both	Yes	Yes
ARC48	Expand Mutual Aid & Regional Partnerships: Strengthen partnerships with neighboring cities, counties, universities and tribal nations to facilitate resource-sharing and coordinated emergency response.	City Manager's Office	Medium	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	PDM, general funds, staff time	Low	Medium-term	Both	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC49	Transportation Assistance for Evacuations: Coordinate with regional agencies, local transit and paratransit providers to develop an emergency transportation plan to assist those without personal vehicles, including designated pick-up locations and accessible transport options.	City Manager's Office	Medium	Dam failure, earthquake, flooding, landslide, tsunami, wildfire	PDM, general funds, staff time	Low	Medium-term	Both	Yes	Yes
ARC50	Community-Based Emergency Support Hubs: Plan for and coordinate with local agencies to establish neighborhood-based aid stations where residents can access food, water, medical aid and emergency supplies, particularly in underserved areas.	City Manager's Office	Medium	Dam failure, earthquake, extreme temperatures, landslide, tsunami, wildfire	HMGP, PDM, CDBG, general funds, staff time	Medium	Medium-term	Both	Yes	Yes
ARC51	Pre-Disaster Registration & Resource Mapping: Create a voluntary registry for individuals with medical, mobility or other special needs to prioritize aid and evacuation planning.	City Manager's Office	Medium	Dam failure, earthquake, extreme temperatures, landslide, tsunami, wildfire	PDM, general funds, staff time	Low	Medium-term	Both	Yes	Yes
ARC52	Partnerships with Local Nonprofits & Advocacy Groups: Work with shelter providers, food banks, disability advocates and faith-based organizations to coordinate emergency response efforts and ensure the most vulnerable are accounted for.	City Manager's Office	Medium	Dam failure, earthquake, extreme temperatures, landslide, tsunami, wildfire	PDM, general funds, staff time	Low	Medium-term	Both	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
ARC53	Disaster Financial Assistance & Housing Support: Establish a rapid-response aid program to provide temporary housing, rental assistance and direct aid to low-income and displaced individuals post-disaster.	Community Development Department	Low	Dam failure, earthquake, extreme temperatures, landslide, tsunami, wildfire	PDM, CDBG	Medium	Medium-term	Both	Yes	Yes
ARC54	Pursue Safety Assessment Program (SAP) certification for the city's building inspector, building official and licensed engineers and prepare "go-bags" for rapid response following a natural disaster.	Building and Engineering Department	High	Dam failure, earthquake, landslide, wind, wildfire	PDM, general funds, staff time	Low	Short-term	Both	Yes	Yes

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3. Arcata Fire District Annex

This section presents the jurisdictional annex for the Arcata Fire District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. There have been no changes in priorities in the Arcata Fire District since the last plan update.

3.1. Planning Process

3.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Arcata Fire District, the stakeholders and the public. The Arcata Fire District was represented during the planning process by the following individual listed in Table 44.

Table 44: Arcata Fire District Point of Contact

Name	Job Title	Jurisdiction/ Agency		Preferred Contact Info (Email and/or Phone)
Chris Emmons	Fire Chief	Arcata Fire District		cemmons@arcatafire.org 707-825-2000

3.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 45. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 45: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Wayne Peabody	Assistant Chief	Arcata Fire District	wpeabody@arcatafire.org 707-825-2000	1. Local and regional agencies involved in hazard mitigation activities
Ross McDonald	Assistant Chief	Arcata Fire District	rmcdonald@arcatafire.org 707-825-2000	1. Local and regional agencies involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture	kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
–	–	Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

3.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings,

press releases to local media, and public hearings. Figure 9 illustrates how the public was encouraged to participate in the survey. The Arcata Fire District utilized a variety of communications channels that are free and easily accessible such as Facebook and Instagram.

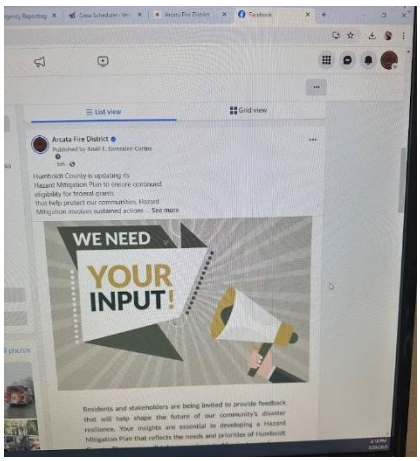

Figure 9: Public Outreach Methods

Public feedback was incorporated into the Arcata Fire District's risk assessment, as appropriate, and in the list of ideas which the district reviewed at the Mitigation Action Workshop for inclusion in the list of mitigation actions for this plan update. As part of the public outreach process, residents provided input through bilingual surveys and social media engagement. The surveys indicated a strong concern about the risks facing vulnerable populations. Community members emphasized the need for improved public education, greater preparedness for winter weather and wildfire events, and enhanced coordination with local water providers to ensure reliable hydrant access. These concerns were discussed and reviewed during the Mitigation Action Workshop and directly informed the updated mitigation strategy. Several of the actions selected for this plan update reflect both the technical assessment of risk and the priorities identified by the public. These include expanded outreach through social media.

3.1.3.1. VULNERABLE POPULATION OUTREACH

Some district residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Arcata might have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update has developed a bilingual public survey to identify ways to support, enhance and broaden capacity and resilience at the individual and social network levels.

3.1.4. Plan Integration

3.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 46. Since the last plan update, Arcata Fire District had no relevant plan updates, so the previous plan was not integrated into any plans.

Table 46: Previous Plan Integration for the Arcata Fire District

Plan Name	Description
None	N/A

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 47 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 47: Future Types of Plan Integration for the Arcata Fire District

Type of Plan	Integration Method
Disaster Master Plan	Identifying and prioritizing long-term strategies to reduce vulnerabilities and enhance community preparedness before disasters strike.
Standards of Cover and Community Risk Assessment	Risk reduction strategies guide emergency planning.
Capital Improvement, Financial and Strategic Plans	Identifying risk-prone infrastructure and guiding resilient investment decisions that reduce future disaster costs.

3.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 48 and Table 49. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 48: Arcata Fire District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 49: Arcata Fire District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Medium	Medium	Medium	Low	Medium
Drought	Low	Low	Low	Low	Low
Earthquake	High	High	High	High	High
Extreme Cold	Medium	Medium	Low	Low	Low
Extreme Heat	Low	Low	Low	Low	Low
Flooding	High	High	High	Low	High
Landslide	Low	Low	Low	Low	Low
Tsunami	High	High	High	High	High
Wildfire	Medium	Medium	Medium	Medium	Medium
Wind	High	High	High	High	High
Winter Weather	High	High	High	High	High

Note: The process used to assign risk rankings is described in Volume 1.

3.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Arcata Fire District. Other hazard events that broadly affected the entire planning area, including the Arcata Fire District, are listed in the risk assessments in Volume 1.

3.2.1.1.HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) database does not always capture localized hazard data for fire districts. To address this gap, the Arcata Fire District has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- **January, 2025:** No major damage occurred due to this event.

EXTREME TEMPERATURES

- **January–February, 2025:** Freezing temperatures occurred during this time frame, causing numerous fires due to external heating sources.

FLOODING

- **December, 2024–January, 2025:** Roadway and bridge blockages occurred along Jacoby Creek in Tyee City.

LANDSLIDE

- No events occurred for this hazard.

TSUNAMI

- **January, 2025:** Alert system was activated, no major damage occurred.

WILDFIRE

- Weather has not lined up for a large event.

WIND

- **December, 2024–January, 2025:** Power outages. Downed trees on multiple roadways.

WINTER WEATHER

- **December, 2024–January, 2025:** Environmental damage occurred.

3.2.2. Jurisdiction-Specific Vulnerabilities

Table 50 provides information on a few key vulnerabilities for the jurisdiction.

Table 50: Arcata Fire District Vulnerabilities

Hazard	Vulnerabilities
Dam Failure	*Vulnerabilities:* The fire district encompasses areas near several downstream reaches of water bodies, including portions of the Mad River and its tributaries. The service area is currently in the inundation area of the R.W. Matthews Dam. Arcata FD critical facilities, including transportation routes along the Mad River, and employees located in the dam flood inundation areas are vulnerable to dam flooding.. *Impacts:* Dam failure would create hazardous areas along localized creek channels and low-lying areas. Critical infrastructure such as fire stations and water supply systems could experience reduced functionality if flooding damages road access, utility connections or response capabilities. Transportation routes may be disrupted, impacting delivery of services. People downstream and those responding to a dam failure can be impacted by flood inundation.
Drought	*Vulnerabilities:* Vulnerable populations such as first responders are susceptible to extreme heat that can be experienced during a drought event. This can lead to heatstroke, dehydration and exhaustion. *Impacts:* Low water supply could significantly impact the district's ability to provide adequate fire suppression services.
Earthquake	*Vulnerabilities:* The entire population, built environment and critical infrastructure in the district are vulnerable to the impacts of a major earthquake, since it is in a high seismic risk area that is highly influenced by the Cascadia Subduction Zone. Vulnerable critical facilities which could affect the function of the district include three fire stations, water infrastructure, and transportation routes. All staff members are potentially vulnerable to earthquakes.

Hazard	Vulnerabilities
	Impact: An earthquake could cause widespread damage to structures including fire stations, transportation routes and lifeline services depending on the epicenter and magnitude of the earthquake. Fire stations could be rendered inoperable which would compromise emergency response capabilities. Populations can be impacted by falling infrastructure or other results that may cause injury or loss of life. Staff members may be injured or killed.
Extreme Cold	*Vulnerabilities:* Critical infrastructure such as water systems and fire suppression infrastructure is vulnerable to below-freezing temperatures leading to service disruptions. Operational disruptions and increased emergency calls during cold weather pose significant challenges for emergency services. *Impact:* Exposure to extreme cold can result in cold-related health issues such as hypothermia and frostbite. This is particularly a concern for emergency personnel working in the elements. Frozen pipes and damage to water infrastructure could disrupt fire suppression capabilities and access to potable water.
Extreme Heat	*Vulnerabilities:* The entire fire district is at risk of extreme heat events, although the district's coastal climate may moderate the frequency compared with areas inland. Vulnerable populations include those working in the outdoors such as the emergency personnel responding to emergency calls. Critical infrastructure such as buildings can be exposed to events that stress construction materials. *Impacts:* Extreme heat can lead to serious health concerns including heat exhaustion, heat stroke and death. The fire district may face increased operational demands due to heat-related incidents and heightened wildfire risk during dry and hot periods. Prolonged exposure to heat can impact critical infrastructure.
Flooding	*Vulnerabilities:* Areas near the Mad River, Humboldt Bay and other low-lying or poorly drained areas are vulnerable to flooding. Several transportation routes and water systems are located in areas that could experience flood-related disruptions which could affect emergency response capabilities, as well as the three fire stations, although none of them are located in the mapped Special Flood Hazard Area. The entire population within the district's service area is at-risk to this hazard, particularly those that live or travel through within low-lying or poorly drained areas. First responders can be exposed to flood hazards during emergency operations.

Hazard	Vulnerabilities
	Impacts: Flooding can result in the loss of electricity, contamination of water systems, damage to infrastructure, damage or destruction of critical facilities including the three fire stations, and displacement of emergency responders. Essential services such as fire suppression and rescue operations could be hampered if stations or hydrants become inaccessible due to flooding. At-risk populations may be injured or killed. First responders can be exposed to hazards during emergency operations.
Landslide	*Vulnerabilities:* Portions of the district are in or near zones of moderate landslide susceptibility, including the west side of Mckinleyville and east side of Arcata. Populations in high-risk areas are vulnerable to landslides. Critical access routes for emergency response are highly vulnerable to slope failure, including west of Highway 101. Firefighters responding to landslides are at risk of injury or loss of life. *Impacts:* Landslides can result in serious injuries or death to individuals and increased risk to emergency responders attempting to access areas of high risk. They can also damage roads and hinder emergency response operations.
Tsunami	*Vulnerabilities:* Portions of the fire district such as low-lying coast areas are located in tsunami evacuation zones and are highly vulnerable to the impacts of a tsunami event. Critical infrastructure such as transportation routes as well as utilities and emergency facilities face an increased risk from inundation. Roadways including South G St., Samoa Blvd, and Highway 101 are vulnerable. First responders and people in the tsunami evacuation zones are at high-risk. Infrastructure and populations located near Arcata Bay are particularly vulnerable. *Impacts:* Transportation routes could be disrupted, which would delay emergency response and recovery efforts. Critical systems such as water, sewer, power and communications could be disrupted. Vulnerable locations in the tsunami evacuation zone could experience the impacts of a tsunami. First responders and people caught in a tsunami could be injured or killed.
Wildfire	*Vulnerabilities:* Structures, infrastructure and populations in the fire district are increasingly at risk of wildfire, especially those located in the wildlife urban interface. Several fire stations and critical facilities lie in or near moderate to high risk zones. Key transportation corridors, including portions of U.S. Highway 101 and State Route 299, pass through fire-prone areas. In particular,

Hazard	Vulnerabilities
	the U.S. Forest Service has identified approximately 70 percent of the City of Arcata as a wildland–urban interface (WUI), which is the area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. *Impacts:* Wildfires can damage or destroy homes, public buildings, critical facilities including fire stations, utility infrastructure and transportation routes, placing fire crews in danger while disrupting emergency response, communications and lifeline services.
Wind	*Vulnerabilities:* The population, structures and infrastructure in the fire district are increasingly vulnerable to high wind events especially in exposed coastal and upland areas. These areas are more likely to experience treefalls, utility disruptions and roof damage. Emergency response infrastructure also may be at risk especially in the event of widespread power outages or blocked access routes. *Impacts:* Windstorms can result in widespread damage to homes, downed power lines, road obstructions and disruption of emergency response services. Critical infrastructure such as communications, electrical utilities and transportation networks may be damaged or rendered temporarily inoperable. Fire crews responding to incidents are placed in the elements, increasing their risk of injury or death.
Winter Weather	*Vulnerabilities:* The fire district is vulnerable to winter weather events ; however, snowfall is rare at lower elevations. Critical infrastructure may be disrupted by wind-driven rain, downed trees or ice accumulation. Fire crews responding to emergency incidents are vulnerable to the elements. *Impacts:* Winter weather events may lead to power outages, road closures and hazardous travel conditions that limit emergency response capabilities. Icy roads and debris may isolate hillside or rural neighborhoods, delaying access to essential services. Fire crews responding to emergencies during winter weather events are at a higher risk of injury and death.

3.2.2.1. DEVELOPMENT CHANGES

Table 51 summarizes development trends in the Arcata Fire District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 51: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Washington Rd – 20 square feet Cal Poly Dorms (700 beds) Sagewood Apts. – 16 units at Sorel Place	Cal Poly Dorms X2 Washington Rd. – 10 square feet Gateway Project Murray Rd. – 10 square feet	Increased
Commercial	West End Rd. Tractor Supply Mad River Parkway	Cal Poly Educational X2 Gateway Project Mad River Parkway Mini Storage	Increased
Industrial	EdgeConnex Data Center U-Haul Building	Edge Connex Data Center X2 Boeing Ave.	No change Increase

3.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Arcata Fire District performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory capabilities
- Administrative and Technical capabilities
- Financial capabilities
- Education and Outreach capabilities

3.3.1. Planning and Regulatory Capabilities

Table 52 and Table 53 summarize the Arcata Fire District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The Arcata Fire district is a special district without land use authority or its own building code enforcement. It relies on the City of Arcata and Humboldt County (2022 California Building

Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 52: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 53: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – enforced by City/County	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

3.3.2. Administrative and Technical Capabilities

Table 54 and Table 55 summarize the Arcata Fire District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 54: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Non-Vacant	No	No	No
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Fire Safe Council	Non-Vacant	Yes	No	Yes
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 55: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	They have not been used in the past. There is a Northern Humboldt Bay auto-aid agreement among nine neighboring fire agencies.	Form regional teams relative to some of the hazards. That would help all agencies.

3.3.3. Financial Capabilities

Table 56 summarizes the Arcata Fire District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 56: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	Yes	Station renovations, equipment upgrades and facility maintenance	Yes	Yes
General Funds	Yes	Salaries, training programs, administrative operations and fuel	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	No	No	No
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	N/A

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	Yes	Community outreach, public education and grant-funded safety equipment	Yes	Yes

3.3.4. Education and Outreach Capabilities

Table 57 summarizes the Arcata Fire District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 57: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A
Public Meetings/Events	No	N/A	N/A
Emergency Management Listserv	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	No	Use Facebook and Instagram and post to the agency website, Arcata Fire.
Community Risk Reduction	Yes	No	N/A

3.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 58. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 58: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The Arcata Fire District would like to develop multiple plans, including a general plan, emergency operations plan and regional response plans. The Fire District is limited on where funding comes from and what the use is, thus limiting time on planning.
Administrative and Technical	The special district covers five communities, including the City of Arcata and Humboldt County, within district boundaries. The City of Arcata and Humboldt County have their own building official. Services are incorporated with them as the fire district has a part-time fire marshal.

Capability Type	Opportunity to Expand and/or Improve
Financial	Use staff for grant writing, including for staffing and equipment. The fire district had some success obtaining funds for equipment and received a grant for firefighters.
Education and Outreach	The fire district uses a volunteer staff to supplement and increase education and outreach efforts. The fire district has allocated some minimal funding for an advisor to aid in those initiatives. The program has improved but still lacks adequate staffing and time.

3.4. National Flood Insurance Program

The Arcata Fire District does not participate in the NFIP because, as a special district, it does not have the authority to do so. However, a flood event might lead to the loss of potable water infrastructure, which could impact fire services, hydration and public health.

3.5. Mitigation Strategy

The Arcata Fire District has adopted the same goals and prioritization process as Humboldt County, which is detailed in Volume 1. Previous mitigation actions and their statuses are in Table 59, while new mitigation action items and those carried forward from the previous plan are in Table 60.

3.5.1. Previous Mitigation Actions

Table 59: Previous Mitigation Actions

Mitigation Action	Description	Status
AFD1	Install photovoltaic (PV) and solar energy systems at all three fire stations to enable "off-grid" operations.	Deferred.
AFD2	Replace aboveground fuel tank at McKinleyville Fire Station with aboveground concrete vault.	Completed. New tank installed.
AFD3	Ensure a reliable and effective distribution of fire hydrants throughout the district in cooperation with water purveyors.	Deferred: Working with the City of Arcata and McKinleyville Community Service District and Humboldt County.

Mitigation Action	Description	Status
AFD4	Elevate/relocate Mad River Fire Station to protect against flooding.	Deferred: In the planning stages of major remodel.
AFD5	Utilize social media to support Hazard Mitigation Plan and provide education/ information to the public.	Deferred: Developing a social media group in house.
AFD6	Continue support for amateur emergency ham radio system operators by providing fire station site/antennae, etc.	Completed: Work was completed and tested.
AFD7	Actively support the Humboldt State University (HSU) CERT program for housing/campus safety.	Deferred: Ongoing efforts with the origination.
AFD8	Initiate National Incident Management System (NIMS)/Homeland Security Exercise and Evaluation Program compliant training/event planning in cooperation with Humboldt State University and Arcata police departments.	Deferred: Annual planning and exercise are ongoing.
AFD9	Develop and implement a program to capture perishable data after significant events (e.g., high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts, including the implementation and maintenance of the hazard mitigation plan.	Deferred: Working with Humboldt County Office of Emergency Services (OES) and partner agencies.

3.5.2. Updated Mitigation Actions

Table 60: 2025 Mitigation Actions[6]

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Time Frame for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
AFD1	Install photovoltaic (PV) and solar energy systems at all three fire stations to enable "off-grid" operations.	Arcata Fire	High	Winter weather, wildfire, wind	CDBG, general fund, HMGP, bond, utility fee	$600,000	New	Long-term	Yes	Yes
AFD2	Adopt area-wide mitigation actions items to build resilience for Arcata Fire District.	Arcata Fire	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	CDBG, general fund, HMGP, bond, utility fee	$150,000	Both	5 years	Yes	Yes
AFD3	Ensure a reliable and effective distribution of fire hydrants throughout the district in cooperation with water purveyors.	Arcata Fire	High	Drought, extreme temperatures, flooding wildfire, wind, winter weather	General fund, utility fee, pass-through fees to contractors	$100,000 per	Both	Long-term	Yes	Yes
AFD4	Elevate/relocate the Mad River Fire Station to protect against flooding.	Arcata Fire	High	Flooding, tsunami, winter weather	CDBG, general fund, HMGP, bond, utility fee	$5,000,000	Both	Long-term	Yes	Yes

[6] CDBG: Community Development Block Grant, HMGP: Hazard Mitigation Grant Program, HMP: Hazard Mitigation Plan, OES: Office of Emergency Services, PA: Public Assistance; USDA: U.S. Department of Agriculture

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Time Frame for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
AFD5	Utilize social media to support the Hazard Mitigation Plan and provide education/information to the public.	Arcata Fire	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	General fund, utility fee, pass-through fees to contractors	$10,000	Both	Short-term	Yes	Yes
AFD6	Actively support the Humboldt State University (HSU) CERT program for housing/campus safety.	Arcata Fire	Medium	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMP, PA Mitigation, CDBG, general fund, bond, staff time, USDA Rural	$10,000	Both	Short-term	Yes	Yes
AFD7	Initiate National Incident Management System (NIMS)/Homeland Security Exercise and Evaluation Program compliant training/event planning in cooperation with Humboldt State University and Arcata police departments.	Arcata Fire	High	Earthquake, extreme temperatures, flooding, tsunami, wind, winter weather	General fund, staff time	$10,000	Both	Medium-term	Yes	Yes
AFD8	Develop and implement a program to capture perishable data after significant events (e.g., high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts, including the implementation and maintenance of the hazard mitigation plan.	County OES	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	General fund, staff time, utility fee	$50,000	Both	Long-term	Yes	Yes

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Time Frame for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
AFD9	Ensure a reliable and effective communication system of repeaters, portable, mobile radios and station alerting systems. Ensure that these systems are compatible with surrounding agencies.	Arcata Fire	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, general fund, PDM, CDBG	$100,000	Both	Medium-term	Yes	Yes
AFD10	Implement a fuel management program.	Arcata Fire	High	Wildfire	HMGP, PDM, CDBG, general fund	$200,000	Both	Long-term	Yes	Yes

4. Big Lagoon Community Services District Annex

This section presents the jurisdictional annex for the Big Lagoon Community Services District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update.

4.1. Planning Process

4.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by the planning consultant IEM, with input from the participating jurisdictions, including the Big Lagoon Community Services District, the stakeholders and the public. Table 61 shows the individual who represented the district during the planning process:

Table 61: Big Lagoon Community Services District Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Dick Maier	Staff Accountant	Big Lagoon Community Services District	Accounting@biglagooncsd.org

4.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 62. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 62: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Derrick Misner	Chief	CAL FIRE	Derrick.Misner@fire.ca.gov	1. Local and regional agencies

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
				involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture	Kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

4.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. The public was encouraged to participate in a survey available via a QR code link and administered in the English, Spanish and Hmong languages. The Big Lagoon Community Services District put the survey on all utility bills in March, 2024.

The public survey received three responses from residents of Big Lagoon. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?" most respondents indicated that they wanted to see mitigation projects focused on

upgrades to bridges, power, roads, water supply and wastewater and restoration of the natural environment to absorb impacts from natural hazards and opportunities for training for the public to better respond to natural disasters. One example of Big Lagoon CSD's efforts to incorporate public feedback into the mitigation strategy is the addition of mitigation actions BLCSD2 and BLCSD3 to increase well water storage capacity to upgrade the water supply system.

4.1.3.1. VULNERABLE POPULATION OUTREACH

The Big Lagoon Community Services District has 43 residents who may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. The district's vulnerable and underserved residents may have less access to information and resources they need to help mitigate risk and increase preparedness for emergencies. To better understand these risks and vulnerabilities, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels. The district advertised the survey specifically to vulnerable populations by including it on utility bill payments and other resources and by discussing it at the March, 2025 board meeting.

4.1.4. Plan Integration

4.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

The plan must identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 63 shows how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 63: Future Types of Plan Integration for the Big Lagoon Community Services District

Type of Plan	Integration Method
Water Shortage Contingency Plan	Because this is the first hazard mitigation plan, there will be alignment between the goals and mitigation actions on the upcoming plan update.

4.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as shown in Table 64 and Table 65. For further information about these hazards, including their extent, please refer to Volume 1 of this HMP.

Table 64: Big Lagoon Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	No dam is near our infrastructure or assets.
Drought	No	Water resources are adequate.
Earthquake	Yes	N/A
Extreme Cold	No	The climate is moderate.
Extreme Heat	No	The climate is moderate.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	The district is above a tsunami zone.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 65: Big Lagoon Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Earthquake	Medium	Medium	Medium	Medium	Medium
Flooding	Low	Low	Low	Low	Low
Landslide	Medium	Medium	Medium	Medium	Medium
Wildfire	Medium	Medium	Medium	Medium	Medium
Wind	High	High	High	High	High
Winter Weather	High	High	High	High	High

Note: The process used to assign risk rankings is described in Volume 1.

4.2.1. Historical Events and Impacts

This section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Big Lagoon Community Services District. Other hazard events that broadly

affected the entire planning area, including the district, are listed in the risk assessments in Volume 1.

4.2.1.1.HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) database contains no record of storm events that have occurred in the Big Lagoon Community Services District from Nov. 1, 2019 to Dec. 31, 2024. However, the NCEI database does not always capture localized hazard data. To address this gap, the district has documented additional significant events, and their impacts are detailed below.

EARTHQUAKE

- No events have occurred for this hazard.

FLOODING

- No events have occurred for this hazard.

LANDSLIDE

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- January 4, 2023 – A quasi-stationary westerly upper flow regime yielded multiple atmospheric rivers over Northwest California. The impacts in the county were widespread. Fallen trees closed portions of Highway 101, including a section near Big Lagoon and Sue-meg State Park. In addition, multiple secondary roads were closed, power lines destroyed and homes damaged. Wind speeds were estimated at 65 mph, and property damage was reported at $160,000.

WINTER WEATHER

- No events have occurred for this hazard.

4.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 66 provides information on key vulnerabilities and impacts on the district.

Table 66: Big Lagoon Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* All CSD critical facilities including unreinforced structures located near the class A fault line of Big Lagoon Bald Mountain may be vulnerable to moderate damage. CSD critical facilities occupying unreinforced structures are vulnerable to facility and equipment damage from collapsed structures. CSD employees are vulnerable to injury or fatalities from earthquake events. In addition, CDS provides water to the Big Lagoon Elementary School, making it vulnerable to water service disruption in the event of earthquake damage to water distribution systems. *Impacts:* Impact from a major earthquake could disrupt the CSD's ability to provide critical services to customers. A Big Lagoon Bald Mountain M8.0 earthquake could damage the CSD water distribution system and the wastewater treatment systems Also the CSD may be impacted by extensive costs to restore critical facilities, potential injury or loss of life of employees and loss of revenue from service disruptions to customers.
Flooding	*Vulnerabilities:* All CSD's critical infrastructure (channels, culverts and storm sewers) located in special flood hazard area are vulnerable to flooding events. CSD employees are vulnerable to fatalities and loss of life during flooding response efforts. CSD customers located in the SFHA are vulnerable to service disruptions during flood events. In addition, CDS provides water service to the Big Lagoon Elementary School, making it vulnerable to water service disruption in the event of flood waters contamination or damage to water distribution systems. *Impacts:* Flooding could cause prolonged utility service disruptions from failing equipment and damage critical facilities. In addition, contamination to the water supply could result in mandatory boil water restrictions and lead to CSD loss of revenue during prolonged service disruption.
Landslide	*Vulnerabilities:* All CSD facilities and operations on the coastline quadrangle boundary in the active historic landslide areas are vulnerable to minimal damage to critical facility infrastructure from landslide events. CSD customers may be vulnerable to prolonged service disruption in impacted service areas. In addition, CSD provides water to the Big Lagoon Elementary School, making it vulnerable to water service disruption in the event of landslide damage to water distribution systems. *Impacts:* Landslide events can damage the CSD's water distribution systems and wastewater treatment systems. Extensive and expensive

Hazard	Vulnerabilities and Impacts
	repair costs can impact the CSD financially and result in a loss of revenue during prolonged service disruptions,.
Wildfire	*Vulnerabilities:* CSD customers in service areas in the wildfire moderate risk areas are vulnerable to water service disruption from prolonged power outages during planned power safety shutoffs. Also, the CSD water supply is vulnerable to increased demand during wildfire events. CSD critical facilities in coastal and estuary lands located in the wildfire perimeter areas are also vulnerable to structural damage to residential connections in the Roundhouse Creek Road and Oceanview Drive areas of the census designated place of Big Lagoon, CA as well as Big Lagoon Elementary School. In addition, CDS provides water to the Big Lagoon Elementary School, making it vulnerable to water service disruption in the event of wildfire damage to water distribution systems. *Impacts:* Wildfire events can impact the CSD from extensive damage to critical infrastructure and loss of revenue from prolonged service disruptions to CSD customers.
Wind	*Vulnerabilities:* CSD employees conducting repair activities may be vulnerable to injury or fatalities during strong wind events. In addition, CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. CSD critical facilities are vulnerable to strong wind damage during events. In addition, CDS provides water to the Big Lagoon Elementary School, making it vulnerable to water service disruption during strong winds events. *Impacts:* Severe wind events impact the CSD's water distribution and wastewater treatment systems' ability to provide services to its customers in service areas affected by severe wind preventative wildfire measures. Severe wind damage can also impact critical facility operations and flying debris can make roads inaccessible for water delivery and to reach critical facilities, prolonging service disruptions to customers.
Winter Weather	*Vulnerabilities:* CSD facilities lacking weatherization for critical equipment are vulnerable to extreme winter weather events. CSD employees are vulnerable to dangerous driving conditions during winter weather events. In addition, CSD provides water to the Big Lagoon Elementary School, making it vulnerable to water service disruption during winter storm events. *Impacts:* Winter weather events impact the water supply and wastewater treatment systems from prolonged power outages and can cause critical facility damage and inaccessible roads for water delivery or

Hazard	Vulnerabilities and Impacts
	to CSD critical facilities. CSD customers may be impacted by prolonged service disruption.

4.2.2.1. DEVELOPMENT CHANGES

Table 67 summarizes development trends in the Big Lagoon Community Services District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 67: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Two new properties have been added in the past 5 years.	Only two more buildable lots are available for the district's customers.	No change. However, vulnerability to wildfires has increased in surrounding areas.
Commercial	None	None	No change
Industrial	None	None	No change

4.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Big Lagoon Community Services District performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

4.3.1. Planning and Regulatory Capabilities

Table 68 and Table 69 summarize the Big Lagoon Community Services District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Development in the district is currently subject to the Humboldt County General Plan, the Big Lagoon CSD Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Big Lagoon CSD operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 68: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Debris Management Plan	No	N/A	N/A
Water Shortage Contingency Plan	Yes	It highlights the conservation measures to be put in place.	2020, 2025

Table 69: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

4.3.2. Administrative and Technical Capabilities

Table 70 and Table 71 summarize the Big Lagoon Community Services District's administrative and technical capabilities, including the staff, their skills and the tools available to support mitigation actions.

Table 70: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 71: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Mutual Aid Agreements	No	N/A	N/A

4.3.3. Financial Capabilities

Table 72 summarizes the Big Lagoon Community Services District's financial capabilities, which are the resources used to fund mitigation actions. Discussing the funding and financial capabilities of the district is important in determining the kinds of projects feasible given their cost.

Table 72: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Type(s) of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	No	N/A	N/A	N/A
General Funds	Yes	Yes, bush clearing at the well site	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Type(s) of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant?
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes, water	Yes	Yes
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

4.3.4. Education and Outreach Capabilities

Table 73 summarizes the Big Lagoon Community Services District's education and outreach capabilities, which are the programs and actions that can communicate information about and encourage risk reduction.

Table 73: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	Big Lagoon CSD meets six times a year to manage the water district.
Emergency Management Listserv	Yes	No	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	No	N/A	N/A
Weekly Press Releases	No	N/A	N/A

4.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are listed in Table 74. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 74: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Increase well capacity to address fire mitigation needs.
Administrative and Technical	Enhance administrative and technical capabilities to include paid staff with the appropriate level of training.
Financial	Improve grant writing technical skills to increase opportunities to win grants.
Education and Outreach	Seek technical help to raise awareness of natural hazards.

4.4. National Flood Insurance Program

The Big Lagoon Community Services District is not required to participate in the National Flood Insurance (NFIP) program, because, as a special district, it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure, which will impact fire services, hydration and public health. Infrastructure vulnerable to flooding includes instrumentation and controls. If these elements are damaged, they cannot be effectively used to monitor and reduce high turbidity or maintain flows to storage and distribution systems.

4.5. Mitigation Strategy

The Big Lagoon Community Services District has adopted the same goals and prioritization process as those adopted by Humboldt County; these are presented in Volume 1. The district did not participate in the prior plan and, therefore, has no previous mitigation actions. Mitigation action items for this plan are in Table 75.

4.5.1. 2025 Mitigation Actions

Table 75: 2025 Mitigation Actions[7]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
BLCSD1	Continue to support countywide initiatives identified in this plan.	High	Big Lagoon Community Services District	Earthquake, flooding, landslide, wildfire, wind, winter weather	HMGP, utility fees	$100,000	Short-term and ongoing	Both	Yes	All
BLCSD2	Build a secondary well to increase capacity.	High	Big Lagoon Community Services District	Flooding, wildfire	HMGP, PDM, utility fees	$1,000,000	3–5 years	New	Yes	Water Systems
BLCSD3	Increase the well's storage capacity.	High	Big Lagoon Community Services District	Flooding, wildfire	HMGP, PDM, utility fees	$1,000,000	3–5 years	Existing	Yes	Water Systems

[7] HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

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5. City of Blue Lake Annex

This section presents the jurisdictional annex for the City of Blue Lake. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, there have been no changes in priorities for the City of Blue Lake.

5.1. Planning Process

5.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the City of Blue Lake, the stakeholders and the public. The City of Blue Lake was represented during the planning process by the following individuals listed in Table 76.

Table 76: City of Blue Lake Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Garry Rees	City Planner	City of Blue Lake	grees@shn-engr.com
Mandy Mager	City Manager	City of Blue Lake	citymanager@bluelake.ca.gov
Mike Foget	City Engineer	City of Blue Lake	mfoget@shn-engr.com

5.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 77. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 77: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Emily Wood	Parks and Recreation Director	City of Blue Lake	ewood@bluelake.ca.gov	1. Local and regional agencies involved in hazard mitigation activities
Christopher Firor	Community Resource Coordinator	City of Blue Lake	cfiror@bluelake.ca.gov	2. Agencies that have the authority to regulate development
Amos Pole	Director of Emergency Management	Yurok Tribe	apole@yuroktribe.nsn.us	3. Neighboring communities, including special districts
-	-	Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross – Northern CA Coastal Region	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

5.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 10 illustrates how the public was encouraged to participate in the survey available via QR code link in English, Spanish and Hmong languages. The City of Blue Lake utilized a variety of communications channels that are free and easily accessible such as Facebook and Instagram.

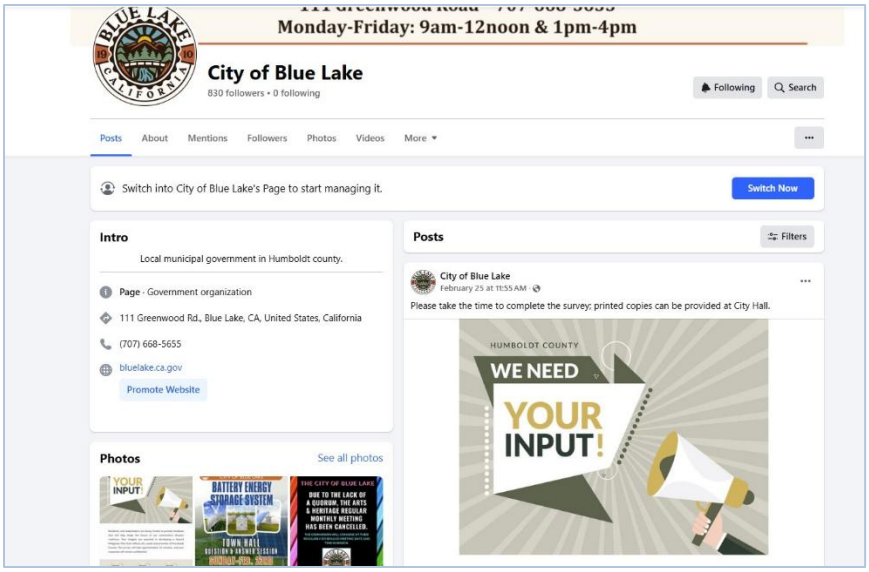

Figure 10: Public Outreach Methods

Public feedback was incorporated into the risk assessment, as appropriate, and the list of ideas which the City of Blue Lake reviewed at the Mitigation Action Workshop for inclusion in the list of mitigation actions for this plan update. In terms of hazards, residents were most concerned about vulnerability to earthquakes, flooding and wildfire. They were concerned about the vulnerability of infrastructure and housing in particular. Many thought that the community's infrastructure is not very well prepared for the impacts of climate change. They recommended actions to update infrastructure, such as bridges, roads, power infrastructure and water supply, and improving emergency services in the city. These suggestions were integrated into the city's chosen mitigation actions.

5.1.3.1. VULNERABLE POPULATION OUTREACH

Some Blue Lake residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Blue Lake may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Figure 11 displays how the city advertised the survey specifically to vulnerable populations. Some outreach methods included resources such as Nextdoor and website newsflashes since these are more frequently used by underserved populations such as seniors.

The City of Blue Lake placed flyers throughout the community, posted to community bulletin boards, shared the information and flyers on community social media pages and provided printed surveys and flyers to our community resource center. The resource center presented the survey to their senior club group, and several of the seniors provided written responses.

The city also provided the flyer information to the local elementary school and asked that the information be passed on to parents, teachers and staff.

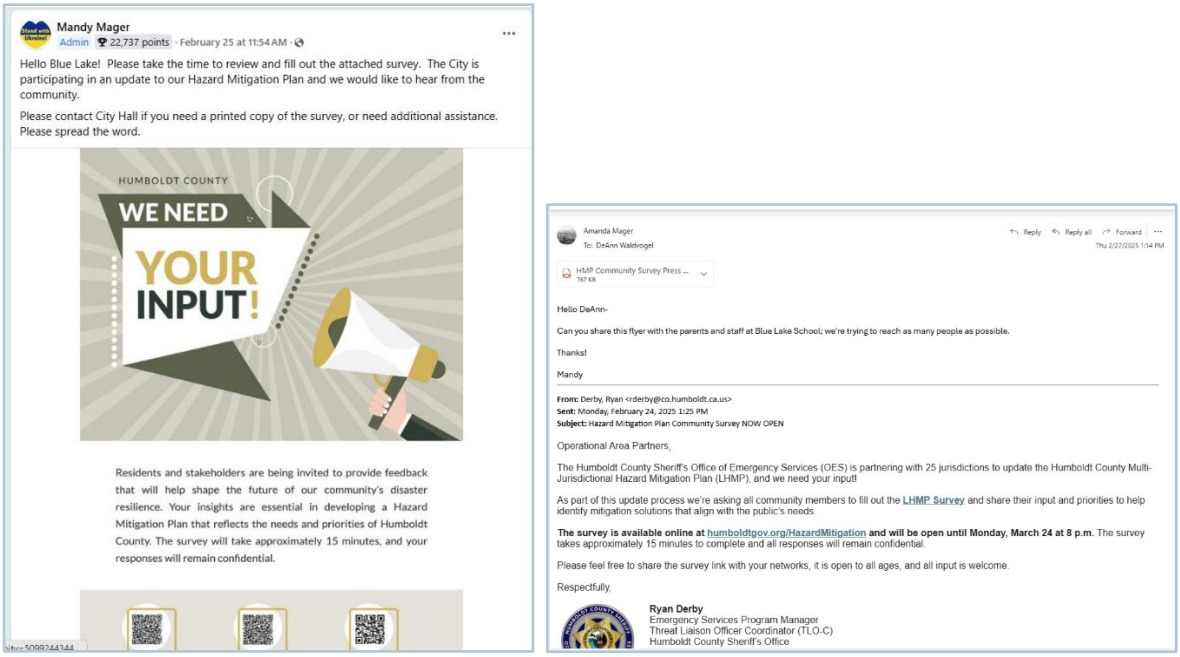

Figure 11: Public Outreach to Vulnerable Populations

5.1.4. Plan Integration

5.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 78.

Table 78: Previous Plan Integration for the City of Blue Lake

Plan Name	Description
Capital Improvement Plan (CIP) for Critical Infrastructure	The city recently updated its CIP for critical infrastructure (water/wastewater), and the mitigation plan was reviewed to assist in prioritizing investments. This includes resiliency investments, such as installation of solar at the treatment plant, additional investment in remote access supervisory control and data acquisition (SCADA) systems and options for investment in backup systems, etc. The city is in the process

Plan Name	Description
	of replacing two failing wooden water tanks as part of the CIP.
Water/Wastewater CIP-Rate Study Analysis	N/A

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 79 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 79: Future Types of Plan Integration for the City of Blue Lake

Type of Plan	Integration Method
General Plan	The new plan can be integrated into the city's general plan documents. The city is in the process of updating the Circulation Element and Housing Element. The city is required to update its Safety Element as part of implementing the Housing Element. The Safety Element is key to integrating with the Hazard Mitigation Plan.

5.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 80 and Table 81. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 80: City of Blue Lake Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	No	Blue Lake has not experienced extreme temperatures.

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Extreme Heat	No	Blue Lake has not experienced extreme temperatures.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	Blue Lake is inland of the coast and is not in a tsunami impact zone. We can be impacted by people evacuating tsunami zones, but our community is not at risk of an actual tsunami.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 81: City of Blue Lake Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	High	High	High	Medium
Drought	High	High	Medium	Low	High
Earthquake	High	High	High	High	High
Flooding	High	Medium	Medium	Medium	High
Landslide	High	Low	Low	Low	Medium
Wildfire	Medium	Medium	Medium	Medium	Medium
Wind	High	High	Medium	Low	High
Winter Weather	High	High	Medium	Low	High

Note: The process used to assign risk rankings is described in Volume 1.

5.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Blue Lake. Other hazard events that broadly affected the entire planning area, including the City of Blue Lake, are listed in the risk assessments in Volume 1.

5.2.1.1. HISTORICAL EVENTS

The NCEI database does not always capture localized hazard data. To address this gap, the City of Blue Lake has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- **Dec. 5, 2024:** Business interruption. Damage to personal property, limited damage to foundations.
- **2021:** Damage to personal property, limited damage to foundations.

FLOODING

- **2019–2024:** Flood damage to roadways and residential properties; impact to stormwater systems, commercial property damage. Hatchery Road, Chartin Road and Broderick Lane were all impacted by flood waters; travel was restricted during the flood events.
- **Jan**. **13, 2024:** Severe flooding from rainstorms caused flooding on Hatchery Road, over pastures and other roadways in Blue Lake. The Blue Lake Patriot Gas Station and the area around the Mad River Brewery were closed due to flooding in the area.

LANDSLIDE

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- No events have occurred for this hazard.

WINTER WEATHER

- No events have occurred for this hazard.

5.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 82 provides information on a few key vulnerabilities and impacts on the jurisdiction.

Table 82: City of Blue Lake Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* The Mad River, which the R.W. Matthews Dam is located on, runs along the southern edge of Blue Lake. If the R.W. Matthews Dam were to fail much of the town, including people and infrastructure, would be vulnerable. *Impacts:* Damage to critical infrastructure including the Mad River Levee, roads and the town's wastewater treatment plant. Those working in businesses near the river and the unhoused population that camps near the river could be hurt or killed.
Drought	*Vulnerabilities:* Low water supply and/or restrictive water conservation measures could limit the city's potable water infrastructure and firefighting ability. The entire population is vulnerable to low water supply. *Impacts:* The City of Blue Lake is located on the Mad River to the south and west. A drought would have serious implications on the Mad River and, in turn, Blue Lake. These impacts include: Mandatory or voluntary/encouraged water restrictions, putting strain on the residents of Blue Lake. Agriculture and fishing industries could be seriously impacted due to limited water supplies, including the fishing practices of the indigenous residents of Blue Lake. Indigenous peoples make up 5% of the population of Blue Lake according to the 2020 Census. Systems and capabilities could be diminished, such as available water for firefighting. Recreation, including fishing, boating and swimming in the Mad River could be affected by low water levels and the risk of bacteria growth.

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* The entire population, structures and critical infrastructure in Blue Lake are vulnerable to an earthquake. The City is situated near multiple active faults that could produce a major earthquake. Even with modern seismic building codes, structures, infrastructure and people in Blue Lake are vulnerable to major earthquakes. *Impacts:* In all four of the HAZUS earthquake scenarios run for this hazard mitigation plan, the City of Blue Lake suffered tens to hundreds of millions of dollars in damage. The impacts from these earthquakes include the following: People could suffer severe injuries which are exacerbated by limited access to medical facilities. Historic buildings not seismically retrofitted could be seriously damaged. Critical infrastructure could stop functioning including Blue Lake Fire Department facilities and the Blue Lake wastewater treatment plant. Roadways/highways, including Trinity Highway, could be damaged limiting the effectiveness of emergency response. Power outages, including at Blue Lake Power, a local biomass energy producer, causing interruptions to communications and the economy. Fires and/or gas leaks can create risk to people and property.
Flooding	*Vulnerabilities:* According to FEMA FIRM maps, the City of Blue Lake is vulnerable to flooding on its southern and western borders where it is adjacent to the Mad River. Populations and infrastructure in those areas are most vulnerable to flooding. *Impacts:* People who live near the Mad River could experience significant flooding. The unhoused population, who often camp near creeks/bay could be hurt or killed in significant flood. Infrastructure, including the wastewater treatment plant, which can be overwhelmed by high flows via inflow and infiltration. Impassable roadways, including Trinity Highway, isolating residents, impacting businesses and impeding emergency access. Erosion, impacting natural resources and putting roads and structures at risk.

Hazard	Vulnerabilities and Impacts
Landslide	*Vulnerabilities:* The east and north sides of Blue Lake are most vulnerable to landslides in the City. The City is located in a valley with steep mountain slopes buttressing the City to the east and north. These slopes can cause landslides. The infrastructure, including Highway 299, and people that exist on this side of the City are most vulnerable to landslides. *Impacts:* Impassable and damaged roadways, including Highway 299, isolating residents, causing business interruptions through limited supply chain and impeding emergency access. Large sediment deposits into rivers/streams, such as Powers Creek, impacting natural resources. Dangerous conditions for people in residences and vehicles traveling on Highway 299.
Wildfire	*Vulnerabilities:* While the City of Blue Lake does not have a high level of vulnerability to wildfire, parts of the eastern border of the town are in the moderate wildfire severity zone defined by CAL FIRE. The homes, businesses, people and infrastructure on this side of Blue Lake are at a higher vulnerability than other sections of the City. *Impacts:* People may be injured or killed by wildfire, particularly residents in the Wildland-Urban Interface on the eastern border of the City. Across the community, smoke/air quality could further cause public health concerns, particularly for those with existing medical conditions. Wildfires in surrounding region could further cause transportation impacts such as road closures at Highway 299 and Trinity Highway). Impacts to critical Infrastructure could also include damage to Blue Lake Fire Department facilities and the Blue Lake wastewater treatment plant.
Wind	*Vulnerabilities:* The entire community is located in Wind Zone I which could experience high winds up to 130 mph. All people, property and infrastructure is vulnerable to wind. Transportation routes are vulnerable to disruption due to downed trees and power lines. Infrastructure and facilities that do not have backup power supplies are vulnerable. *Impacts:* Downed power lines, resulting in power outages and loss of heat, food and economic activity. Downed trees threatening structures and blocking roadways, causing transportation issues and hindering emergency response. Downed trees and power lines posing risk to people

Hazard	Vulnerabilities and Impacts
Winter Weather	*Vulnerabilities:* Although snow does not occur regularly, it is possible to get small amounts of snow occasionally. Hail and heavy rains are also possible from winter storms. The elderly are at elevated vulnerability as well due to the impact on transportation systems. *Impacts:* Hail, heavy rain and occasional snow, affecting roadways and transportation and increasing the potential for auto accidents. People without shelter, like the unhoused population, can face health impacts such as hypothermia from winter weather conditions. Those with mobility challenges, like the elderly, may be unable to access needed care due to road conditions.

5.2.2.1. DEVELOPMENT CHANGES

Table 83 summarizes development trends in the City of Blue Lake since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 83: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Single-family residences and ADUs	Residential development of several types	Increased vulnerability in the Powers Creek District (e.g., 500-year floodplain, dam failure inundation zone)
Commercial	None	Mixed-use project containing commercial uses on the ground floor	Increased vulnerability in the Powers Creek District (e.g., 500-year floodplain, dam failure inundation zone)
Industrial	Expansion of industrial contractor activities	None	Increased vulnerability in the Powers Creek District (e.g., 500-year floodplain, dam failure inundation zone)

5.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Blue Lake performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

5.3.1. Planning and Regulatory Capabilities

Table 84 and Table 85 summarize the City of Blue Lake's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 84: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes. Assembly Plan: No	The city has implemented policies in the Safety Element for the purpose of mitigating hazards (i.e., limiting development in hazard areas, requiring technical studies and mitigation for development in hazard areas). The city does not have a hard date for updating the General Plan; the plan is still very relevant, and the city is focused on updating the required elements as funding and capacity is available to do so.	Last Update: 04/2021 Next Update: 01/2028

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Recovery Plan	Yes	Our recovery plan is limited to our water and wastewater systems. The plan identifies operational options in the event of service interruption on various levels. The recovery plan allows the city to plan for infrastructure improvements and asset protection actions and investments. The city does not have a specific date for updating; this will take place as time, funding and staff capacity become available.	Last Update: 10/2016 Next Update: 01/2028
Capital Improvement Plan	Yes	The capital improvement plan for our water and wastewater systems identifies progressive investment in infrastructure upgrades and replacement actions. We have used the plan to apply for funding for our water tank replacement project, as well as various improvements to our wastewater treatment plant to build resiliency and efficiency and to mitigate for wildfire hazards. This includes the installation of solar panels and remote monitoring upgrades.	Last Update: 12/2022 Next Update: 01/2028
Climate Change Adaptation Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Community Wildfire Protection Plan	Yes	The city could utilize the plan to make infrastructure investments, including fire hydrant installations and water drafting tank installations. The city can work with our surrounding jurisdictions to implement fuel reduction programs and encourage residents to implement Firewise development standards throughout the planning, design and building permit process. The city could promote the use of building materials that are less prone to wildfire hazards. The city could amend its municipal code to promote or require fire-safe/resilient standards.	Last Update: 01/2019 Next Update: 01/2028
Economic Development Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Land Use Plan	Yes	The Land Use and Safety Element identifies various environmental and natural hazards that are considered for development purposes. The recognition of these hazards would allow the city to utilize the General Plan as a tool for the implementation of mitigation actions. The city does not have a specific date for updating; this will take place as time, funding and staff capacity become available.	Last Update: 04/2021 Next Update: 01/2028
Local Emergency Operations Plan	Yes	The Emergency Operations Plan (EOP) can be used to pre-position resources and implement mitigation actions that can provide resilience and response operation sustainability (i.e., installation of secondary communication systems, electrical systems, potable water resources, mutual aid agreements, etc.) The EOP allows the city to evaluate all-hazard events and take preventative mitigation actions to either mitigate, reduce or resolve potential impacts.	Last Update: 10/2017 Next Update: 01/2026

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Stormwater Management Plan	No	The city has a limited objective storm water management plan; the plan would need to be updated to address mitigation actions.	The city does not have a specific date for updating; this will take place as time, funding and staff capacity become available.
Transportation Plan	No	The transportation plan can be used to identify issues related to disaster response, ingress/egress routes for evacuation issues and long-term planning objectives to meet the needs of the community. The city does not have a specific date for preparing a transportation plan; this will take place as time, funding and staff capacity become available.	N/A
Substantial Damage Plan	N/A	The plan can identify higher-level impacts and provide opportunities for the city to plan for response actions, as well as provide opportunities to implement mitigation strategies to reduce potential impacts.	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Debris Management Plan	No	The debris management plan could be used to identify resource needs and pre-position assets necessary to manage an incident. This could include vendor identification, spoils sites identification and specialized training and identification of special hazards. The city does not have a specific date for updating; this will take place as time, funding and staff capacity become available.	N/A

Table 85: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 01/2022 Next Update: 07/2026
Flood Insurance Rate Maps	Yes	Yes	Last Update: 1/2016 Next Update: 1/2027
Floodplain Ordinance	Yes	Yes	Last Update: 01/2021 Next Update: 01/2028
Subdivision Ordinance	Yes	Yes	Last Update: 01/1996 Next Update: 01/2028
Zoning Ordinance	Yes	Yes	Last Update: 02/2024 Next Update: 01/2026
Natural Hazard Specific Ordinance	N/A	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

5.3.2. Administrative and Technical Capabilities

Table 86 and Table 87 summarize the City of Blue Lake's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 86: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	Yes	Yes	Yes
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	No	Yes	Yes
Community Planner	Non-Vacant	No	Yes	Yes
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Non-Vacant	No	No	No
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Non-Vacant	No	No	No
Fire Safe Council	Non-Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	No	Yes	Yes

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 87: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	The city utilizes various data sources to review projects; this includes flood hazard data, infrastructure data, geologic and biological data and historical data. This data is utilized to assess risks and mitigate impacts.	The city would benefit through greater use of GIS-based data; having access to GIS data layers that delineate hazards and environmental constraints would provide greater continuity of planning for hazards and lessen data gaps that can result in future mitigation needs.
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Our mutual aid agreements have been utilized on a limited basis; they have mostly revolved around infrastructure impacts, emergency response and continuity of operations.	Mitigation measures could include pre-positioning of equipment and materials, along with cross-jurisdictional training and integrated data systems that can allow for remote operations.

5.3.3. Financial Capabilities

Table 88 summarizes the City of Blue Lake's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 88: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	No	Yes	Yes
General Funds	Yes	Yes. Upgrades to city facilities that are used as emergency shelters and operation facilities.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	The city has applied for funds to replace two wooden water storage tanks.	Yes	No
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	Yes	Hazard mitigation funding: We have applied for funding to acquire two flood-prone properties through Cal OES/FEMA.	Yes	No
Community Development Block Grant (CDBG)	Yes	The city has utilized CDBG funding in the past to address ADA barriers, as well as to provide funding to homeowners to rehabilitate their residences.	Yes	Yes
Natural Resources Conservation Services (NRCS) Programs	Yes	Planning grant to develop recreation access.	Yes	Yes
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Property, Sales, Income or Special Purpose Taxes	Yes	No	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes. Water/wastewater fees have funded backup generators for the systems. The city has received HMGP funding to replace two redwood water tanks; the enterprise funds will be utilized to meet match requirements.	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	The city has used water and wastewater connection fees to increase capacity and has used drainage fees to support subdivision development.	Yes	Yes
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	Yes	Federal funds related to creek restoration projects that mitigate flood impacts.	N/A	N/A

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
State-Funded Programs	Yes	Programs: Creek restoration activities to mitigate flooding. We have used state funds to install solar at our wastewater treatment plant. Activities: Flood mitigation; resilience activities. Pedestrian and Traffic Safety: State funds have been used to improve pedestrian accessibility and multimodal access and safety.	Yes	Yes
Private Sector or Nonprofit Programs	Yes	No	Yes	Yes

5.3.4. Education and Outreach Capabilities

Table 89 summarizes the City of Blue Lake's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 89: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Public Meetings/Events	Yes	Yes	Yearly safety fair; the city has an active fire department and an active CERT. We have a public safety commission that works on various community safety issues, including disaster preparedness and recovery.
Emergency Management Listserv	No	N/A	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	Blue Lake Community Resource Center; Blue Lake Union Elementary School
Social Media	Yes	Yes	Facebook and city website

5.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 90. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 90: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The city would benefit from targeted planning related to specific risks; one such plan could be the Community Wildfire Protection Plan (CWPP). With the recent receipt of new fire mapping and designation from CAL FIRE, it will be important for Blue Lake to address potential mitigation projects and development standards to reduce fire hazards. The city is also working on flood mitigation projects and specific planning related to resiliency improvements for our critical infrastructure would be beneficial. Planning actions are critical to implementation opportunities.
Administrative and Technical	The city has very limited staffing; we currently have a City Manager who fulfills numerous roles in the city and limited contract services for engineering, planning and building official activities. The city greatly benefits from grant programs and combined action programs such as this update to help alleviate staff and funding burdens. Access to GIS data layers, as well as additional planning efforts with the county to address critical issues such as wildfire through more community planning processes, would be very beneficial. The City of Blue Lake is surrounded by county jurisdiction, which provides a lot of opportunities for cross-benefit planning and implementation.
Financial	The city would greatly benefit from grant writing resources and assistance; currently, the City Manager and our contract services team write grants for the city. This is costly to contract out, and the City Manager has limited time to dedicate to grant writing efforts. Collaborative approaches to grants and implementation strategies will greatly benefit the city.
Education and Outreach	The city does not have the staff or financial capacity to maintain an active flood management program. Any assistance in this arena—utilizing online resources and access to community-specific GIS layers, etc.—could greatly benefit the community and could be a low-cost option for the city.

5.4. National Flood Insurance Program

The City of Blue Lake has been a participant in the National Flood Insurance Program (NFIP) since 1982. Details of NFIP policies in the City of Blue Lake are in Table 91. Additional NFIP information is in Table 92 through Table 94. Continued compliance with NFIP standards is expected for the City of Blue Lake.

Table 91: City of Blue Lake NFIP Details

Community Name	Community Number	Total Premium + FPF[8]	Total Policy Count	Total Coverage	Total Losses
Blue Lake, City of	060438	$10,498.00	12	$2,840,000.00	2

Table 92: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	The City Manager; this is a secondary role.
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	No. Additional training on roles and responsibilities.
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Floodplain rules are enforced through the permitting process and monitoring for compliance.
When was the community's most recent Community Assistance Visit (CAV)?	01/2019
Were any violations noted on the community's most recent CAV?	No
Is there an upcoming CAV? If no, is one needed?	Upcoming CAV? No Is one needed? No
When was the most recent floodplain management ordinance adopted?	01/2025
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	The city is the permitting authority.

[8] FPF: Federal Policy Fee

Question	Response
How does the community issue development permits in the special flood hazard area?	We have not issued permits in special flood hazard areas to date.
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes. No data to track.
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	0
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	0
Have any RL/SRL properties been mitigated since the last plan update?	None
Who is responsible for making substantial damage/substantial improvement determinations?	Building Inspector and Floodplain Manager
How does the substantial damage/substantial improvement process work in your community?	Highly coordinated effort between the building inspector and floodplain manager to make sure they proper document this information
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	No
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	City of Blue Lake has not yet had to advertise but would likely put on website and reach out to areas heavily impacted.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward?	By ensuring that all new construction is done per the latest building and FEMA codes

Table 93: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	This has not been an issue to date; I believe we would go through the Map Amendment process.
When did the latest Flood Insurance Rate Map (FIRM) become effective?	01/2016
When was the latest FIRM adopted?	01/2016
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Yes. FEMA website.
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes

Table 94: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Unknown
How does the community engage with insurance agents on flood insurance?	Unknown
Does the community (or state) have flood hazard disclosure laws?	No
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	12
Are there any areas where flood insurance is lacking?	No

5.5. Mitigation Strategy

The City of Blue Lake has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 95, while new mitigation action items and those carried forward from the previous plan are in Table 96.

5.5.1. Previous Mitigation Actions

Table 95: Previous Mitigation Actions

Mitigation Action	Description	Status
BL1	Where appropriate, support retrofitting, purchase or relocation of structures or infrastructure located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Deferred: The city is working toward these improvements when grant funding becomes available or budget resources become available.
BL2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the zoning ordinance and climate action plan.	Deferred-Ongoing: The city is working to update various plans and ordinances as grant funds or other budget resources are available.
BL3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Deferred: The city is an active participant.
BL4	Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.	Deferred: This is an ongoing effort for the city.

Mitigation Action	Description	Status
BL5	Identify and pursue strategies to increase adaptive capacity to climate change including but not limited to the following: • Incorporate resiliency planning and implementation strategies for solar and alternative energy sources for critical facilities. • Pursue restoration projects that improve capacity of local streams to carry higher volumes of flood water. • Pursue opportunities to integrate wildland fire management objectives into planning and policy development, including adaptive management strategies for evacuation scenarios, fuel break adaptions, community outreach and planning, construction standards and water supply sources for wildland fire management operations. • Identify system redundancy needs, including looping water supply lines, alternative water sources and wastewater system needs.	Deferred: The city is actively pursuing opportunities to implement adaptive strategies; this work is being done as grant resources are available. The city partners with various nonprofits and other agencies to leverage resources for implementation, but is limited due to increasing costs and capital outlay requirements.
BL6	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including Prasch Hall, the City Corporation Yard, the booster station and the wastewater treatment plant.	Deferred: The city has installed solar energy at the treatment plant but requires additional infrastructure to increase resilience and operational continuity in the event of a disaster or other event.
BL7	Map all municipal infrastructure utilizing GIS hardware/software to effectively mitigate impacts during natural and/or human-caused disasters and events. Creating a central database of critical infrastructure, including water and wastewater lines, valves, supply lines, etc. is critical to an efficient and effective response to critical events.	Deferred: The city has begun mapping our critical infrastructure but does not have the funding to create a comprehensive and effective information retrieval system.

Mitigation Action	Description	Status
BL8	Develop and implement a program to capture perishable data after significant events (e.g., high-water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.	Deferred: The city does not have the financial resources necessary to fully integrate data into an effective and comprehensive system.
BL9	Develop a post recovery and debris management plan.	Deferred
BL10	Develop and/or update plans that support or enhance continuity of operations following disasters.	Deferred
BL11	Complete levee repairs necessary to certify the Mad River Levee.	Deferred: This is an ongoing project that requires ongoing attention and capital infusion.
BL12	Adopt a long-term capital improvement plan, which provides the City the financial capability to fund capital projects that could include hazard mitigation projects.	Deferred: The city has developed a CIP for our water and wastewater systems that emphasizes system operations but does not adequately address mitigation efforts or needs.
BL13	Investigate Emergency water inter-ties between neighboring jurisdictions.	Deferred
BL14	Evaluate the need for fuel storage tanks on-site at Key Asset facilities and other important facilities to support the sustainability of emergency power operations.	Deferred
BL15	Implement Army Corps of Engineers recommended remedial actions at identified during 10/17/2012 levee inspection.	Deferred

5.5.2. Updated Mitigation Actions

Table 96: 2025 Mitigation Actions[9]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
BL1	Support countywide actions	High	Humboldt County	Dam failure, drought, earthquake, flooding, landslides, wildfire, wind, winter weather	Enterprise Funds, HMGP	Over $5,000,000	Short-term	New	Yes	All Community Lifelines
BL2	Installation of generators at the wastewater treatment plant	High	City of Blue Lake	Earthquake, wind, winter weather, flooding	Enterprise Funds, HMGP	$100,000-$500,000	Short-term	New	Yes	Yes, Water Systems
BL3	Flood prone property acquisition	High	City of Blue Lake	Flooding	Enterprise Funds, HMGP	Over $5,000,000	Medium-term	Existing	No	No
BL4	Solar and battery storage installation at wastewater treatment plant: to ensure operational resiliency during emergency events and to reduce operational costs and reliance on fossil fuel-based systems.	High	City of Blue Lake	Earthquake, wind, winter weather, flooding	Enterprise Funds, HMGP	Over $5,000,000	Medium-term	Both	Yes	Yes, Water Systems
BL5	Replace seismic activity prone water delivery systems to prevent failures during earthquake events	High	City of Blue Lake	Earthquake	Enterprise Funds, HMGP	Over $5,000,000	Medium - term	New	Yes	Yes, Water Systems
BL6	Replace seismic activity prone wastewater delivery systems to prevent failures during earthquake events	High	City of Blue Lake	Earthquake	Enterprise Funds, HMGP	Over $5,000,000	Medium-term	New	Yes	Yes, Water Systems

[9] HMGP: Hazard Mitigation Grant Program

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
BL7	Prasch Hall and City Hall: earthquake retrofits	High	City of Blue Lake	Earthquake	Enterprise Funds, HMGP	$100,000-$5000,000	Medium-term	Existing	Yes	Yes
BL8	City Hall and Prasch Hall-install solar and battery energy storage system to ensure operational resiliency and to reduce operational costs	High	City of Blue Lake	Earthquake, wind, winter weather, flooding	Enterprise Funds, HMGP	$100,000-$500,000	Short-term	New	Yes	Yes, Energy
BL9	Powers Creek-Conduct streambank stabilization activities along the creek to reduce flooding of residences and businesses.	High	City of Blue Lake	Flooding, winter weather, wind	HMGP	$100,000-$500,000	Short-term	Existing	No	Yes
BL10	Powers Creek-Conduct stabilization improvements to prevent streambank failures through the downtown section of the creek	High	City of Blue Lake	Earthquake, flooding, winter weather	Enterprise Funds, HMGP	$100,000-$500,000	Medium-term	Existing	No	No
BL11	Seismic upgrades to the facilities at the wastewater treatment plant to prevent operational loss and damage	High	City of Blue Lake	Earthquake	Enterprise Funds, HMGP	$100,000-$500,000	Short-term	Existing	Yes	Yes, Water Systems
BL12	Partner with the county on fuel reduction activities for properties surrounding city limits	High	Humboldt County	Wildfire	Enterprise Funds, HMGP	$100,000-$500,000	Short-term	Existing	Yes	Yes
BL13	Partner with the county on levee upgrades and improvements to prevent flood damage	High	Humboldt County	Flooding, earthquake, winter weather	HMGP, General Fund	$100,000-$500,000	Short-term	Existing	Yes	Yes
BL14	Purchase and install back-up generators at critical facilities, including Prasch Hall, skinner store and water booster stations.	High	City of Blue Lake	Earthquake, wind, winter weather, flooding	Enterprise Funds, HMGP	$100,000-$500,000	Short-term	New	Yes	Yes, Energy

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
BL15	Prasch Hall Improvements: Facility upgrades to facilitate the designation as an emergency shelter (Install shower facilities and upgraded bathrooms, install storage systems to facilitate shelter operations)	High	City of Blue Lake	Dam failure, drought, earthquake, flooding, landslide, wildfire, wind, winter weather	Enterprise Funds, HMGP	$100,000-$500,000	Medium-term	Both	Yes	Yes, Food, Shelter and Hydration
BL16	Conduct seismic upgrades and wildfire resiliency improvements to the city's water tanks	High	City of Blue Lake	Earthquake, wildfire	Enterprise Funds, HMGP	Over $500,000	Short-term	Both	Yes	Yes, Water Systems
BL17	Residential earthquake retrofit program	High	City of Blue Lake	Earthquake	Enterprise Funds, HMGP	$100,000-$500,000	Medium-term	Existing	Yes	Yes
BL18	Powers Creek culvert replacement (multiple)	High	City of Blue Lake	Flooding, earthquake, winter weather	Enterprise Funds, HMGP	$100,000-$500,000	Medium-term	Existing	Yes	Yes
BL19	Powers Creek water and wastewater delivery line crossing replacement	High	City of Blue Lake	Flooding, earthquake, wind, winter weather	Enterprise Funds, HMGP	Under $100,000	Medium-term	Existing	Yes	Yes, Water Systems

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6. City of Eureka Annex

This section presents the jurisdictional annex for the City of Eureka. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, there have been no changes in priorities.

6.1. Planning Process

6.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the City of Eureka, the stakeholders and the public. The City of Eureka was represented during the planning process by the following individual listed in Table 97.

Table 97: City of Eureka Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Kelly Allen	Director of Public Works	City of Eureka	kallen@eurekaca.gov

6.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 98. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 98: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Kristin Galt	Administrative Analyst	City of Eureka	kgalt@eurekaca.gov	1. Local and regional agencies

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
				involved in hazard mitigation activities
Larry Henderson	Emergency Manager	Eureka Police Department	Unknown	1. Local and regional agencies involved in hazard mitigation activities
Amanda Kruschke	Economic Development Coordinator	City of Eureka/ Eureka Main Street	akruschke@eurekaca.gov	2. Agencies that have the authority to regulate development
Michael Hansen	Deputy Public Works Director	City of Eureka	mphansen@ci.eureka.ca.gov	2. Agencies that have the authority to regulate development
Steven Baker	Fire Chief	Orick VFD	orickchief@gmail.com	3. Neighboring communities, including special districts
	Eureka Main Street	City of Eureka		4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

6.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comments. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 12 illustrates how the public was

encouraged to participate in the survey. The City of Eureka utilized a variety of communications channels that are free and easily accessible, such as Facebook and Instagram.

Figure 12: Public Outreach Methods

Public feedback was incorporated, as appropriate, into the City of Eureka's risk assessment and the list of mitigation action ideas. The City reviewed these ideas during the Mitigation Action Workshop to determine which should be included in the updated list of mitigation actions for this plan update. This process is reflected in the area-wide actions that Eureka selected for inclusion in the update.

6.1.3.1. VULNERABLE POPULATION OUTREACH

Some Eureka residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Eureka may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels.

6.1.4. Plan Integration

6.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan

will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 99.

Table 99: Previous Plan Integration for the City of Eureka

Plan Name	Description
General Plan	Hazards are considered in the framework of the plan to determine appropriate land uses. The City/County Joint Comprehensive plan includes integration of the hazard mitigation plan and all subsequent updates by reference
Building Permits	Seismic hazards are considered for new construction and remodels of existing commercial facilities. The City's adoption of the 2016 California Building and Fire codes incorporated local modifications to account for the climatic, topographic and geographic conditions that exist in the City.
Capital Improvement Plan	A five-year plan is adopted annually in which infrastructure improvements are often planned and designed with local hazards such as seismic events and sea level rise as considerations. HMP integration may lead to additional funding. The capital improvement plan includes projects that can help mitigate potential hazards. The City will act to ensure consistency between the HMP and the current and future capital improvement plans. The HMP may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on the results of the risk assessment.
Operating Plans and Procedures	The effects of hazards are considered in the framework of our emergency operations plans for both water and sewer utilities.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 100 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 100: Future Types of Plan Integration for the City of Eureka

Type of Plan	Integration Method
Debris Management Plan	The City does not currently have a debris plan. This is a good opportunity to coordinate with Humboldt County.

Type of Plan	Integration Method
Habitat Conservation Planning	Opportunity exists to integrate hazard area planning and habitat conservation overlays.
Post-disaster Recovery Plan	Opportunity exists to integrate and coordinate with Humboldt County.
Capital Improvement Projects	Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
General Plan	The General Plan will be updated in 2027 for both the Housing and the Safety Element; the HMP will be integrated at that time.
Local Comprehensive Plan	The LCP update will go to Council for adoption in February 2026, at which time the HMP will be integrated.

6.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, which are displayed in Table 101 and Table 102. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 101: City of Eureka Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	No proximity to dam
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	No	Eureka maintains a moderate climate with no extreme variations in temperatures.
Extreme Heat	No	Eureka maintains a moderate climate with no extreme variations in temperatures.
Flooding	Yes	N/A
Landslide	Yes	N/A

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 102: City of Eureka Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	Low	Low	Low	High	Medium
Earthquake	High	High	High	High	High
Flooding	Low	Low	Low	Low	Low
Landslide	High	High	High	Low	Medium
Tsunami	Medium	Medium	Medium	High	High
Wildfire	Medium	Medium	Medium	Low	Medium
Wind	High	High	High	High	High
Winter Weather	High	High	High	High	High

Note: The process for assigning risk rankings is described in Volume 1.

6.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Eureka. Other hazard events that broadly affected the entire planning area, including the City of Eureka, are listed in the risk assessments in Volume 1.

6.2.1.1.HISTORICAL EVENTS

Table 103 presents a summary of the storm events that have occurred in the City of Eureka between Nov. 1, 2019 to Dec. 31, 2024 from the National Centers for Environmental Information.

Table 103: NCEI Storm Event Database for the City of Eureka (2019–2024)

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Eureka	12/29/2022	Flood	0	0	0	0
Eureka	02/27/2018	Flood	0	0	0	0

The NCEI database does not always capture localized hazard data. To address this gap, the City of Eureka has documented additional significant events, with their impacts detailed below.

DROUGHT

- **April 12, May 10 and July 8, 2021:** Proclamation of State of Emergency
- **Oct. 19, 2021:** Executive order declaring a statewide drought emergency.

EARTHQUAKE

- **Dec. 15, 2024:** M 5.3, 58 miles southwest of Eureka
- **Dec. 5, 2024:** M 7.45 miles off the coast of Eureka
- **Apr. 25, 2024:** M 2.3 seven km north of Eureka
- **Feb. 12, 2025:** M 4.5 south of Eureka
- **Oct. 16, 2023:** M 4.8, 33.7 miles south of Eureka

FLOODING

- **Feb. 12, 2019:** Roadway flooding at 1656 Union Street in Eureka, near the intersection of Union Street and West Church Avenue.
- **Dec. 29, 2022**: Minor flooding across Waterfront Drive near the marina in Eureka.

LANDSLIDE

- No events have occurred for this hazard.

TSUNAMI

- **Dec. 5, 2024:** Tsunami warning, no reported damage.

WILDFIRE

- No events have occurred for this hazard.

WIND

- **November, 2024 Bomb Cyclone:** High winds, downed trees and power outages.

WINTER WEATHER

- 2023

6.2.2. Jurisdiction-Specific Vulnerabilities

Table 104 provides information on a few key vulnerabilities for the jurisdiction.

Table 104: City of Eureka Vulnerabilities and Impacts

Hazard	Vulnerabilities and impacts
Drought	*Vulnerabilities:* Local water supply systems, such as reservoirs and treatment plants, may face shortages that harm public health and water quality. Eureka is particularly vulnerable to drought due to its reliance on local sources of water for residential and business needs. Prolonged drought can deplete these sources, impacting the local economy, which depends on healthy ecosystems for forestry and tourism. Low-income communities will be hit hardest, facing higher water bills and limited access to water. In addition, wildlife and ecosystems may suffer and emergency services will face increased demands due to a greater risk of wildfires. *Impacts:* Agriculture may suffer, leading to reduced crop yields and higher food prices. The risk of wildfires increases, threatening homes and emergency services. Public health concerns can arise from poor air quality and sanitation issues, while competition for limited water may create social tensions. Additionally, ecosystems could suffer, resulting in the loss of biodiversity.

Hazard	Vulnerabilities and impacts
Earthquake	*Vulnerabilities:* The City of Eureka is vulnerable to very strong peak ground acceleration earthquakes from the Big Lagoon Bald Mountain fault, the Russ fault, and the Mad River-Trinidad fault (18-34%g). The City is vulnerable to severe peak ground acceleration earthquakes from the Cascadia Subduction Zone fault (34-65%g) and violent peak ground acceleration earthquakes from the Little Salmon Onshore fault (65-124%g). The entire population and all critical infrastructure is at risk. Many older buildings lack modern seismic retrofitting, increasing the risk of significant damage or collapse. Public buildings constructed of unreinforced masonry are a particular concern. Additionally, infrastructure like bridges and roads might not be adequately designed to withstand seismic events, leading to critical failures. Socioeconomic factors further heighten vulnerability, as low-income residents may live in unstable housing and have limited resources for preparedness or evacuation. The city's emergency response systems may also struggle to assist those in need during a major event. *Impacts:* An earthquake in Eureka could result in mass casualties and injuries. Medical services may become overwhelmed, complicating care for the injured. Displacement can force residents into temporary shelters, increasing the demand for social services. Critical infrastructure may suffer extensive damage, disrupting emergency services and limiting access to essential resources like water and electricity.

Hazard	Vulnerabilities and impacts
Flooding	*Vulnerabilities:* Heavy rainfall can overwhelm drainage systems, leading to increased flooding risks. Additionally, low-income residents in flood-prone areas may lack the resources needed for preparation and recovery, while many older buildings might not meet current floodplain regulations. Areas near the waterfront, especially around Humboldt Bay, are susceptible to tidal flooding and storm surges, and historic areas near the bay might face inundation, particularly during king tides or storms. City of Eureka channels, culverts and storm sewers located in Zones AE, A, AO near the Humboldt-Arcata Bay are vulnerable to flooding. Also, critical infrastructure in Zone A would be vulnerable to flooding in the event of damage to levees, dikes and floodwalls located in Humboldt-Arcata Bay in the northeast quadrant of the city. *Impacts:* Flooding can displace residents and cause significant property damage, along with health risks due to contaminated water. Critical infrastructure, such as roads and utilities, may be disrupted, limiting access to emergency services and essential resources. Local businesses can suffer losses and closures, affecting the economy of the broader community. Flood damage to residences located in City of Eureka High Risk Special Flood Hazard Areas can cause over 2,000 households to be displaced, of a population of 25,226 persons.

Hazard	Vulnerabilities and impacts
Landslide	*Vulnerabilities:* Eureka is vulnerable to landslides due to its steep slopes and loose soils, especially during heavy rainfall or seismic activity. This risk is heightened by urban development and can effect public safety, transportation and the local economy. Additionally, homes being constructed near hillsides, particularly in the eastern and southeastern regions of the city, along with a lack of public awareness about landslide risks, may further increase the community's vulnerability. Socio-economic factors also play a critical role. Lower-income households often have limited resources to implement preventive measures or evacuate during emergencies, which raises their risk even more. Critical infrastructure located in the City of Eureka exposed to strongly sloping terrain (6° to 10°) and gently sloping terrain (11°-15°) are vulnerable to construction triggered landslide. The City of Eureka maintains one of the county's most complex infrastructure systems. Transportation routes, such as Highway 101 and local roads, and water infrastructure are vulnerable. *Impacts:* Landslides in Eureka can be dangerous for residents, causing injuries or fatalities when homes or vehicles are affected. They may also displace families, creating housing issues and straining community resources. The area's infrastructure is at risk, too. Roads can be blocked or damaged, making travel and emergency response harder. Landslides might disrupt essential utilities, leading to power outages and increased repair costs for the community.

Hazard	Vulnerabilities and impacts
Tsunami	*Vulnerabilities:* Many areas are at low elevation, making them prone to flooding from tsunamis, including the downtown area, Old Town Eureka, Eureka Harbor, and Humboldt Bay areas. Populations, including both residents and visitors, in these areas are vulnerable to tsunamis. Limited public awareness about evacuation routes and emergency protocols can hinder responses during a tsunami event, especially for vulnerable populations like the elderly and disabled. The town's older infrastructure, including roads and utilities, might not be able to withstand tsunami forces. Infrastructure, including roadways, the city's wastewater treatment facilities, and fire department are vulnerable to tsunamis. *Impacts:* The impacts of a tsunami on Eureka can be severe due to its coastal location. One primary concern is the risk to human life, as tsunamis can lead to fatalities and serious injuries, especially if residents are caught off guard. Timely warning systems and community preparedness are crucial in mitigating these risks. Property damage is another substantial consequence, with homes, businesses and critical infrastructure potentially destroyed by powerful waves. This can lead to extensive repairs, prolonged disruptions and economic challenges, particularly for the tourism sector, which is vital for Eureka's economy. Infrastructure also can be compromised, damaging or destroying critical facilities such as water infrastructure and the fire department, or closing or damaging transportation routes affecting access for emergency responders and basic services. Additionally, environmental impacts, such as coastal erosion and saltwater intrusion, can harm local ecosystems. The psychological effects of experiencing a tsunami can lead to long-term anxiety for residents.

Hazard	Vulnerabilities and impacts
Wildfire	*Vulnerabilities:* Based on the Humboldt County CWPP, the City of Eureka is not located in the high-risk Wildfire Urban Interface. However, the local transportation infrastructure might not adequately support rapid evacuations or emergency responses, exposing residents to greater risk. US 101 is the only major road in or out of Eureka, adding making the City vulnerable to isolation if it is damaged or closed due to wildfire. The Lundbar Hills community is southeast Eureka is also susceptible to isolation if Fairway Drive is impacted by wildfire as it is the only ingress and egress from the community by car. These roads are critical pieces of infrastructure to maintain transportation throughout the City. Many homes are older and lack fire-resistant materials, increasing susceptibility to damage. Socio-economic factors also contribute to vulnerability, as low-income households might not have the means to implement fire prevention measures or purchase insurance. Additionally, vulnerable populations, such as the elderly and disabled, may find it difficult to evacuate quickly or access emergency services. Locations more vulnerable to wildfire include those areas near the Humboldt Redwoods State Park and neighborhoods surrounded by thick brush and dense vegetation. *Impacts:* Damage to critical infrastructure including roads and bridges can complicating evacuations and emergency access leading to loss of life, injury, or property damage. If US 101 is impassible evacuation from Eureka and supplies into the City will be severely disrupted. If Fairway Drive is damage or burned over the Lundbar Hills community could inaccessible to firefighters and first responders. Power outages disrupt communications and services, while water supply systems may be compromised, hindering both emergency response and recovery efforts. The psychological toll includes trauma and stress from the threat of loss of life and property.

Hazard	Vulnerabilities and impacts
Wind	*Vulnerabilities:* Aging infrastructure, such as power lines and buildings, might not withstand high winds, resulting in potential damage and power outages. The surrounding natural environment, including the Parkland Forest, also poses risks, as falling trees and branches can threaten homes and vital infrastructure. Certain populations, particularly the elderly and individuals with disabilities, are more vulnerable during windy conditions due to limited mobility and reliance on essential services. *Impacts:* High winds can lead to power outages when downed lines disrupt electricity supply, affecting homes and vital services like hospitals. Property damage can occur, leading to costly repairs and the possible displacement of residents. Travel hazards arise from debris obstructing roads, which can delay emergency responses.
Winter Weather	*Vulnerabilities:* Heavy rainfall can lead to flooding in low-lying areas, overwhelming the drainage systems. Additionally, high winds can uproot trees, posing risks to roads and power lines, which may cause outages. Many older buildings may not withstand severe weather, increasing potential property damage. Access routes may become compromised during storms, delaying evacuations and emergency responses. *Impacts:* Flooding may displace residents and damage local businesses, putting economic strain on the area. Power outages often occur due to fallen trees or downed lines, risking health for vulnerable populations without heat or electricity. Transportation systems are frequently disrupted, with road closures hindering commutes and access to essential services. Public transit may also be affected, isolating those who depend on it.

6.2.2.1. DEVELOPMENT CHANGES

Table 105 summarizes development trends in the City of Eureka since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 105: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Senior Housing at Myrtle/8th Veteran Housing Fourth Street ADUs	EARTH Center Multifamily housing on city parking lots and bluff	Increased
Commercial	In N Out, Starbucks, Wingstop, MOD Pizza, Chipotle, KFC, Englund Marine, Hilton Suites	None	Increased
Industrial	Butane/Hash Extraction businesses	None	Increased

6.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Eureka performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory capabilities
- Administrative and Technical capabilities
- Financial capabilities
- Education and Outreach capabilities

6.3.1. Planning and Regulatory Capabilities

Table 106 and Table 107 summarize the City of Eureka's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 106: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No Assembly Plan: No	Sustainability and resilience	2018, next update 2040
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	No	Protect infrastructure	N/A
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	TBD	Last Update: 03/2014 Next Update: 12/2025
Stormwater Management Plan	No	Flood prevention	N/A
Transportation Plan	No	Make sure facilities are at elevations that will ensure longevity	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 107: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 01/2025 Next Update: 01/2026
Flood Insurance Rate Maps	Yes	Yes	Last Update: 01/2025 Next Update: 01/2025
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	Yes	Yes	Last Update: 01/2025 Next Update: 01/2026
Zoning Ordinance	Yes	Yes	Last Update: 01/2025 Next Update: 01/2025
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	Last Update: 01/2025 Next Update: 01/2026
Prohibition of Building in At-Risk Areas	Yes	Yes	Last Update: 01/2025 Next Update: 01/2026

6.3.2. Administrative and Technical Capabilities

Table 108 and Table 109 summarize the City of Eureka's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 108: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	Yes	Yes	Yes
Grant Writer	Non-Vacant	Yes	Yes	Yes

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Non-Vacant	Yes	Yes	Yes
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Non-Vacant	Yes	Yes	Yes
Planning Commission	Non-Vacant	Yes	Yes	Yes
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	No	Yes	Yes
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 109: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Mapping elevations	More precise data
Mutual Aid Agreements	Yes	Collaboration	More collaboration

6.3.3. Financial Capabilities

Table 110 summarizes the City of Eureka's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 110: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Yes Utility upgrades and protection	Yes	Yes
General Funds	Yes	Yes Habitat restoration and sea level rise adaptation planning	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	To fund the stormwater resource plan, as well as Sea Level Rise and Flood Reduction Projects	Yes	No
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	Yes	Housing	Yes	yes
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Yes Habitat restoration and sea level rise adaptation planning	Yes	Yes
Stormwater Utility Fee	Yes	Yes Habitat restoration and sea level rise adaptation planning	Yes	No

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Fees for Water, Sewer, Gas or Electric Services	Yes	Habitat restoration and sea level rise adaptation planning	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	No	No	No
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	Yes	Programs: PRPP 68, Habitat Conservation Fund Activities: habitat restoration	Yes	Yes
Private Sector or Nonprofit Programs	Yes	No	Yes	Yes

6.3.4. Education and Outreach Capabilities

Table 111 summarizes the City of Eureka's education and outreach capabilities, which encompass programs and actions designed to communicate information about and encourage risk reduction.

Table 111: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	No	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A
Public Meetings/Events	Yes	Yes	Council meetings with agendas related to hazards
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	Regional Council of Associations, Housing Authority, Environmental Product Declaration
Social Media	Yes	Yes	Facebook, Instagram

6.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 112. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 112: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Update local coastal program

Capability Type	Opportunity to Expand and/or Improve
Administrative and Technical	Facility and infrastructure inventory would increase capabilities
Financial	New noncompetitive grant funding
Education and Outreach	More staff to perform outreach

6.4. National Flood Insurance Program

The City of Eureka has been a participant in the NFIP since 1982. Details of NFIP policies in the City of Eureka are in Table 113. Additional NFIP information is in Table 114 through Table 116. Continued compliance with NFIP standards is expected for the City of Eureka.

Table 113: City of Eureka NFIP Details

Community Name	Community Number	Total Premium + FPF[10]	Total Policy Count	Total Coverage	Total Losses
Eureka, City of	060062	$35,997	22	$7,369,000	4

Table 114: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Cristin Kenyon, Development Services Director; secondary role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Adequate training: no; capacity: limited
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Yes, we enforce through adherence to Eureka Municipal Code, Title 15, Chapter 153: Flood Hazard Area Regulations when development is proposed in the FEMA Flood Zones. We have complaint-based enforcement or if we see something, like unanchored shipping containers being added to a site.

[10] FPF: Federal Policy Fee

Question	Response
When was the community's most recent Community Assistance Visit (CAV)?	Unknown. The current floodplain administrator started in 2021 and has not experienced a CAV.
Were any violations noted on the community's most recent CAV?	N/A
Is there an upcoming CAV? If no, is one needed?	No and no
When was the most recent floodplain management ordinance adopted?	Ord. 767-C.S., passed 4-19-11
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Our building code (Eureka Municipal Code 150.017) requires elevation above the base flood elevation (base flood elevation is typically 10 ft; building code sets minimum at 12.5 ft)
Who is responsible for permitting?	Development Services – Planning, Building and Code Enforcement
How does the community issue development permits in the special flood hazard area?	Through a Flood Development Permit pursuant to EMC Chapter 153.
Does the community maintain elevation certificates?	Yes, though FEMA Flood Map Service Center
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No. It is not common to get a new building in our flood zone because the city is built out and because of the regulator layers there (e.g., flood permit and coastal development permit requirements)
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	0
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	0

Question	Response
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	The applicant supplies data with review and approval by the assigned planner in coordination with the director/floodplain administrator
How does the substantial damage/substantial improvement process work in your community?	Sections 153.027 and 153.028 of the Substantial Improvements/Damage Determination of Eureka California Municipal Code.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes, the building official can help confirm the determination by reviewing the accuracy of construction cost estimates.
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Only when someone applied for development in a flood-hazard area. We do have a flood-hazard layer on public WebGIS.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (Simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	The Development Services Department is committed to continuing to require flood permits in the flood hazard area. It will update our flood hazard area regulations (Chapter 153) as necessary to remain in compliance with federal law.

Table 115: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	Our last revalidation process was in 2017, with our last map amendments in 2018 – this predates the current floodplain administrator, who started in 2021.
When did the latest Flood Insurance Rate Map (FIRM) become effective?	6/21/2017

Question	Response
When was the latest FIRM adopted?	From the Eureka California Municipal Code, floodplain regulations indicate that we use the most recent map (153.007 says "and all subsequent amendments and/or revisions"). We host the most recent FIRM data on our city's public WebGIS, but we also visit the FEMA website to retrieve the official maps for inclusion in letters to property owners, referrals, staff reports and other purposes.
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	We direct them to the FEMA Flood Map Service Center website for access to the FIRM and FIS reports
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes, we worked on sea level rise modeling in 2016 and 2023 and are continuing to do so under a current Coastal Conservancy grant that began in 2024.

Table 116: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Currently, we've mainly been doing this through our sea level rise grants and outreach.
How does the community engage with insurance agents on flood insurance?	Very few property owners have flood insurance and I'm not sure what to do about that.
Does the community (or state) have flood hazard disclosure laws?	Yes
How familiar is the public with their flood insurance options?	Given that very few property owners have flood insurance, I'm guessing not a lot.
How many properties have flood insurance in the community?	22

Question	Response
Are there any areas where flood insurance is lacking?	Yes

6.5. Mitigation Strategy

The City of Eureka has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 117, while new mitigation action items and those carried forward from the previous plan are in Table 118.

6.5.1. Previous Mitigation Actions

Table 117: Previous Mitigation Actions

Mitigation Action	Description	Status
EUR1	Replace wastewater treatment plant chlorine gas disinfection with UV to reduce the threat posed by storing large CL2 tanks in the tsunami hazard zone.	Delete due to funding.
EUR2	Construct and/or repair levees, tide gates, dikes and other infrastructure to protect critical infrastructure against the threat of sea level rise.	Carry forward.
EUR3	Install solar microgrid alternate power at the water treatment plant to provide an alternative power source for operations.	Completed, installed 808 solar panels in 2025.
EUR4	Loop water connection at Jacobs Ave. to Bay Street to provide system stability and redundancy.	Carry forward.
EUR5	Replace sewer lines currently located in unstable and hard to service gulch areas to ameliorate channel erosion issues and prevent sanitary sewer overflows into sensitive habitats and waterways.	Carry forward, replace one on O Street.
EUR6	Reconstruct Dock B to provide seismic strengthening to reduce risk of structural failure and sustain needed economic infrastructure.	Carry forward.
EUR7	Relocate Corporation Yard improvements to reduce risk of structural failure and increase efficiency and operations during natural disaster.	In progress, site will be completed in 2026.

Mitigation Action	Description	Status
EUR8	Construct Eureka Municipal Airport improvements to provide for increased use, safety and security of airport during a natural disaster.	Carry forward.
EUR9	Construct Fire Station 3 and 4 replacement/retrofit improvements to increase capacity for emergency apparatus and equipment and personnel. (Fire Stations 3 and 4 are owned by the City of Eureka but used by Humboldt Bay Fire.)	Station 3 improvements completed 3/2025. Carry forward Station 4 improvements.
EUR10	Construct police station modifications to improve security and efficiency. Additional improvements needed to respond to grand jury requirements for security of back parking lot including alternative exit.	Carry forward.
EUR11	Install, replace, repair or relocate storm drainage facilities to improve environmental protection of Humboldt Bay during severe weather events and flooding.	In progress, carry forward. Hazard Mitigation Grant Program grant in process with California Governor's Office of Emergency Services, phase 2.
EUR12	Repair and replace Sewer Lift Station facilities to improve environmental protection of Humboldt Bay during severe weather events and flooding. Explore backup power supply for all lift stations.	Carry forward.
EUR13	Construct extended fuel storage facilities to provide adequate fuel storage at additional locations during periods of extended power outage. Potentially co-located with a new EOC.	Completed in 2023
EUR14	Construct Eureka Public Marina safety and security improvements to increase safety and operational sustainability.	Carry forward.
EUR15	Replace/retrofit/upgrade and clean up the commercial street dock fuel terminal facility to improve safety, minimize environmental impacts and provide a more reliable fuel system. This includes underground storage tank removal.	In progress, completion is anticipated by the end of 2025.

Mitigation Action	Description	Status
EUR16	Construct/repair embankments at 14th and P streets, Sunny Ave., Truesdale and the East end of Henderson to prevent further landslips and failures of major roadway and water/sewer infrastructure and to protect adjoining properties.	Carry forward.
EUR17	Construct/repair/replace wastewater collection system infrastructure, including the Cross-Town Sewer Interceptor, for seismic strengthening, reliability of wastewater collection and transport and increased community and environmental safety.	Carry forward.
EUR18	Construct/replace Elk River Wastewater Treatment Plant heat and power co-generation units to improve efficiency and reliability, strengthen facility reliability by reducing dependency on grid supplied power and insure continued operation during times of disaster.	Completed in 2024
EUR19	Public Works communication network upgrades.	Carry forward.
EUR20	Repair/replace/upgrade water distribution system and pump station infrastructure to strengthen system and ensure safe and reliable provision of public water to citizens and emergency service agencies.	Carry forward.
EUR21	Update and maintain emergency operation plan.	In progress
EUR22	Continue to maintain compliance and good standing under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts.	Ongoing

Mitigation Action	Description	Status
EUR23	integrate local hazard mitigation plan into the safety element of the general plan. The safety element of the general plan provides the city the capability to regulate future land uses in areas impacted by all hazards of concern identified by this plan.	Completed 10/2018
EUR24	Explore new and existing backup/emergency energy options for critical key asset facilities to determine most effective emergency energy source.	In progress, installed in Eureka Police Department Fire Station, Lundbar Hills
EUR25	Explore hybrid, electric and flex fuel vehicles for some city fleet uses, where adequate and applicable to reduce dependence on conventional liquid fuels. Identify vehicles classes and department uses where these vehicles would be feasible. Compare cost feasibility.	In progress
EUR26	Collaborate with private fuel supplier to explore and identify backup/emergency power source to maintain critical key fuel receiving and distribution facility in times of grid failure or emergency/disaster.	Completed, have an identified vendor
EUR27	Explore alternative or green energy options for City of Eureka facilities to reduce dependency/load on conventional grid source energies.	Carry forward.
EUR28	Establish an energy assurance plan and identify program coordinator/department, perform energy gap analysis and energy vulnerability assessment for community.	Carry forward.
EUR29	Increase emergency operations center efficiency and effectiveness through staff training and preparation to respond to all hazard events and after event recovery.	Carry forward.
EUR30	Support countywide initiatives in the Humboldt Operational Area Hazard Mitigation Plan.	Carry forward.

Mitigation Action	Description	Status
EUR31	Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to all hazards and disasters.	Carry forward.
EUR32	Create and maintain a hazard mitigation informational web page on the city's website.	Delete, area wide initiative moving forward.
EUR33	Support countywide initiatives to promote public education on the impacts of natural hazards and the risks they pose by emphasizing awareness, preparation, mitigation, response and recovery alternatives.	Carry forward.
EUR34	Partner with Humboldt County Emergency Service office in disaster response and preparedness, including updates to the emergency operations plan, a post-disaster action plan, training and support.	Carry forward.
EUR35	Replace/retrofit Eureka Fire Main Station and emergency operations center (same location) to provide seismic strengthening to maintain essential emergency services.	City Hall is EOC, carry forward but update language to be EOC as the City Hall.

6.5.2. Updated Mitigation Actions

Table 118: 2025 Mitigation Actions[11]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
EUR1	Regional Wastewater Capacity Resiliency Plan	Low	Eureka Public Works	Drought, earthquake, extreme temperatures, flooding, landslides, tsunami, wildfire, wind, winter weather	HMGP, BRIC, PDM, water utility tax	$50K	Existing	1–2 years	Yes	All
EUR2	Regional Wastewater Capacity Resiliency Infrastructure Project Implementation	Low	Eureka Public Works	Drought, earthquake, extreme temperatures, flooding, landslides, tsunami, wildfire, wind, winter weather	HMGP, BRIC, PDM, water utility tax	$10M	Existing	5+ years	Yes	All
EUR3	Regional Water Supply Resiliency Plan	Low	Eureka Public Works	Flood, earthquake, wildfire, dam failure, severe weather, earthquake, drought, tsunami	HMGP, PDM, BRIC, HCSD	$50K	Both	1–2 years	Yes	All

[11] HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation, FMA: Flood Mitigation Assistance, BRIC: Building Resilient Infrastructure and Communities, HCSD: Humboldt Community Services District

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
EUR4	Regional Water Supply Infrastructure Project Implementation	Low	Eureka Public Works	Flood, earthquake, wildfire, dam failure, severe weather, earthquake, drought, tsunami	HMGP, PDM, BRIC, HCSD	$10M	Both	5+ years	Yes	All
EUR5	Construct retaining wall at Hill Street sewer pump station due to severe rain event flooding.	Medium	Eureka Public Works	Flooding	General funds, utility rate	100,000	Both	3–5 years	Yes	Water Systems
EUR6	Climate Resilience Plan	Low	City of Eureka	All hazards	General funds	50,000	New	3–5 years	Yes	All
EUR7	Obtain potable water truck.	High	City of Eureka	Wildfire	General funds, utility rate	300,000	New	3–5 years	Yes	Water Systems
EUR8	Obtain a trailer-mounted pump to allow for access to reservoir water in an emergency.	High	City of Eureka	Wildfire	General funds, utility rate	300,000	New	3–5 years	Yes	Water Systems
EUR9	Dredge Humboldt Bay to allow fire and harbor access in emergency.	High	City of Eureka	Wildfire	General funds	2,000,000	New	3–5 years	Yes	Safety and Security, Water Systems and Transportation
EUR10	Construct and/or repair levees, tide gates, dikes and other infrastructure to protect critical infrastructure against the threat of sea level rise.	High	City of Eureka	Flood	Grants	$10M	Existing	3–5 years	Yes	All
EUR11	Loop water connection at Jacobs Ave. to Bay Street to provide system stability and redundancy.	Medium	City of Eureka	Drought	Rates	$2M	New	1–2 years	Yes	Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
EUR12	Replace sewer lines currently located in unstable and hard to service gulch areas to ameliorate channel erosion issues and prevent sanitary sewer overflows into sensitive habitats and waterways.	Medium	City of Eureka	Earthquake, flooding, landslide, severe weather	Rates	$5M	Both	1–2 years	Yes	Hydration, Water Systems
EUR13	Reconstruct Dock B to provide seismic strengthening to reduce the risk of structural failure and sustain needed economic infrastructure.	Medium	City of Eureka	Earthquake, severe weather, tsunami	Grants, general funds	$32M	Both	1–2 years	Yes	Safety and Security
EUR14	Construct Eureka Municipal Airport improvements to provide for increased use, safety and security during a natural disaster.	Medium	City of Eureka	Dam failure, earthquake, flooding, landslide, severe weather, tsunami, wildfire	Grants, general funds	$20M	Both	5+ years	Yes	Safety and Security, Transportation
EUR15	Construct Fire Station 4 replacement/retrofit improvements to increase emergency apparatus, equipment and personnel capacity. (Fire Station 4 is owned by the City of Eureka but used by Humboldt Bay Fire.)	Medium	City of Eureka	Dam failure, earthquake, flooding, landslide, severe weather, tsunami, wildfire	General funds, grants	$8M	Both	5+ years	Yes	Safety and Security
EUR16	Construct police station modifications to improve security and efficiency. Additional improvements are needed to respond to grand jury requirements for the security of the back parking lot, including an alternative exit.	Medium	City of Eureka	Earthquake, flooding, landslide, severe weather, tsunami, wildfire	General funds, grants	$250K	Both	5+ years	Yes	Safety and Security

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
EUR17	Install, replace, repair or relocate storm drainage facilities to improve environmental protection of Humboldt Bay during severe weather events and flooding.	Medium	City of Eureka	Flooding	General funds	$4M	New/Existing	3–5 years	Yes	All
EUR18	Repair and replace sewer lift station facilities to improve environmental protection of Humboldt Bay during severe weather events and flooding. Explore backup power supply for all lift stations.	Medium	City of Eureka	Flooding	Rates	$3M	Existing	3–5 years	Yes	All
EUR19	Construct Eureka Public Marina safety and security improvements to increase safety and operational sustainability.	Medium	City of Eureka	Flooding	General funds, grants	$1M	Existing	3–5 years	Yes	All
EUR20	Construct or repair embankments at 14th and P streets, Sunny Ave., Truesdale and the East end of Henderson to prevent further landslides and failures of major roadway and water/sewer infrastructure and to protect adjoining properties.	Medium	City of Eureka	Landslides	Rated, general fund, grants	$1.5M	New	3–5 years	Yes	All
EUR21	Construct/repair/replace wastewater collection system infrastructure, including the Cross-Town Sewer Interceptor, for seismic strengthening, wastewater collection and transport reliability and increased community and environmental safety.	Medium	City of Eureka	Earthquake, flooding, landslide, severe weather	Rates, loans, grants	$10M	Both	5+ years	Yes	Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
EUR22	Public Works communication network upgrades.	Medium	City of Eureka	Dam failure, earthquake, flooding, landslide, severe weather, tsunami, wildfire	Rates, loans grants	$500K	Both	1–2 years	Yes	Communications
EUR23	Repair/replace/upgrade water distribution system and pump station infrastructure to strengthen system and ensure safe and reliable provision of public water to citizens and emergency service agencies.	Medium	City of Eureka	Infrastructure failure	Rates, loans, grants	$2M	Existing	3–5 years	Yes	Water Systems, Hydration
EUR24	Explore alternative or green energy options for City of Eureka facilities to reduce dependency/load on conventional grid source energies.	Low	City of Eureka	Power/energy failure	Rates, general funds	$500K	Existing	3–5 years	Yes	Energy
EUR25	Establish an energy assurance plan and identify program coordinator/department, perform energy gap analysis and energy vulnerability assessment for community.	Medium	City of Eureka	Power/energy failure	Rates, general fund	$500K	Existing	1–2 years	Yes	Energy
EUR26	Increase emergency operations center efficiency and effectiveness through staff training and preparation to respond to all hazard events and after-event recovery.	Medium	City of Eureka	All hazards	Rates, general funds	$500K	Existing	1–2 years	Yes	All
EUR27	Continue to participate in general mutual-aid agreements and agreements with adjoining jurisdictions for cooperative response to all hazards and disasters.	High	City of Eureka	All hazards	Rates, general funds	$500K	Existing	1–2 years	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
EUR28	Support countywide initiatives to promote public education on the impacts of natural hazards and their risks by emphasizing awareness, preparation, mitigation, response and recovery alternatives.	Medium	City of Eureka	All hazards	Rates, general funds	$500K	Existing	1–2 years	Yes	All
EUR29	Partner with Humboldt County Emergency Service office in disaster response and preparedness, including updates to the emergency operations plan, a post-disaster action plan, training and support.	Medium	City of Eureka	All hazards	Rates, general funds	$500K	Existing	1–2 years	Yes	All
EUR30	Replace and retrofit the Eureka Fire Main Station and emergency operations center (located in City Hall) to strengthen seismic, ensuring essential emergency services' maintenance.	Medium	City of Eureka	Earthquake	Rates, general funds	$2M	Existing	3–5 years	Yes	All

7. City of Ferndale Annex

This section presents the jurisdictional annex for the City of Ferndale. The jurisdiction's governing body passed a formal resolution to participate in the update of this multi-jurisdictional hazard mitigation plan update. The City of Ferndale's priorities have been updated to prioritize wildfire hazards, given the recent increase in wildfires, and to promote private mitigation efforts that advise homeowners and property owners on the risks of local natural hazards, provide technical assistance as feasible, maintain a publicly accessible library on reduction hazard techniques, recruit community groups for projects, facilitate networking for businesses, support the creation of a demonstration model of mitigation techniques and educate the public about the benefits of multi-hazard design. The governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, the City has responded to multiple severe hazard events that underscore vulnerabilities in local infrastructure and communications. None of these events resulted in a FEMA disaster declaration, but they highlighted gaps in preparedness, which reinforces the importance of building local capacity. Strengthening interagency coordination, improving resource availability, and addressing risks are central goals of this update. These priorities are reflected in the actions selected during this plan update.

7.1. Planning Process

7.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the City of Ferndale, the stakeholders and the public. The City of Ferndale was represented during the planning process by the individual listed in Table 119.

Table 119: City of Ferndale Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Jay Parrish	City Manager	City of Ferndale	citymanager@ci.ferndale.ca.us

7.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-

based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process. and are recognized in Table 120. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 120: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Jay Parrish	City manager	City of Ferndale	citymanager@ci.ferndale.ca.us	1. Local and regional agencies involved in hazard mitigation activities
Michelle Nielsen	Contract City planner	City of Ferndale	michellen@planwestpartners.com	1. Local and regional agencies involved in hazard mitigation activities
		California Department of Transportation		2. Agencies that have the authority to regulate development
Steven Baker	Fire Chief	Orick VFD	orickchief@gmail.com	3. Neighboring communities, including special districts
		Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
		Environ-mental Protection Information Center	epic@wildcalifornia.org	5. Representatives of nonprofit organizations, including community-based organizations

7.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 13 illustrates how the public was encouraged to participate in the survey. The City of Ferndale utilized a variety of communications channels, including emailing community stakeholders that could share the survey to residents.

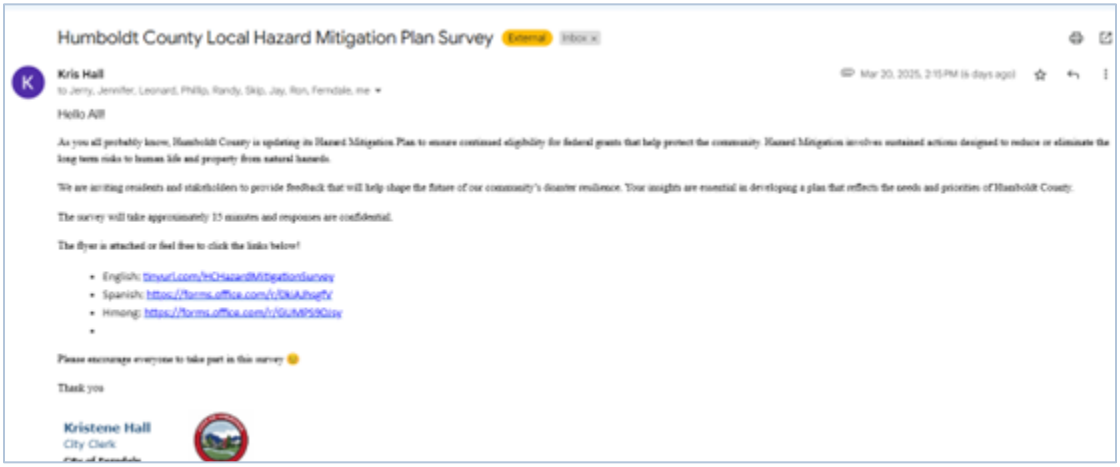

Figure 13: Public Outreach Methods

Public feedback was incorporated, as appropriate, into the City of Ferndale's risk assessment and the list of mitigation action ideas. The city reviewed these ideas during the Mitigation Action Workshop to determine what should be included in the updated list of mitigation actions for this plan update. This process is reflected in the area-wide actions that Ferndale selected for inclusion in the update.

7.1.3.1. VULNERABLE POPULATION OUTREACH

Some Ferndale residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Ferndale may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Figure 14 displays how the city advertised the survey specifically to vulnerable populations. Some of the outreach methods included resources such as the post office public boards, as underserved populations may not have access to the internet.

Figure 14: Public Outreach to Vulnerable Populations

7.1.4. Plan Integration

7.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 121.

Table 121: Previous Plan Integration for the City of Ferndale

Plan Name	Description
Safety Element	The city recently completed an update of its Safety Element (SE). The SE encompasses policies and programs for developing a hillside development ordinance, maintaining coordination with local agencies and disseminating information to residents, among other activities.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 122 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 122: Future Types of Plan Integration for the City of Ferndale

Type of Plan	Integration Method
Safety Element	Upon adoption of the 2025 Hazard Mitigation Plan, integrate into the City of Ferndale's Safety Element by amending the Safety Element of the Ferndale General Plan.

7.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, which are displayed in Table 123 and Table 124. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Ferndale will not be profiling dam failure or extreme temperatures due to the extremely low risk.

Table 123: City of Ferndale Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting the Hazard?
Dam Failure	No	Scott Dam, which creates Lake Pillsbury on the Eel River, is located more than 100 miles southeast of the city. Over this distance, water surges created by dam failure would disperse considerably before reaching the Planning Area. Although the failure of this dam would increase water levels downstream, it is expected that the levels would remain below the 100-year flood level, and damage would be minor. The county maintains an emergency response plan for Scott Dam. The Eel River does not pass through Ferndale and is approximately 2–3 miles away from the city.
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	No	Based on the UCLA Heat Maps at https://sites.google.com/g.ucla.edu/uclaheatmaps/map, There were 114 excess visits to the emergency room for heat-related problems. This data set indicates that the Ferndale area had a low to medium number of daily excess emergency room visits. There were 20 heat days between 2009 and 2018 in Humboldt County.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 124: City of Ferndale Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	Low	High	High	Low	Medium
Earthquake	High	High	High	High	High
Flooding	High	High	Medium	High	High
Landslide	Medium	Medium	Low	Medium	High
Tsunami	Low	Low	No impact	Low	Low
Wildfire	High	Urban: High	High	High	High
Wind	Low	Low	Low	Low	Low
Winter Weather	Low	Low	Low	Low	Low

*Note: The process used to assign risk rankings is described in Volume 1.

7.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Ferndale. Other hazard events that broadly affected the entire planning area, including the City of Ferndale, are listed in the risk assessments in Volume 1.

7.2.1.1.HISTORICAL EVENTS

Ferndale has experienced a relatively calm weather pattern in recent times, with no recorded storm events directly affecting it. However, the broader northern Humboldt coastal region has experienced several storm events documented by the National Centers for Environmental Information (NCEI) National Storm Events Database, which can be reviewed in the Humboldt County Annex.

While Ferndale may have avoided the brunt of these storms, neighboring areas have seen varying impacts, ranging from high winds to heavy rainfall. Ferndale's proximity to the coast means it can still feel the effects of these weather systems, even when it does not directly experience severe weather.

The NCEI database does not always capture localized hazard data. To address this gap, the City of Ferndale has documented additional significant events, the impacts of which are detailed below.

DROUGHT

- **2021, 2022:** The Board of Supervisors issued a drought proclamation and in 2022, the governor issued an executive order (EO) for drought in Humboldt County.

EARTHQUAKE

- **Dec. 5, 2024:** Business interruption.
- **Jan. 1, 2023:** Both roadways in and out of Ferndale were damaged, restricting transportation and response in the event of an emergency, although the damaged roadway segments were outside the city.
- **Dec. 20, 2022:** Both roadways in and out of Ferndale were damaged, restricting transportation, although the damaged roadway segments were outside the city.

FLOODING

- **November, 2024:** In Ferndale, water from the river flooded fields near the town and created temporary lakes.
- **February, 2024:** One neighborhood in Ferndale, Frog Alley, may have received the worst of the damage, flooding seven times this winter alone.

LANDSLIDE

- **Feb. 24, 2024**: Large masses of earth and rock cascaded down onto the beach below, blocking access to parts of the beach and posing a potential threat to nearby properties near Centerville Beach, although this landslide was located outside the city.
- **December, 2022:** A slow-moving landslide occurred due to a 7.2-magnitude earthquake.

TSUNAMI

- No events have occurred since the previous plan.

WILDFIRE

- No events have occurred since the previous plan.

WIND

- **January, 2020–December, 2024:** Eighteen wind events have occurred, 14 of which occurred in January, 2021. They caused power outages and downed trees on multiple roadways. Some roof damage was reported.

WINTER WEATHER

- **February, 2023:** Snow accumulation, no damages reported.

7.2.2. Jurisdiction-Specific Vulnerabilities

Table 125 provides information on several key vulnerabilities affecting the jurisdiction.

Table 125: City of Ferndale Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Drought	*Vulnerabilities:* A significant vulnerability during a drought is the limited availability of potable water from the Del Oro Water Company, particularly affecting elderly and low-income residents who may struggle to find enough water. Additionally, the prolonged drought increases fire risks at the urban-wildland interface in the southern part of the city, posing a threat to residential areas and critical infrastructure essential for community safety. *Impacts:* The impacts on residents can include health issues such as dehydration, especially among vulnerable groups like the elderly and those with chronic conditions. For critical infrastructure, heightened fire risks can lead to economic disruptions as wildfires threaten utilities and emergency services, making it difficult to protect residents and maintain essential resources. Furthermore, the strain on local agriculture can have a negative impact on the community's economy and food security.
Earthquake	*Vulnerabilities:* The City of Ferndale is located in the Big Lagoon Bald Mountain, Russ, Cascadia, Little Salmon, and Mad River-Trinidad fault zones, and entire city including the critical infrastructure and people are vulnerable to strong to violent peak ground acceleration. The city's historic district and historic properties are vulnerable assets. These features are also a significant economic asset for the city, residents and local businesses. Many of these buildings were not built to modern seismic standards and their close proximity increases the risk of widespread damage. Additionally, critical infrastructure like roads and bridges could be compromised, hindering emergency response and the evacuation of elderly and disabled individuals. The City of Ferndale's entire population of 1,382 people are vulnerable to earthquake. *Impacts:* The impacts of an earthquake can include injuries to residents, particularly vulnerable groups such as the elderly and those with disabilities. Damage to local businesses and critical infrastructure would disrupt services, while the destruction of historic sites could negatively affect the community's identity and tourism, leading to economic strain.

Hazard	Vulnerabilities and Impacts
Flooding	*Vulnerabilities:* Flooding from Francis Creek which runs through the heart of the city, along the Eel River to the north and east of the city, as well as pluvial flooding issues concern Ferndale. Inadequate urban drainage systems lead to localized flooding whenever it rains. Large portions of the city are in the moderate risk (0.2%) flood sone or high-risk (1%) flood zone. This situation poses a risk to all residents, particularly the elderly and individuals with disabilities, who may struggle with accessibility. Critical infrastructure is also vulnerable. Roads, utilities and emergency routes can be compromised during flooding, hindering evacuation and emergency response. Essential services like the wastewater treatment facility near Francis Creek may be damaged, threatening public health. *Impacts:* Flooding can result in injuries, property damage and displacement for residents, disproportionately affecting vulnerable populations. The disruption of critical infrastructure can lead to power outages and water service interruptions, isolating communities and complicating emergency response efforts. Long-term economic impacts may strain local businesses as flooding deters customers and disrupts operations.
Landslide	*Vulnerabilities:* Ferndale's Russ Park area is particularly susceptible to landslides, posing risks to people such as residents along Mattole Road, especially the elderly and disabled who may struggle to evacuate. Critical infrastructure, such as roads and utilities, is also at risk, with potential damage complicating emergency responses and access to essential services. *Impacts:* Landslides can lead to injuries or fatalities for residents unable to evacuate effectively, resulting in displacement for affected families. Disruptions to critical infrastructure can impede transportation and emergency response, while damage to utilities can threaten public health and safety, straining community resources.
Tsunami	*Vulnerabilities:* While Ferndale is outside the mapped tsunami hazard areas, SR 211 at Fernbridge is subject to tsunami hazards, and SR 211 serves as a primary evacuation route in and out of Ferndale. Additionally, individuals residing outside the city and exposed to or displaced by a tsunami event may seek shelter in Ferndale. *Impacts:* The impacts of a tsunami could be severe for residents, leading to injuries and potential loss of life, especially among those unable to evacuate quickly. Critical infrastructure, including utilities and emergency services, may be compromised, hindering recovery efforts and overwhelming local shelters and resources.

Hazard	Vulnerabilities and Impacts
Wildfire	*Vulnerabilities:* The southern portion of the city marks the urban–wildland interface, which is surrounded by private timberlands that are in the county's jurisdiction. Russ Park, a city park located within city limits, is part of the urban–wildland interface. Another vulnerability specific to Ferndale is the older section of downtown Ferndale, including the Main Street Historic District. The narrow streets and unpaved alleys make it challenging to maneuver and position response vehicles to be most effective in fighting a fire. Structure fires in this older section—where many buildings date from the late 1800s to the 1930s—are particularly concerning. These buildings were constructed to older building standards and fire codes, are closely spaced and feature non-fire-resistant construction materials with no internal sprinklers or other fire safety systems in place. Additionally, the Main Street Historic District and other properties are listed on the federal and state registers of historic places, and Main Street is designated as a historic district by the National Park Service. These designations increase the regulation and cost of retrofits. *Impacts:* Wildfires can have a severe impact on residents, particularly the elderly and those with disabilities, who may find evacuation challenging. This threat can lead to injuries, property loss and significant stress in the community. For critical infrastructure, wildfires can disrupt utilities and emergency services, isolating communities and delaying recovery efforts. Local businesses may also suffer economically due to evacuations and damage.
Wind	*Vulnerabilities:* Wind events can damage historic resources in the city. Additionally, they damage and uproot trees in neighborhoods, including those in Russ Park. Older buildings may not withstand high winds, putting vulnerable populations, like the elderly, at risk during severe weather events. Additionally, weak or dead trees can fall, causing injury and property damage. Power lines and communication systems are also susceptible to wind damage, which can lead to power outages. *Impacts:* Wind events can result in injuries from debris or falling branches, especially for the elderly and disabled. Critical infrastructure can experience power outages, disrupting emergency services and isolating communities. Damage to utilities and transportation routes can complicate recovery efforts and lead to long-term economic challenges for local businesses.

Hazard	Vulnerabilities and Impacts
Winter Weather	*Vulnerabilities:* Critical infrastructure, such as roads and public transport, can be compromised during winter storms, making navigation difficult for emergency vehicles and residents. Power outages from downed lines can disrupt heating and essential services. *Impacts:* Winter weather can lead to significant impacts on both residents and critical infrastructure. Residents may suffer injuries from slips and falls, particularly among seniors. Isolation during severe conditions can worsen mental health for vulnerable groups. Road closures and travel difficulties can hinder emergency response, delaying medical assistance. Disruptions to public transport may isolate communities, complicating access to essential services, while utility strains can lead to power outages, affecting local businesses and the economy.

7.2.2.1. DEVELOPMENT CHANGES

Table 126 summarizes development trends in the City of Ferndale since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 126: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	15 units (2020 to 2024)	10 to 15 units	No change: The city's designated historic district is a vulnerable asset.
Commercial	None	0–2	No change
Industrial	None	None	No change

7.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Ferndale performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach, including the following:

- Planning and Regulatory Capabilities

- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

7.3.1. Planning and Regulatory Capabilities

Table 127 and Table 128 summarize the City of Ferndale's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 127: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes Assembly Plan: Yes	The general plan could identify hazard areas of concern (especially as new hazards are identified) and possible priorities. The general plan could identify potential collaborative projects that involve the county (such as the Salt River) or other entities.	Last Update: 11/2024 Next Update: 07/2027
Recovery Plan	Yes	The city's Emergency Handbook includes procedures for restoring essential functions in the event of an emergency.	Last Update: 12/2022 Next Update: 2027
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	In Progress	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Community Wildfire Protection Plan (CWPP)	Yes	The CWPP is a collaborative plan that includes Ferndale. The municipal code could be amended to include provisions to outlining specific preventative measures like zoning regulations, building code upgrades, infrastructure improvements, public awareness campaigns and land use planning strategies that can be proactively taken to reduce the potential impact of future disasters, all while coordinating efforts across different city departments.	Last Update: 01/2019 Next Update: 2028
Economic Development Plan	No	N/A	N/A
Land Use Plan	Yes	Programmatically identify high-risk areas and establish a land use policy to regulate the development of those areas.	Last Update: 11/2024 Next Update: 07/2027

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Local Emergency Operations Plan	Yes	Programmatically identify high-risk areas, then outline specific preventative measures like zoning regulations, building code upgrades, infrastructure improvements, public awareness campaigns and land-use planning strategies that can be proactively taken to reduce the potential impact of future disasters, all while coordinating efforts across different city departments	Last Update: 01/2025 Next Update: 02/2030
Stormwater Management Plan	Yes	Prioritize stormwater projects. Private development projects that trigger stormwater management review: the project for consistency with the adopted plan and ensure the project incorporates its proportional share to the infrastructure projects identified in the adopted plan.	Last Update: 10/2022 Next Update: 2035

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Transportation Plan	No	"Transportation Plan" as used herein is interpreted to mean a general plan circulation element. A modern circulation element can identify appropriate evacuation routes out of the city during an event. A circulation element can also identify if infrastructure improvements are needed and prioritize any necessary improvements to ensure the safe evacuation of the city.	Last Updated in 1967 Next Update: Not scheduled and is dependent upon availability of funding
Substantial Damage Plan	Yes	The response to this question outlines the city's strategy for addressing damage in the event of an emergency. This is part of the Ferndale Emergency Handbook.	Last Update: 12/2022 Next Update: 2027
Debris Management Plan	No	N/A	N/A

Table 128: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes. California Building Standards Code (CBSC), which is based on the International Code Council (ICC) codes. The CBSC includes various model codes, such as the California Building Code, Residential Code, Plumbing Code, Mechanical Code and Electrical Code. These codes are updated every three years, most recently in the 2022 version, effective January 1, 2023.	Last Update: 01/2022 Next Update: 2027
Flood Insurance Rate Maps	Yes	Yes	Last Update: 11/2016 Next Update:2028 and is dependent on availability of funding
Floodplain Ordinance	Yes	Yes	Last Update: 05/2008 Next Update: 2028 and is dependent on availability of funding
Subdivision Ordinance	Yes	Yes	Last Update: 10/1999 Next Update: 12/2025
Zoning Ordinance	Yes	Yes	Last Update: 10/2024 Next Update: 12/2025
Natural Hazard Specific Ordinance	N/A	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

7.3.2. Administrative and Technical Capabilities

Table 129 and Table 130 summarize the City of Ferndale's administrative and technical capabilities, including its staff and their respective skills and the available tools to support mitigation actions.

Table 129: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Non-Vacant	Yes	Yes	Yes
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Non-Vacant	Yes	Yes	Yes
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Non-Vacant	Yes	Yes	No
Fire Safe Council	Non-Vacant	Yes	Yes	Yes
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Active Organizations Active in Disaster	Non-Vacant	Yes	Yes	Yes

Table 130: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Data have supported applications for grant funding related to hazards, but they were not successful. The city's experience is that the results of cost-benefit analyses often do not position city grant applications to be competitive.	Data can be added to grant applications to improve community planning, reduce the exposure of people and property to hazards and undergird land use regulations that aim to minimize exposure. This type of data may help identify issues sooner rather than later. The city is interested in developing a Comprehensive Implementation Plan (CIP) to support the implementation of hazard mitigation actions that diminish hazards. However, at this time, the city does not have sufficient funding or revenue sources to support CIP development and implementation.
GIS	Yes	Historically, GIS has been utilized to identify risks and support community planning efforts, such as the preparation of the 2024 Safety Element update.	Same as above

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Mutual Aid Agreements	Yes	Police department coordination and response: Ferndale, Rio Dell, Fortuna and CHP responding to traffic incidents and earthquakes. To summarize, they collaborate to address a common issue.	The Emergency Response Committee (ERC) meets monthly. ERC members include the city manager, the fire chief, the executive director of the fairgrounds, the school district superintendent and representatives from public works, the police department and both schools. The ERC discusses risk issues, fosters open communication and information sharing, remains of what others are doing and facilitates collaboration.

7.3.3. Financial Capabilities

Table 131 summarizes the City of Ferndale's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is crucial in determining the types of projects that are feasible given their costs.

Table 131: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	No	N/A	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
General Funds	Yes	Yes Flood hazard mitigation for Francis Creek; the city is in the process of increasing the height of the berm at the city's wastewater treatment plan; the city's general funds have supported the development and adoption of drainage master plans and to implement improvements. In all cases, general fund support for the implementation of mitigation actions is subject to the availability of funding and the city's other financial obligations.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	Yes	Yes
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	Yes	The city holds an active permit from USACE for the annual removal of vegetation in the Francis Creek channel, which is used for flood mitigation.	Yes	No
Property, Sales, Income or Special Purpose Taxes	Yes	Yes Offset costs associated with the maintenance of city drainage facilities. It is likely that the use of the city's special tax is restricted to drainage (stormwater) projects. The city does not anticipate having surplus property.	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes The city has collected fees for sewer service, but the use of these funds is restricted and highly regulated. Collected sewer fees are used for sewer maintenance and other activities directly associated with the city's wastewater treatment plan and the collection system.	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Impact Fees from New Development and Redevelopment	Yes	No	No	No
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	Yes	No	No	No

7.3.4. Education and Outreach Capabilities

Table 132 summarizes the City of Ferndale's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 132: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Public Meetings/Events	Yes	Yes	The Emergency Response Committee meets monthly (school representatives attend) to discuss risk issues, continue to foster open communications and sharing information, to be aware of what others are doing and to facilitate collaboration.
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	No	Ferndale Volunteer Fire Department (FVFD), Ferndale Senior Resource Agency and numerous community churches. Aside from FVFD, it is presently not known if and/or to what extent these organizations incorporate natural hazard mitigation resources in their materials.
Social Media	No	N/A	N/A
Other? (Please Describe)	The city website	Yes	N/A

7.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 133. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 133: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The city's financial resources to undertake the development of local planning efforts are limited.
Administrative and Technical	None
Financial	The city's capacity to identify appropriate grants and to apply for them is limited.
Education and Outreach	Residents have a high degree of shared responsibility and are civically minded; there may be opportunities to improve education and outreach on this topic at community events.

7.4. National Flood Insurance Program

The City of Ferndale has been a participant in the NFIP since 1993. Details of NFIP policies in the City of Ferndale are in Table 134. Continued compliance with NFIP standards is expected for the City of Ferndale. Additional NFIP information is in Table 135 through Table 137.

Table 134: City of Ferndale NFIP Details

Community Name	Community Number	Total Premium + FPF[12]	Total Policy Count	Total Coverage	Total Losses
Ferndale, City of	060445	$3,205	5	$1,178,000	3

Table 135: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	The city manager serves as the floodplain manager, and this is a secondary role.

[12] FPF: Federal Policy Fee

Question	Response
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	The city enforces its floodplain regulations for new development that is subject to the floodplain ordinance. Because there is little new development in Ferndale, most enforcement likely happens through the FEMA insurance process. FEMA has never contacted the city.
When was the community's most recent Community Assistance Visit (CAV)?	02/2025
Were any violations noted on the community's most recent CAV?	The city has never had a CAV.
Is there an upcoming CAV? If no, is one needed?	Upcoming CAV: No Is one needed: No
When was the most recent floodplain management ordinance adopted?	05/2008
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	The floodplain administrator, an engineer contracted to provide this expertise.

Question	Response
How does the community issue development permits in the special flood hazard area?	5. Permit Requirement: A development permit is required before any construction or development, including manufactured homes, in Special Flood Hazard Areas. 6. Application Process: Applications must be submitted on forms provided by the City of Ferndale and include the following information: › Plans: Drawn to scale, showing location, dimensions and elevation of the area, structures, storage and utilities. › Utilities: Proposed locations of water supply, sanitary sewer and other utilities. › Grading Information: Existing and proposed contours, fill and drainage facilities. › Floodway Location: If applicable, the location of the regulatory floodway. › Base Flood Elevation: Information as specified in other sections of the ordinance. › Elevation Details: Proposed elevation of the lowest floor (including basement) and floodproofing elevation for nonresidential structures. 7. Certification Requirements: › Nonresidential Floodproofing: Certification from a registered civil engineer or architect that the building meets floodproofing criteria. › Crawl-Space Foundation: Location and net area of foundation openings as required by the ordinance. 8. Watercourse Alteration: Description of any alterations or relocations of watercourses due to the proposed development.
Does the community maintain elevation certificates?	Yes

Question	Response
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes Describe: The development pattern is for infill development and low levels of greenfield development. Little to no development is occurring in areas subject to flooding.
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	0
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	0
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Floodplain administrator
How does the substantial damage/substantial improvement process work in your community?	This a duty of the floodplain administrator so this is accomplished through implementation of the city's floodplain ordinance.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Information is disseminated through the city's website and public meetings.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No

Question	Response
How will the community remain in compliance with the NFIP moving forward? (Simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Using available information and data, the city could develop a GIS resource that provides flood hazard information at the property level. Since the city's floodplain ordinance has not been updated for some time, it could have the current ordinance audited by a qualified professional to ensure it is current. In both cases, the city's ability to implement such actions requires is constrained by available funding and capacity.

Table 136: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	This is a duty of the floodplain administrator.
When did the latest Flood Insurance Rate Map (FIRM) become effective?	12/2016
When was the latest FIRM adopted?	12/2016
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Yes Through City Hall
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes

Table 137: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Not to any great extent.
How does the community engage with insurance agents on flood insurance?	This would be done by private parties engaging their insurance agents.
Does the community (or state) have flood hazard disclosure laws?	Yes
How familiar is the public with their flood insurance options?	Do not know.
How many properties have flood insurance in the community?	5
Are there any areas where flood insurance is lacking?	No

7.5. Mitigation Strategy

The City of Ferndale has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statues are in Table 138, while new mitigation action items and those carried forward from the previous plan are in Table 139.

7.5.1. Previous Mitigation Actions

Table 138: Previous Mitigation Actions

Mitigation Action	Description	Status
FRN1	Continue involvement in Eel River Valley. Emergency Preparedness Team to enhance emergency preparedness in the Eel River Valley.	For the last 3 to 4 years, there has been no Eel Valley presence. Fortuna Elementary secured a grant for planning and coordination, but there have been no meetings since the COVID-19 pandemic. Ferndale now has a CERT and a police department that collaborate. The city would like to continue with Eel River Valley efforts if there is an opportunity. Defer.
FRN2	Maintain and update the city's emergency operations plan, prepare emergency response procedures and implement actions and projects outlined in the emergency operations plan. Responsibility of Emergency Response Committee (ERC).	ERC meets monthly. ERC members include the city manager, the fire chief, the executive director of the fairgrounds, the school district superintendent and representatives from public works, the police department and both schools. Specialists, such as the local fire inspector and representatives from the Del Oro Water Company, make routine monthly presentations. Defer.
FRN3	Support and actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Defer.
FRN4	Coordinate with the County and Rio Dell to stabilize the Blue Slide Road hillside and road surface from Ferndale to Rio Dell.	It is always important to recognize county responsibility and support, such as mutual aid. When the bridge at Fernbridge is closed, emergency response over Blue Slide Road is critical. Defer.

Mitigation Action	Description	Status
FRN5	Adopt a long-term capital improvement plan (CIP), which provides the city with the financial capability to fund capital projects that could include hazard mitigation projects.	Deferred. The city would like to establish a CIP, especially for preferred projects. However, grant money is needed to develop and implement a CIP. Carry forward.
FRN6	Improve hillside stability in landslide-prone areas within city limits, such as Bluff Street and Wildcat Road, by enhancing drainage, planting soil-protecting plants and installing retaining walls where necessary.	This is an ongoing drainage project. Observations indicate that the hills and associated vegetation in the southern portion of the city and surrounding areas have temporary storage capacity and generate excess runoff. Defer.
FRN7	Direct the building inspector to perform seismic retrofits of critical facilities, such as the public works facility, and undertake any necessary work.	Completed. To ensure public safety, including for buildings open to the public, it is standard practice following earthquakes for the building inspector to inspect buildings and tag them with yellow or red tags accordingly.
FRN8	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the Housing Element and Land Use Element updates. Update City Land Use Code for seismic setbacks/structural requirements and hillside development standards.	Completed and deferred since this is an ongoing process. The hazard mitigation plan was integrated into the city's safety and housing elements. However, updates to the city codes for seismic setbacks/structural setbacks and hillside development standards are deferred.
FRN9	Maintain National Incident Management System and Incident Command System training for city staff.	The city manager has received training and uses the online state system for incidents. The city manager is responsible for determining whether to declare a city emergency or contact Humboldt County to request an emergency declaration. Defer.

Mitigation Action	Description	Status
FRN10	Obtain and distribute current information about local natural hazards, risk and emergency preparedness, including creating and maintaining up-to-date website information.	Completed. The city's website has natural hazard information.
FRN11	Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP) through the implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in updates to floodplain identification and mapping. • Provide public assistance/information on floodplain requirements and impacts.	Completed. The city has maps and a floodplain manager.
FRN12	Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are situated in high- or medium-risk hazard areas.	Defer.
FRN13	Raise the elevation of the Wastewater Treatment Plant's lagoon levee to a level above the Francis Creek Flood elevation to address inundation issues.	Completed. Project is in the planning phase. Project should be completed in about 3 years.

Mitigation Action	Description	Status
FRN14	Undertake the Arlington Avenue Flood Mitigation Project to address factors contributing to localized flooding and private structure inundation.	Completed. The project is a cooperative effort with Humboldt County and is in the planning and construction phase. Upon completion, it will provide detention/retention capacity for stormwater runoff. Construction is expected to be completed by December, 2025.
FRN15	Undertake Washington Street Flood Mitigation Project to address factors contributing to localized flooding and private structure inundation.	Completed
FRN16	Integrate hazard mitigation plan into the Safety Element of the city's General Plan.	Completed

7.5.2. Updated Mitigation Actions

Table 139: 2025 Mitigation Actions[13]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN1	Continue to participate in the Eel River Valley Emergency Preparedness Team to enhance emergency preparedness in the Eel River Valley.	Medium	Ferndale	All hazards	Staff time	$50,000	Existing	5+ years	Yes	All Lifelines
FRN2	Maintain and update the city's emergency operations plan, prepare emergency response procedures and implement actions and projects outlined in the emergency operations plan. Responsibility of Emergency Response Committee.	Medium	Ferndale	All hazards	Staff time, general funds	$100,000	Existing	5+ years	Yes	All Lifelines
FRN3	Support and actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Medium	Ferndale	All hazards	Staff time, general funds	$100,000	Existing	5+ years	Yes	All Lifelines
FRN4	Coordinate with the county and Rio Dell to stabilize the Blue Slide Road hillside and road surface from Ferndale to Rio Dell.	Medium	Ferndale City Manager and City Engineer	Earthquake, flooding, landslide, wildfire	Staff time, Rio Dell funds	$2,000,000	Existing	1–2 years	Yes	Transportation, Safety and Security

[13] BRIC: Building Resilient Infrastructure and Communities, FMA: Flood Mitigation Assistance, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN5	Adopt a long-term capital improvement plan, which provides the city with the financial capability to fund capital projects, including hazard mitigation projects.	Medium	Ferndale	Earthquake, landslide, wildfire, severe weather, flooding, tsunami	Staff time, general funds	$100,000	Existing	1–2 years	Yes	All lifelines
FRN6	Improve hillside stability in landslide-prone areas within city limits, such as Bluff Street and Wildcat Road, by enhancing drainage, planting soil-protecting plants and installing retaining walls where necessary.	Medium	Ferndale	Earthquake, flooding, landslide, wildfire	Staff time, general funds	$10,000,000	Existing	5+ years	Yes	Safety and Security, Transportation
FRN7	Direct the building inspector to perform seismic retrofits on critical facilities, such as public works facilities and undertake any necessary work.	Medium	Ferndale	Earthquake, landslide	Staff time, general funds	$100,000	Existing	5+ years	Yes	All Lifelines
FRN8	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the Housing Element and Land Use Element Updates. Update City Land Use Code for seismic setbacks/structural requirements and hillside development standards.	Medium	Ferndale	Flooding, severe weather, tsunami, earthquake, landslide	Staff time, general funds	$100,000	Existing	1–2 years	Yes	Shelter, Safety and Security
FRN9	Maintain National Incident Management System and Incident Command System training for city staff.	Medium	Ferndale	All hazards	Staff time	$50,000	Existing	5+ years	Yes	All Lifelines

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN10	Obtain and distribute current information about local natural hazards risk and emergency preparedness, including creating and maintaining current website information.	Medium	Ferndale	All hazards	Staff time	$50,000	Existing	5+ years	Yes	All Lifelines
FRN11	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are in high- or medium-risk hazard areas.	Medium	Ferndale	All hazards	HMGP, PDM, FMA	$20,000,000	Existing	5+ years	Yes	All Lifelines
FRN12	Integrate the 2025 Hazard Mitigation Plan and 2025 Local Responsibility Area Fire Hazard Severity Map into the Safety Element of the city's General Plan. Adopt the 2025 State Fire Marshall's Local Responsibility Map into the city's municipal code.	High	Ferndale Planning	Drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds	$100,000	Existing	1–2 years	Yes	Safety and Security – Community Safety
FRN13	Explore becoming a Firewise Community to reduce wildland fire risks.	High	Ferndale City Manager and Planning	Wildfire	Humboldt County Fire Safe Council	$50,000	New	1–2 years	Yes	Safety and Security – Community Safety

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN14	Develop and adopt a hillside development ordinance requiring applicants to have technical studies prepared by qualified engineers or geologists (at their expense) for new construction. Due to the landslide-prone nature of the city's hillside areas, site-specific hazards and mitigation measures identified in the technical study must be integrated into project design and construction to reduce landslide risks. The ordinance should also address regulations regarding the removal of significant vegetation and mature trees, as these may contribute to hillside stability.	High	Ferndale City Manager and Planning	Earthquake, landslide	General funds and staff time	$100,000	New	1–2 years	Yes	Safety and Security – Community Safety
FRN15	To improve community resiliency and continuity of essential government services during emergencies, at the City police station, install a switch (and associated electrical) that automatically starts the generator during power outages.	High	Ferndale City Manager	Earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	Further research needed	$50,000	Existing	1–2 years	Yes	Safety and Security, Communications
FRN16	Install a solar system with a battery backup at City Hall to improve community resiliency and continuity of essential government services during emergencies.	High	Ferndale City Manager	Earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	Further research needed	$100,000	Existing	1–2 years	Yes	Safety and Security, Communications, Energy

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN17	To improve community resiliency during emergencies, install electrical vehicle chargers: one charger at the city hall for a city vehicle, and one charger at the public lot on Main Street.	High	Ferndale City Manager	Earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	Further research needed	$10,000,000	Existing	1–2 years	Yes	Power, Transportation
FRN18	Procure an electronic message board to display information to the community during emergencies.	High	Ferndale City Manager and City Council	Earthquake, extreme temperatures , flooding, landslide, tsunami, wildfire, wind, winter weather	Further research needed	$100,000	New	1–2 years	Yes	Safety and Security, Communications
FRN19	At Russ Park, install a public kiosk with trail information and wayfinding signage throughout the park.	Medium	Ferndale City Manager	Earthquake, landslides, wildfire, wind, winter weather	Per capita grant	$20,000	Existing	1–2 years	Yes	Safety and Security, Communications, Health and Medical
FRN20	Preserve the location and flow of the Salt River to ensure continuous functionality of the city's wastewater treatment plant and continue to support the HCRCD's Salt River Restoration Project.	High	Humboldt County Resource Conservation District	Flooding	Grants/loans from the Regional Water Quality Control Board; bonds	$5,000,000	Existing	5+ years	Yes	Water Systems, Hazardous Materials

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN21	For Russ Park, Phase 1: Consult with CAL FIRE and Ferndale Fire Protection District on fire-safe vegetation management and other possible improvements to reduce potential urban-wildfire interface hazards. Phase 2: Implement CAL FIRE and Ferndale Fire Protection District recommendations to reduce potential urban-wildfire interface hazards.	High	Ferndale Public Works	Wildfire, wind	California Forest Improvement Program	Phase 1: $50,000 Phase 2: $100,000	Existing	1–2 years	Yes	Safety and Security – Government Service, Community Safety, Transportation
FRN22	Remove debris from city stormwater ditches that impede efficient drainage to reduce ponding that may contribute to flooding. Support county efforts to remove debris from stormwater ditches outside city limits to reduce ponding that may contribute to flooding.	High	Within City Limits: Ferndale City Manager and Ferndale Public Works	Flooding	Drainage Impact Fee and Parcel Special Assessment	$100,000	Existing	1–2 years	Yes	Safety and Security – Government Service, Community Safety, Transportation
FRN23	Seek grant funding to support the acquisition and enhancement of the Christie Pond property to serve as a city-owned stormwater detention pond to reduce flooding in the city, especially in northeast neighborhoods.	Medium	Ferndale City Council, Drainage Committee, Planning and the City Engineer	Flooding	Calif. State Parks Land and Water Conservation Fund (LWCF) grants; HMPG	$1,000	New	1–2 years	Yes	Safety and Security – Government Service, Community Safety

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN24	Reduce structure fire risks by amending the Zoning Ordinance to enumerate non-reflective Class A metal roofing as a roofing material type to eliminate the need for applicants to secure an exception from the Planning Commission to install this type of roofing material. By specifying this type of roofing material in the Zoning Ordinance's development standards, the permitting process will be streamlined to encourage the use of this fire-safe roofing material.	Medium	Ferndale Planning and the City Engineer	Wildfire, Wind	General funds	$20,000	Existing	1–2 years	Yes	Safety and Security – Fire Service and Community Safety
FRN25	Develop and adopt a long-term capital improvement plan (CIP), which provides the city with the financial capability to fund capital projects that could include hazard mitigation projects.	Medium	Ferndale City Council, Drainage Committee and the City Engineer	Earthquake, drought, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP	$100,000	New	1–2 years	yes	Safety and Security, Transportation, Water Systems, Communications
FRN26	Direct the building inspector to perform seismic retrofits on public buildings and critical facilities and undertake work as necessary.	Medium	City Building Inspector and City Manager	Earthquakes, landslides	HMGP	$5,000,000	Existing	3–5 years	Yes	Safety and Security, Communications, Transportation, Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN27	Provide comprehensive local natural hazard preparedness and mitigation information on the city's website. Explore organizing and hosting community workshops and establishing a hazard information center.	High	Emergency Response Committee and City Manager	Earthquake, drought, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds	$25,000	Existing	1–2 years	Yes	Safety and Security, Communications
FRN28	• Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP) through the implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: › Enforce the flood damage prevention ordinance. › Participate in floodplain identification and mapping updates. › Provide public assistance/information on floodplain requirements and impacts.	High	Ferndale Floodplain Manager	Flooding	General funds	$50,000	Existing	5+ years	Yes	Safety and Security, Shelter
FRN29	Structures and facilities located in high- or medium-risk natural hazards within city limits support retrofitting, purchase or relocation of structures, prioritizing those that have experienced repetitive losses.	High	City Manager	Earthquake, flooding, landslides, wildfire	HMGP	$20,000,000	Existing	5+ years	Yes	Safety and Security, Shelter, Transportation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FRN30	Promote private mitigation efforts that advise homeowners and property owners on the risks of local natural hazard, provide technical assistance as feasible, maintain a publicly accessible library on reduction hazard techniques, recruit community groups for projects, facilitate networking for businesses, support the creation of a demonstration model of mitigation techniques and educate the public about the benefits of multi-hazard design.	High	Emergency Response Committee and City Manager	Earthquake, drought, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP	$200,000	New	3–5 years	Yes	Safety and Security, Food, Hydration, Shelter, Energy, Communications
FRN31	Participate in area-wide mitigation actions to promote resiliency in the City of Ferndale.	High	Ferndale City Manager	Earthquake, drought, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, BRIC, PDM	$150,000	Both	5 years	Yes	All

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8. Fieldbrook Glendale Community Services District Annex

This section presents the jurisdictional annex for the Fieldbrook Glendale Community Services District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The Fieldbrook Glendale CSD identified the following priorities since the last plan update: upgrading the electrical systems at two of its pump stations to allow for the use of a portable generator during power outages during hazard events and enhancing operational resilience.

8.1. Planning Process

8.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Fieldbrook Glendale Community Services District, the stakeholders and the public. The Fieldbrook Glendale Community Services District was represented during the planning process by the following individuals listed in Table 140.

Table 140: Fieldbrook Glendale Community Services District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Richard Hanger	District General Manager	Fieldbrook Glendale Community Services District	gm@fgcsd.org 707-499-1963
Steven Pearl	District Engineer	Fieldbrook Glendale Community Services District	steven.pearl@ghd.com 707-267-2212

8.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 141. Stakeholders were invited to the stakeholder meetings

through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 141: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Michiko Mares	General Manager	Humboldt Bay Municipal Water District	gm@hbmwd.com	1. Local and regional agencies involved in hazard mitigation activities
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	2. Agencies that have the authority to regulate development
Mandy Mager	City Manager	City of Blue Lake	citymanager@bluelake.ca.gov	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

8.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 15 illustrates how the public was

encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages. The Fieldbrook Glendale Community Services District sent the survey via U.S. Mail to all its residents and stakeholders.

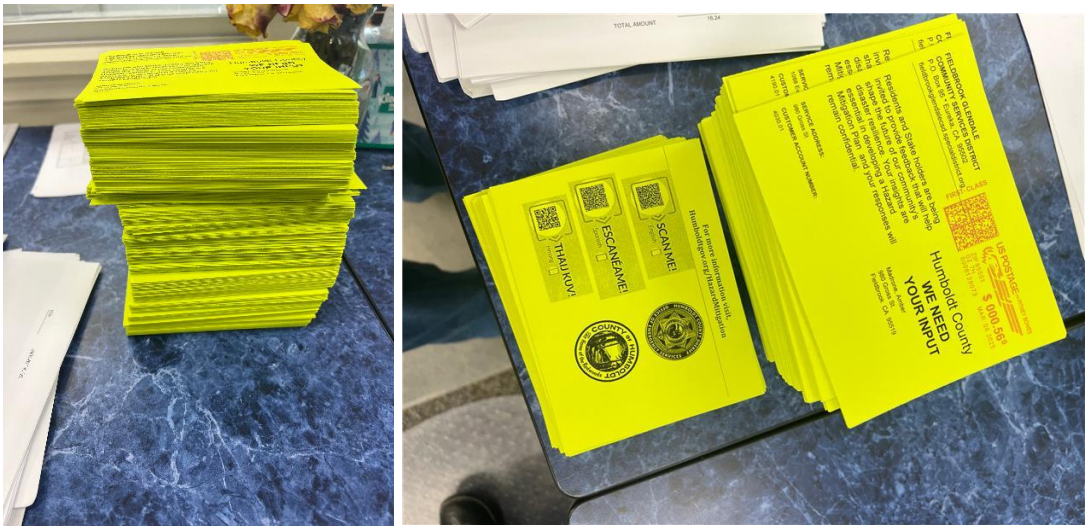

Figure 15: Public Outreach Methods, Including Methods to Specifically Include Vulnerable Populations

The public survey received 21 responses from residents of the Fieldbrook Glendale CSD. When asked, “What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?” most indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply and wastewater, improvements to public infrastructure against potential impacts from climate change, restoration of the natural environment to absorb impacts from natural hazards and opportunities for training for the public to better respond to natural disasters. One example of Fieldbrook Glendale CSD’s efforts to incorporate public feedback into mitigation actions is the addition of mitigation action FGCSD2-Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that are located in high- or medium-risk hazard areas. This includes the seismic retrofit of the district’s 400,000-gallon redwood water tanks.

8.1.3.1. VULNERABLE POPULATION OUTREACH

Some Fieldbrook Glendale Community Services District residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Fieldbrook Glendale Community Services District may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the district residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels. Figure 15 illustrates how the district distributed the survey specifically to include vulnerable populations. Some other outreach methods included resources such as Nextdoor

and website newsflashes since these are more frequently used by underserved populations such as seniors.

8.1.4. Plan Integration

8.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 142.

Table 142: Previous Plan Integration for the Fieldbrook Glendale Community Services District

Plan Name	Description
None	No plan integration was implemented for the previous plan due to a lack of staff to accomplish tasks related to plan integration.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 143 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 143: Future Types of Plan Integration for the Fieldbrook Glendale Community Services District

Type of Plan	Integration Method
Capital Improvement Plan	The CSD will access information from the risk assessment in the plan update to inform budget priorities for capital improvement projects. In addition, information related to hazard mitigation grant funding found in the plan update will be utilized to identify funding for future hazard mitigation grant projects identified in the capital improvement plan.

8.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 144

and Table 145. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 144: Fieldbrook Glendale Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	Located outside the tsunami zone
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 145: Fieldbrook Glendale Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	Medium	High	Low	Low
Drought	High	Medium	Low	Low	Medium
Earthquake	High	High	High	Medium	High
Extreme Heat	Medium	Medium	Low	Low	Medium
Extreme Cold	Medium	Medium	Low	Low	Medium
Flooding	High	Low	Medium	Low	Medium
Landslide	Medium	Low	Low	Low	Low
Wildfire	High	High	High	Medium	High
Wind	High	Medium	Low	Low	Medium

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Winter Weather	Medium	Medium	Low	Low	Low

Note: The process used to assign risk rankings is described in Volume 1.

8.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Fieldbrook Glendale Community Services District. Other hazard events that broadly affected the entire planning area, including the Fieldbrook Glendale Community Services District, are listed in the risk assessments in Volume 1.

8.2.1.1. HISTORICAL EVENTS

Table 146 presents a summary of the storm events that have occurred in the Fieldbrook Glendale Community Services District between Nov. 1, 2019 and Dec. 31, 2024 from the National Centers for Environmental Information (NCEI).

Table 146: NCEI Storm Event Database for the Fieldbrook Glendale Community Services District (2019–2024)

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Glendale	12/30/2022	Flood	0	0	$0.00	$0.00

The NCEI database does not always capture localized hazard data. To address this gap, the Fieldbrook Glendale Community Services District has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **January–March, 2022:** Increase in Cyanobacteria in local rivers, posing a danger to children and dogs.
- **May–October, 2021:** Local fishing industry restricted/impacted.

EARTHQUAKE

- **Dec. 5, 2024:** Water systems, energy and communications impacted. No reported damage.
- **Jan. 2, 2023:** Water systems, energy and communications impacted. No reported damage.
- **Dec. 20, 2022:** Water systems, energy and communications impacted. No reported damage.

EXTREME HEAT

- No events have occurred for this hazard.

EXTREME COLD

- No events have occurred for this hazard.

FLOODING

- **Dec. 30, 2022:** Deep-layer westerly flow occurring along a zonally oriented quasi-stationary frontal boundary resulted in a multi-day atmospheric river event across Northwest California in late December. Widespread impacts due to heavy rain and strong winds were observed across the region. Flooding reported across Glendale Road north of Blue Lake.

LANDSLIDE

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- **Annually:** Power outages and road closures as a result of wind events. Water systems, water storage, emergency response, fire services, energy services and communications systems directly impacted.

WINTER WEATHER

- No events have occurred for this hazard.

8.2.2. District-Specific Vulnerabilities and Impacts

Table 147 provides information on a few key vulnerabilities and impacts on the district.

Table 147: Fieldbrook Glendale Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* A failure of Matthews dam, especially during a flood event, would affect Fieldbrook Glendale CSD customers in lower elevations near the Mad River. Some Fieldbrook Glendale CSD's critical infrastructure and roads are vulnerable to flooding. *Impacts:* Dam failure could cause potential loss of life of Fieldbrook Glendale CSD employees, disruption of the water supply and wastewater systems, loss of revenue and potential damage to Fieldbrook Glendale CSD's critical infrastructure.
Drought	*Vulnerabilities:* All critical systems in the Fieldbrook Glendale CSD service area that rely on groundwater sources for operations are vulnerable to drought. Also, Fieldbrook Glendale CSD customers that rely on local water supplies for hydration may become vulnerable to health and hygiene risks. The local water system has a resilient source, but some Fieldbrook Glendale CSD customers are on private wells. For extended drought, water rationing could be imposed. Some homes may experience reduced well production or wells may go dry. *Impacts:* Drought events impact the water supply by reducing water levels. This could impact firefighting efforts during prolonged drought events. In addition, a decline in the water supply can impact the Fieldbrook Glendale CSD's ability to supply water to its customers. Any increase water usage during a drought could lead to water restrictions and rationing.
Earthquake	*Vulnerabilities:* All Fieldbrook Glendale CSD unreinforced structures near active faults are vulnerable to major structural damage. Fieldbrook Glendale CSD critical facilities in unreinforced structures are vulnerable to facility and equipment damage if the structures fail. Any underground Fieldbrook Glendale CSD infrastructure, such as underground septic systems, leachfield systems, and 177 wastewater connections and two pump stations in the Glendale area are vulnerable to earthquake damage. Staff and residents relying on Fieldbrook Glendale CSD's services are vulnerable to earthquakes, including people living in the Fieldbrook and Glendale areas north of the Mad River. *Impacts:* Earthquake events impact the water supply and wastewater treatment systems' ability to provide critical services to Fieldbrook Glendale CSD customers. Also the Fieldbrook Glendale CSD may face extensive costs to restore critical facilities, potential loss of life of employees and loss of revenue from service disruptions.

Hazard	Vulnerabilities and Impacts
Extreme Cold	*Vulnerabilities:* Fieldbrook Glendale CSD's critical infrastructures that lack weatherproofing are vulnerable to frozen pipes and burst water mains, which could lead to prolonged service disruption. The Fieldbrook Glendale CSD's customers are vulnerable to service disruptions from extreme cold events. *Impacts:* Excessive cold can lead to increased demand on Fieldbrook Glendale CSD utility services and icy conditions on roadways that could delay potable water service delivery. Extreme cold temperatures can put stress on the local electrical grid and impact the water supply levels from increase in customer demand. Also the Fieldbrook Glendale CSD may be impacted from a loss of revenue during prolonged service disruptions during power outages.
Extreme Heat	*Vulnerabilities:* Fieldbrook Glendale CSD's critical infrastructures that lack weatherproofing are vulnerable to extreme heat, which could lead to prolonged service disruption. Fieldbrook Glendale CSD's customers are vulnerable to service disruptions from extreme heat events. *Impacts:* Excessive heat can lead to increased demand on Fieldbrook Glendale CSD utility services and warped roadways that could delay potable water service delivery. Extreme heat temperatures can put stress on the local electrical grid and impact the water supply levels from increase in customer demand. Also, the Fieldbrook Glendale CSD may be impacted from a loss of revenue during prolonged service disruptions during power outages.
Flooding	*Vulnerabilities:* Fieldbrook Glendale CSD customers in the Arcata service areas including those in or near Zone A and Zone AE Special Flood Hazard Areas may be vulnerable to flooding events. Fieldbrook Glendale CSD employees are vulnerable to fatalities and loss of life during flooding response efforts. Fieldbrook Glendale CSD's critical infrastructure (culverts and storm sewers) in Arcata service areas in or near Zone A and Zone AE may be vulnerable to flooding events. *Impacts:* Flood events can contaminate the water supply, damage equipment and critical infrastructure (culverts and storm sewers) and lead to Fieldbrook Glendale CSD loss of revenue during prolonged service disruption.
Landslide	*Vulnerabilities:* In landslide-susceptible areas of the Fieldbrook, Glendale and Arcata service areas, all Fieldbrook Glendale CSD operations are vulnerable to damage to critical facility infrastructure.

Hazard	Vulnerabilities and Impacts
	CSD customers may be vulnerable to prolonged service disruption in impacted service areas. *Impacts:* Landslide events can damage the Fieldbrook Glendale CSD's water distribution system and wastewater treatment systems. Extensive and expensive repair costs can impact the Fieldbrook Glendale CSD financially and result in a loss of revenue during prolonged service disruptions.
Wildfire	*Vulnerabilities:* Fieldbrook Glendale CSD customers of the Fieldbrook, Glendale and Arcata service areas in wildfire risk zones are vulnerable to water service disruption from planned power safety shutoffs. In addition, the Fieldbrook Glendale CSD water supply is vulnerable to increased demand during wildfire events where the CSD's two water tanks may not provide enough water for sustained firefighting and water for residents. Also, the two pump stations operated by the Fieldbrook Glendale CSD could be compromised by an extreme wildfire damaging the functionality of the water system. Customers of Fieldbrook Glendale CSD and employees are vulnerable to injuries and fatalities from wildfire. The Fieldbrook Volunteer Fire Station is located in a moderate risk fire zone, showing that it is potentially vulnerable to wildfires under extreme circumstances. *Impacts:* Wildfire events can cause extensive damage to critical infrastructure and loss of revenue from prolonged service disruptions. If the Fieldbrook Volunteer Fire Station is damaged it will reduce the ability for firefighters to address the wildfire and protect people and property. If the pump stations are damaged by wildfire it will reduce the effectiveness of the water system to deliver potable water to residents or to firefighters. People may be injured or killed.
Wind	*Vulnerabilities:* Fieldbrook Glendale CSD employees conducting repair activities are vulnerable injury or fatalities from downed trees and power lines during strong wind events. In addition, Fieldbrook Glendale CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. Fieldbrook Glendale CSD critical facilities are vulnerable to strong wind damage during events. *Impacts:* Severe wind events impact the Fieldbrook Glendale CSD's water distribution systems and wastewater treatment systems ability to provide services to its customers in service areas affected by severe wind preventative measures. Severe wind damage can also impact critical facility operations and flying debris can make roads

Hazard	Vulnerabilities and Impacts
	inaccessible during potable water delivery and to critical facilities, prolonging service disruptions.
Winter Weather	*Vulnerabilities:* Fieldbrook Glendale CSD critical infrastructure and facilities lacking weatherization treatment are vulnerable to extreme winter weather events. Unreinforced roofs on Fieldbrook Glendale CSD critical facilities are vulnerable to collapse from snow piles during blizzards and heavy snow. Fieldbrook Glendale CSD customers are vulnerable to delayed water delivery when roads are inaccessible. *Impacts:* Winter weather events can impact the delivery of potable water, impact wastewater treatment systems through prolonged power outages and cause critical facility damage and inaccessible roads for water delivery or to Fieldbrook Glendale CSD critical facilities.

8.2.2.1. DEVELOPMENT CHANGES

Table 148 summarizes development trends in the Fieldbrook Glendale Community Services District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 148: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	No major changes	No major changes anticipated	No change
Commercial	No major changes	No major changes anticipated	No change
Industrial	No major changes	No major changes anticipated	No change

8.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Fieldbrook Glendale Community Services District performed an assessment of its existing capabilities for implementing hazard mitigation actions. Fieldbrook Glendale CSD intends to use the assessment to identify and address gaps in capabilities and will

support the update in the next LHMP. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

8.3.1. Planning and Regulatory Capabilities

Table 149 and Table 150 summarize the Fieldbrook Glendale Community Services District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Land uses in the district are currently subject to the Humboldt County General Plan, Fieldbrook Glendale CSD Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Fieldbrook Glendale CSD operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 149: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	Yes	Identifies projects that improve resilience of the utility systems	Generally updated on a 5-year cycle
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 150: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	No	N/A	N/A
Floodplain Ordinance	No	N/A	N/A
Subdivision Ordinance	No	N/A	N/A
Zoning Ordinance	No	N/A	N/A
Natural Hazard Specific Ordinance	No	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

8.3.2. Administrative and Technical Capabilities

Table 151 and Table 152 summarize the Fieldbrook Glendale Community Services District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 151: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Non-Vacant	No	Yes	Yes

Table 152: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Mutual Aid Agreements	Yes	Mutual aid agreements become active during active emergencies and have not been leveraged to assess/ mitigate risks, other than to ensure agreements are in place for when support is needed.	N/A

8.3.3. Financial Capabilities

Table 153 summarizes the Fieldbrook Glendale Community Services District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 153: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	No	N/A	N/A	N/A
General Funds	No	N/A	N/A	N/A
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes. Support unfunded portions of water tanks replacement for seismic mitigation.	Yes	Yes
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	Yes	Hazard Mitigation Grant Program	N/A	N/A
State-Funded Programs	Yes	Programs: Department of Water Resources Urban Water Conservation and Prop 1 programs Activities: Water tank replacement	Yes	Yes
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

8.3.4. Education and Outreach Capabilities

Table 154Table 14 summarizes the Fieldbrook Glendale Community Services District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 154: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	Monthly board meeting. Annual fire department public-facing open house.
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	No	N/A	N/A

8.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities

are included in Table 155. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 155: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The district would like to develop additional resources on wildfire hazard prevention and action planning. The district would also like support for developing an updated capital improvement plan.
Administrative and Technical	The district could use support in further developing the GIS system to enable quicker location of assets in relation to hazard events.
Financial	The district relies on contracted support for grant writing. Having a local resource for grant writing would support the district in future mitigation funding.
Education and Outreach	None

8.4. National Flood Insurance Program

The Fieldbrook Glendale Community Services District is not required to participate in the National Flood Insurance Program (NFIP) because, as a special district, it does not have the authority to do so. However, a flood event might result in the loss of potable water infrastructure, which would impact fire services, hydration and public health. Infrastructure vulnerable to flooding includes some district infrastructure that could be at risk and it is likely that roads would be impacted.

8.5. Mitigation Strategy

The Fieldbrook Glendale Community Services District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 156, while new mitigation action items and those carried forward from the previous plan are in Table 157.

8.5.1. Previous Mitigation Actions

Table 156: Previous Mitigation Actions

Mitigation Action	Description	Status
FGCSD1	Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that are located in high- or medium-risk hazard areas. This includes the seismic retrofit of the district's 400,000-gallon redwood water tank, in addition to other infrastructure.	Completed/Ongoing: The district is in process of adding a new water tank for resiliency.
FGCSD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan and support the countywide initiatives identified in Volume 1 of the hazard mitigation plan.	Deferred: Over the last 5 years, due to COVID-19 and COVID recovery, maintenance meetings have not occurred.
FGCSD3	Improve resilience to power outages by purchasing generators for critical facilities and infrastructure that lack adequate backup power, including Fieldbrook Elementary School, Fieldbrook sewer lift station #2 and Fire Department vehicles.	Deferred: Lack of project funding limited the district's ability to implement.
FGCSD4	Develop Community Emergency Response Teams (CERTs) and Neighborhood Emergency Services Teams (NESTs).	Deferred: Lack of project funding limited the district's ability to implement.
FGCSD5	Develop a Disaster Recovery Plan and enhance the capabilities of the Fieldbrook School for use as an Emergency Operations Center, including support equipment and supplies for the mitigation of post-disaster injuries and community loss.	Deferred: Lack of staff availability and available funding.
FGCSD6	Work with the county on the development of Regional Planning Documents, including an Evacuation Plan and Maps, a Disaster Recovery Plan and a Debris Management Plan with Humboldt County.	Deferred: Lack of staff availability and available funding.

Mitigation Action	Description	Status
FGCSD7	Construct water booster pump station to improve system pressure to better address fires.	Deferred: Lack of project funding limited the district's ability to implement.
FGCSD8	Harden the water and sewer supervisory control and acquisition (SCADA) system and provide additional redundancy and alarm systems to alert staff to issues after a natural disaster.	Ongoing
FGCSD9	Improve alternative communication capabilities throughout the district, including the acquisition of and licensing for ham radios, satellite telephones, mobile backup dispatch devices and other communication devices.	Deferred

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8.5.2. Updated Mitigation Actions

Table 157: 2025 Mitigation Actions[14]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
FGCSD1	Support all countywide actions.	High	FGCSD General Manager	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	Under $100,000	Long-term	Both	Yes	All
FGCSD2	Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that are located in high- or medium-risk hazard areas. This includes the seismic retrofit of the district's 400,000-gallon redwood water tanks, in addition to other infrastructure.	High	FGCSD General Manager	Drought, earthquake, extreme temperatures, wildfire	HMGP, PDM, CDBG	Over $5000,000	Medium-term	Existing	Yes	All

[14] BRIC: Building Resilient Infrastructure and Communities, CDBG: Community Development Block Grant, FGCSD: Fieldbrook Glendale Community Services District, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation, FMA: Flood Mitigation Assistance

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
FGCSD3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan and support the countywide initiatives identified in Volume 1 of the hazard mitigation plan.	High	FGCSD General Manager and Fire Chief	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	Under $100,000	Long-term	Both	Yes	All
FGCSD4	Improve resilience to power outages by purchasing generators for critical facilities and infrastructure that lack adequate backup power, including Fieldbrook Elementary School, Fieldbrook sewer lift station #2 and Fire Department vehicles.	High	FGCSD General Manager	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	$100,000-$500,000	Medium-term	New	Yes	Energy
FGCSD5	Develop Community Emergency Response Teams (CERTs) and Neighborhood Emergency Services Teams (NESTs).	High	FGCSD Fire Chief	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	Under $100,000	Medium-term	New	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
FGCSD6	Develop a Disaster Recovery Plan and enhance the capabilities of the Fieldbrook School for use as an Emergency Operations Center, including support equipment and supplies for the mitigation of post-disaster injuries and community loss.	High	FGCSD Fire Chief	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	$100,000-$500,000	Medium-term	New	Yes	All
FGCSD7	Work with the county on the development of Regional Planning Documents, including an Evacuation Plan and Maps, a Disaster Recovery Plan and a Debris Management Plan with Humboldt County.	High	FGCSD General Manager	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	Under $100,000	Medium-term	New	Yes	All
FGCSD8	Construct water booster pump station to improve system pressure to better address fires.	High	FGCSD General Manager	Drought, earthquake, extreme temperatures, wildfire	HMGP, PDM, CDBG	Over $500,000	Medium-term	New	Yes	Water Systems
FGCSD9	Harden the water and sewer supervisory control and acquisition (SCADA) system and provide additional redundancy and alarm systems to alert staff to issues after a natural disaster.	High	FGCSD General Manager	Drought, earthquake, extreme temperatures, wildfire	HMGP, PDM, CDBG	Over $500,000	Medium-term	New	Yes	Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
FGCSD10	Improve alternative communication capabilities throughout the district, including the acquisition of and licensing for ham radios, satellite telephones, mobile backup dispatch devices and other communication devices.	High	FGCSD General Manager and Fire Chief	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG	Under $100,000	Medium-term	New	Yes	Communications

9. City of Fortuna Annex

This section presents the jurisdictional annex for the City of Fortuna. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The City identified no changes in priorities for this plan update.

9.1. Planning Process

9.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the City of Fortuna, the stakeholders and the public. The City of Fortuna was represented during the planning process by the following individual listed in Table 158.

Table 158: City of Fortuna Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Shari Meads	Community Developer Director	Fortuna	smeads@ci.fortuna.ca.us

9.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 159. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 159: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Brendan Byrd	Public Works Director	City of Fortuna	bbyrd@ci.fortuna.ca.us	2. Agencies that have the authority

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
				to regulate development
Kyle Kertscher	Division Chief	Fortuna Fire Protection District	kkertscher@fortunafire.com	1. Local and regional agencies involved in hazard mitigation activities
Steven Baker	Fire Chief	Orick VFD	orickchief@gmail.com	3. Neighboring communities, including special districts
		Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross – Northern CA Coastal Region	simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

9.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize success stories of mitigation efforts and seek additional public comments. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 16 illustrates how the public was encouraged to participate in the survey. The City of Fortuna utilized a variety of free and easily accessible communication channels, including the city webpage, Facebook and X.

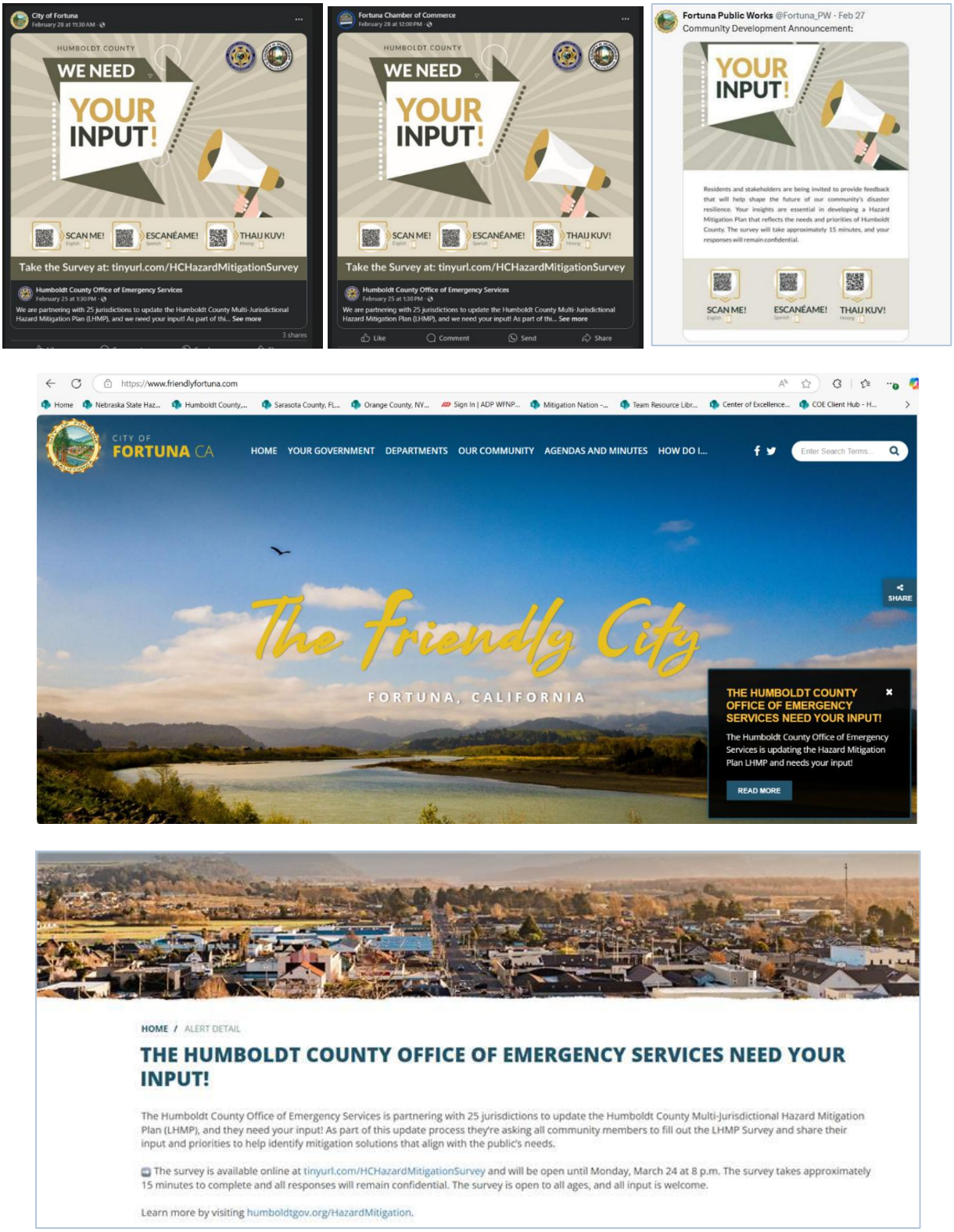

Figure 16: Public Outreach Methods

The public survey received 44 responses from residents of the City of Fortuna. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?" most indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply and wastewater, improvements to public infrastructure against potential impacts from climate change, restoration of the natural environment to absorb impacts from natural hazards and opportunities for training for the public to better respond to natural disasters. One example of City of Fortuna's efforts to incorporate public feedback into mitigation actions: FOR5 – Identify and pursue strategies to increase adaptive capacity to climate change, including but not limited to the following:

- Assess storm drain infrastructure, natural waterways and associated floodplains for condition and capacity, then implement projects that provide adaptive capacity for increased rainfall and runoff.
- Mitigate fire-related risk by participating in fire mitigation measures, defensible space, education and outreach and supporting Firewise communities' programs.

Public feedback was incorporated, as appropriate, into the City of Fortuna's risk assessment and the list of ideas which the City reviewed during the Mitigation Action Workshop to determine which should be included in the updated list of mitigation actions for this plan update. This process is reflected in the area-wide actions that Fortuna selected for inclusion in the update.

9.1.3.1. VULNERABLE POPULATION OUTREACH

Some Fortuna residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Fortuna may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels. The city used a multi-tiered approach with multiple stakeholders' social media accounts and the city website, which residents often use.

9.1.4. Plan Integration

9.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs to ensure coordination and identify multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 160.

Table 160: Previous Plan Integration for the City of Fortuna

Plan Name	Description
Capital Improvement Plan (CIP)	The CIP is updated annually, and LHMP action items inform CIP projects.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 161 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 161: Future Types of Plan Integration for the City of Fortuna

Type of Plan	Integration Method
General Plan, Safety Element	The city plans to update the General Plan in the next few years. The city will adopt an ordinance to incorporate the HMP in the Safety Element of the General Plan.

9.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 162 and Table 163. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 162: City of Fortuna Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	There are no dams of sizable risk in the vicinity.
Drought	Yes	
Earthquake	Yes	
Extreme Heat	Yes	
Extreme Cold	Yes	
Flooding	Yes	
Landslide	Yes	

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Tsunami	Yes	
Wildfire	Yes	
Wind	Yes	
Winter Weather	Yes	

Table 163: City of Fortuna Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	Medium	High	Low	Low	Medium
Earthquake	High	High	High	High	High
Extreme Heat	Medium	Medium	Low	Low	Low
Extreme Cold	Medium	Medium	Low	Low	Low
Flooding	High	Medium	High	High	High
Landslide	High	Low	Medium	Low	Medium
Tsunami	None	Low	None	Low	Low
Wildfire	Medium	High	High	High	High
Wind	High	Medium	Medium	Medium	High
Winter Weather	Low	Low	Low	Low	Low

Note: The process for assigning risk rankings is described in Volume 1.

9.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Fortuna. Other hazard events that broadly affected the entire planning area, including the City of Fortuna, are listed in the risk assessments in Volume 1.

9.2.1.1. HISTORICAL EVENTS

Fortuna has experienced a relatively calm weather pattern in recent times, with no recorded storm events directly affecting it. However, the broader northern Humboldt coastal region has

faced several storm events, as documented by the National Storm Events Database, which can be reviewed in the Humboldt County Annex.

While Fortuna itself may have avoided the brunt of these storms, neighboring areas have seen varying impacts, ranging from high winds to heavy rainfall. Fortuna's proximity to the coast means it can still feel the effects of these weather systems, even when it does not experience severe weather directly. The National Centers for Environmental Information database does not always capture localized hazard data. The City of Fortuna has documented additional significant events to address this gap, and their impacts are detailed below.

DROUGHT

- **April 12, May 10 and July 8, 2021:** Proclamation of State of Emergency issued. The city's water shortage contingency plan measures were put into place.
- **Oct. 19, 2021:** Executive Order declaring a statewide drought emergency.

EARTHQUAKE

- **Nov. 3, 2024:** Earthquake with a magnitude of 3.4. There was damage to buildings, property, roadways, water and gas distribution lines.
- **Jan. 27, 2023:** Earthquake with a magnitude of 3.2. There was damage to buildings, property, roadways, water and gas distribution lines.

EXTREME HEAT AND COLD

- **February, 2023:** This event brought significant cold temperatures to much of California, including Fortuna. The cold wave was notable for its intensity and the impact on residents and infrastructure.
- **August, 2022:** State of emergency due to a heatwave.
- **July, 2021:** Extreme heat due to the heat dome phenomenon.
- **January, 2019:** During this period, parts of Northern California, including Fortuna, experienced a cold snap with temperatures dropping significantly. The cold weather was part of a broader pattern affecting the West Coast at the time.

FLOODING

- **April 14, 2023:** Flooding due to severe winter storms.
- **March 10, 2023:** Flooding due to severe winter storms.
- **Jan. 9, 2023:** Flooding due to severe winter storms. Heavy rainstorms and subsequent flood warnings led to significant flooding in Fortuna. The city worked to manage the overflow from the Eel River, and emergency services responded to assist with impacted areas.

- **Winter, 2021–2022:** Multiple storms brought heavy rainfall to the area, contributing to river flooding and saturated ground conditions. There were reports of flooding in the low-lying regions of Fortuna.
- **January, 2021:** Continued heavy rainfall led to further flooding problems. Emergency services were active in monitoring conditions and responding to flood-related incidents.
- **December, 2020:** Another significant event occurred in December, 2020 when storms brought excessive rain and flooding to various parts of Humboldt County. Fortuna experienced similar issues as rivers swelled, causing street flooding with at least 5 inches of rain and impacting homes.
- **May 17, 2019:** Flooding due to severe winter storms.
- **February, 2019:** Heavy rains caused significant flooding across Humboldt County, including Fortuna. The Eel River rose rapidly, resulting in localized flooding and the closure of roads.

LANDSLIDE

- **2025:** A landslide occurred at 2300 Hillside Drive, in the driveway to the house near the gate. The property owner covered it up and had Mercer Fraser inspect it.
- **December, 2025:** There were two affected areas. The first location is around the 3900 block of South Loop Road. Bank erosion on Jameson Creek affected the roads. The second location is also around the 3900 block of South Loop Road. A group of redwood trees fell from the bank into Jameson Creek, requiring an emergency repair. The trees were removed, and the bank and road were restored.

TSUNAMI

- **Dec. 5, 2024:** Tsunami warning issued.

WILDFIRE

- **Sept. 22, 2024:** Wildfire near Palmer Blvd. and U.S. Highway 101, north of Fortuna. Residents in the Hansen Dr. area were asked to evacuate. The fire was estimated to be 1/4 acre in size.
- **Aug. 25, 2024:** The East Fire broke out 2.3 miles south-southwest of Fortuna. The fire was estimated to be 115 acres in size.
- **August Complex Fire, 2020:** This large wildfire impacted parts of Northern California, including areas near Fortuna. Dry conditions and high winds exacerbated the fire.

WIND

- No events have occurred for this hazard.

WINTER WEATHER

- No events have occurred for this hazard.

9.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 164 provides information on a few key vulnerabilities and impacts on the City of Fortuna.

Table 164: City of Fortuna Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Drought	*Vulnerabilities*: Residents may face vulnerabilities from drought due to limited access to clean drinking water, which may result in health issues. Agricultural communities are at risk as crop yields decline, directly impacting local farmers and food supply in areas with limited irrigation infrastructure or reliance on surface water. Critical infrastructure is also affected, with water treatment facilities experiencing reduced capacity. Fire suppression systems may become less effective, heightening the risk of wildfires. *Impacts:* The impacts on people include increased health risks, especially to the homeless population and individuals who work outdoors, and economic strain on local businesses reliant on agriculture and tourism. For critical infrastructure, drought can cause shortages in water delivery systems and impair wastewater management, creating public health risks and long-term community challenges.

Hazard	Vulnerabilities and Impacts
Extreme Cold	*Vulnerabilities:* The primary vulnerability related to extreme cold is inadequate insulation in residential structures, which can lead to higher heating demands and increased energy costs. Many homes, particularly older ones in areas such as the downtown, and neighborhoods with historical character might not be equipped to handle severe temperature drops. Additionally, certain populations, including the elderly and individuals with preexisting health conditions, are especially vulnerable to the health effects of extreme cold, such as hypothermia and frostbite. *Impacts:* The impacts of extreme cold on people can manifest as increased health-related issues, including respiratory problems and elevated rates of hospitalization among vulnerable groups such as the elderly, children and those with preexisting health issues. Infrastructure also can suffer, with pipes freezing and bursting, leading to water damage and costly repairs. Transport may be disrupted by icy roads, particularly in hilly areas that are less frequently maintained during winter weather, affecting both emergency response times and daily commuting.
Extreme Heat	*Vulnerabilities:* Vulnerabilities to extreme heat are heightened in areas with less tree cover and vegetation, such as some residential neighborhoods on the outskirts of town. Homes without adequate cooling systems or those that are poorly ventilated are particularly at risk. The increased presence of concrete and asphalt in urbanized areas can lead to urban heat island effects, further contributing to localized warming. Additionally, certain community members, including low-income families and those without access to air-conditioning, face greater risks during heat waves. *Impacts:* The impacts of extreme heat on residents can include heat exhaustion, heat stroke and exacerbated chronic health conditions. The strain on local healthcare systems can increase, particularly during prolonged heat events. Infrastructure can also be negatively affected; for example, power outages may occur as demand for cooling peaks and road surfaces may degrade more rapidly under extreme temperatures. Water sources can become stressed due to increased evaporation and higher consumption rates, leading to potential shortages, especially in drought-prone areas surrounding Fortuna.

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* The entire population of the City of Fortuna is vulnerable to seismic activity from the Big Lagoon Bald Mountain Fault, from very strong peak ground acceleration (18-34%g). Emergency response systems may become overwhelmed, limiting support during crises. Critical infrastructure has its own vulnerabilities; roads and bridges may not withstand significant shaking, potentially collapsing and obstructing emergency services. Additionally, utility lines for electricity, gas and water could be damaged, disrupting essential services. *Impacts:* For critical infrastructure, service disruptions could occur, with damaged roads hindering emergency responses and compromised utilities depriving residents of essential services. Communities might face reduced access to shelters, food and medical care, resulting in economic strain.
Flooding	*Vulnerabilities:* Flooding creates vulnerabilities for residents, especially those in low-lying areas near the Eel River who are at a greater risk of displacement. This situation can threaten their safety and well-being. Critical infrastructure is also at risk, with roads and bridges potentially compromised, limiting access to emergency services and disrupting public transportation. *Impacts:* The impacts can include loss of property and displacement, leading to economic hardships and emotional strain, especially for vulnerable populations. For critical infrastructure, flooding can overwhelm water treatment facilities, creating unsafe drinking water. Damaged roads may impede emergency services and slow recovery efforts, affecting the entire community.
Landslide	*Vulnerabilities:* Residents of Fortuna face risks from landslides, particularly in unstable areas such as the east side near Humboldt Redwoods State Park. This can lead to displacement and safety concerns. Critical infrastructure, like roads and utility lines, is also at risk, as landslides can block access and damage essential services. *Impacts:* The impacts on people include loss of life, potential injuries, loss of homes, and economic hardship due to displacement. For critical infrastructure, landslides can disrupt transportation and utility services, complicating access to healthcare and increasing public health risks.

Hazard	Vulnerabilities and Impacts
Tsunami	*Vulnerabilities:* Fortuna, California, is somewhat sheltered from tsunami impacts due to its location along the Eel River, but it remains vulnerable to flooding if river levels rise significantly. *Impacts:* A tsunami-triggered flood of the Eel River could impact Fortuna, such as through the inundation of residential areas, leading to property damage and the displacement of residents. Key infrastructure, such as roads and utilities, would be at risk, complicating emergency response efforts and transportation. Additionally, local businesses could face economic losses, while public health risks may arise from contaminated water supplies.
Wildfire	*Vulnerabilities:* Residents of Fortuna are vulnerable to wildfires, especially those near forested areas, facing evacuation threats and potential property loss. Hilly and mountainous regions, particularly near the Van Duzan River and zones adjacent to the Eel River, are more susceptible due to dense forest cover, steep slopes and riparian vegetation. Many homes lack fire-resistant materials, increasing risk. Critical infrastructure, like water supply systems, may struggle to support firefighting efforts, and access roads can become blocked, hindering emergency response. *Impacts:* Wildfires can lead to loss of homes and possessions for residents, causing emotional distress and financial instability. Health risks from smoke inhalation can also affect vulnerable populations. For critical infrastructure, damage to utility lines and communication networks disrupts essential services, delays recovery and harms the local economy, particularly businesses reliant on tourism.
Wind	*Vulnerabilities:* Residents of Fortuna are at risk from falling trees and branches due to strong winds, which can threaten safety and property. Critical infrastructure, such as power lines and communications systems, is vulnerable to outages and disruptions. *Impacts:* The impacts on people may include property damage, leading to financial strain and emotional distress. Injuries from debris are also a concern. For critical infrastructure, wind disruptions can cause power outages and hinder communication, impacting emergency response and community safety.

Hazard	Vulnerabilities and Impacts
Winter Weather	*Vulnerabilities:* During winter weather, residents face risks from snow and ice, leading to hazardous travel conditions and difficulty accessing essential services. Poor insulation in many homes increases the risk of heat loss, putting vulnerable populations, like the elderly, in danger of hypothermia. Critical infrastructure is also vulnerable; public transportation can be disrupted, and roads may be damaged by heavy snowfall and ice, hindering emergency response and the delivery of essential services like water and electricity. *Impacts:* The impacts on people include increased risks of accidents and health issues related to cold exposure, alongside isolation from family and services due to impassable roads. For critical infrastructure, winter weather can disrupt services and increase repair costs. Damaged roads and power outages can impair transportation, leave residents without heating and strain local businesses, affecting overall public health and community well-being.

9.2.2.1. DEVELOPMENT CHANGES

Table 165 summarizes development trends in the City of Fortuna since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 165: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Annually, 20–50 new residential dwelling units.	Potential residential development of 250 dwelling units or more over the next 5 years.	Increased, development = increased risks.
Commercial	Approximately one to two per year for the last 5 years.	Potential new commercial development in the Fortuna Mill Commerce Center and citywide, exceeding 300,000 square feet. This development is considered long-term.	There has been minimal change in recent years, but it could be significantly higher if the former mill site is developed.

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Industrial	None	Potential significant industrial development (400,000 sq. ft.) at the Fortuna Mill Commerce Center and citywide. This development is considered long-term.	There has been no change in recent years; however, increased vulnerabilities may occur if the former mill site is developed.

9.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Fortuna performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

9.3.1. Planning and Regulatory Capabilities

Table 166 and Table 167 summarize the City of Fortuna's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 166: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes Assembly Plan: No	The General Plan does not include all identified hazard risks. Additionally, the Safety Element should be updated sooner than the General Plan update timeline to incorporate the LHMP, the newly adopted CAL FIRE Fire Hazard Severity Zone maps and evacuation routes.	Last Update: 10/2010 Next Update: 01/2030
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	Yes	The City of Fortuna's Capital Improvement Program routinely has projects that address flooding and earthquake resilience. While the city does incorporate LHMP mitigations this could probably increase.	Last Update: 06/2024 Next Update: 06/2025
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	Yes	Add potential new requirements related to additional identified risk hazards.	Last Update: 03/2011 Next Update: 01/2030
Local Emergency Operations Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Stormwater Management Plan	Yes	The City's Stormwater Management Plan currently addresses flooding but could be expanded to look at other hazards.	Last Update: 04/2024 Next Update: 04/2034
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A
Forest Management Plan	N/A	N/A	N/A

Table 167: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes. California Building Standards Code (CBSC), which is based on the International Code Council (ICC) codes. The CBSC includes various model codes, such as the California Building Code, Residential Code, Plumbing Code, Mechanical Code and Electrical Code. These codes are updated every three years, with the current edition being the 2022 version, effective January 1, 2023.	Last Update: 01/2023 Next Update: 01/2026
Flood Insurance Rate Maps	Yes	Yes	Last Update: 11/2016 Next Update: 11/2030
Floodplain Ordinance	Yes	Yes	Last Update: 11/2008 Next Update: 11/2030
Subdivision Ordinance	Yes	Yes	Last Update: 01/2008 Next Update: 01/2030
Zoning Ordinance	Yes	Yes	Last Update: 03/2011 Next Update: 01/2030
Natural Hazard Specific Ordinance	Yes	Yes	Last Update: 11/1999 Next Update: 01/2030

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

9.3.2. Administrative and Technical Capabilities

Table 168 and Table 169 summarize the City of Fortuna's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 168: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	No	Yes	No
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Non-Vacant	No	Yes	Yes
Emergency Manager	Vacant	No	N/A	N/A
Floodplain Administrator	Non-Vacant	Yes	Yes	Yes
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Non-Vacant	Yes	No	No
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Active Organizations Active in Disaster	Non-Vacant	No	Yes	Yes

Table 169: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Through the entitlement process, we require geotechnical and soil reports on soil stability and landslides. We utilize data from engineering studies and design to manage stormwater effectively and prevent flooding.	The General Plan and Zoning Ordinance could include more data to develop wildfire zones or other data-driven regulations.
GIS	Yes	We haven't used it for risk mitigation purposes, except when examining floodplain extents.	Develop and utilize layers for wetlands, seismic zones, wildfire areas, stream setbacks and topography.
Mutual Aid Agreements	Yes	The police and volunteer fire departments work with other local agencies to increase responsiveness. We also provide this to participating jurisdictions and allied agencies.	Mutual aid agreements enhance Fortuna's ability to assess and mitigate risks from disasters, such as flooding, by enabling resource sharing, streamlining emergency response coordination and providing collaborative training. They also support community preparedness and recovery efforts, ultimately strengthening the area's resilience to future emergencies.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
On-call consulting contracts for GIS specialists and developing a Regional Climate Action Plan.	Yes	Consultants have been used as technical resources to help move projects forward.	The Regional Climate Action Plan could help inform necessary amendments to the General Plan and Zoning Regulations.

9.3.3. Financial Capabilities

Table 170 summarizes the City of Fortuna's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 170: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Infrastructure resilience projects	Yes	Yes
General Funds	Yes	Staff time and infrastructure resilience projects	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	The first project we undertook was the installation of standby emergency generators at two water pumping stations. This project was completed in 2023. The next project was completion of an updated Stormwater Vulnerability Assessment, which reviewed our storm drain network and prioritized projects to be completed.	Yes, we have more mitigation actions that could be funded.	No

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	No
Flood Mitigation Assistance (FMA)	No	N/A	N/A	No
Community Development Block Grant (CDBG)	No	N/A	N/A	Yes
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Assessment benefit district for flood control (property taxes utilized)	Yes	Yes
Stormwater Utility Fee	Yes	No	No	No
Fees for Water, Sewer, Gas or Electric Services	Yes	Water and sewer infrastructure resilience projects.	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	No	No	No
General Obligation or Special Purpose Bonds	Yes	No	No	No

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Federal-Funded Programs	No	N/A	N/A	No
State-Funded Programs	Yes	Programs: Emergency response programs through CAL OES and Caltrans. Activities: Roadway hazard mitigation or emergency openings to establish connectivity.	Yes	Yes
Private Sector or Nonprofit Programs	No	N/A	N/A	Yes, a private sector or nonprofit program can often be used as a local match for a federal grant, but it largely depends on the specific grant program and its requirements.

9.3.4. Education and Outreach Capabilities

Table 171 summarizes the City of Fortuna's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 171: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	The city holds public meetings of the Planning Commission and City Council as well as other boards and commissions.
Emergency Management Listserv	Yes	No	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, advocate for or Interact with Underserved and Vulnerable Communities	Yes	No	American Red Cross
Social media	Yes	No	Facebook and X (Twitter)
Weekly Press Releases	No	N/A	N/A

9.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 172. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 172: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The city would like to develop a Community Wildfire Plan and an Economic Development Plan.
Administrative and Technical	Add GIS functionality with more hazard layers. Increase Community Development staff.
Financial	Adding a grant writing specialist would improve the city's ability to apply for, secure and implement grant funding. Additionally, if the city could increase revenue through sales tax or special taxes earmarked for mitigation or matching funding use(s), additional work could be performed in this area.
Education and Outreach	As a small community, we are staffed only well enough to meet minimums. With additional staff and resources, we could be more proactive in mitigation, public outreach and education, among other areas. Additionally, we do not have a Public Information Officer, so information tends to be disseminated on a project-by-project basis.

9.4. National Flood Insurance Program

The City of Fortuna has been a participant in the NFIP since 1982. Details of NFIP policies in the City of Fortuna are in Table 173. Additional NFIP information is in Table 174 through Table 176. Continued compliance with NFIP standards is expected for the City of Fortuna.

Table 173: City of Fortuna NFIP Details

Community Name	Community Number	Total Premium + FPF[15]	Total Policy Count	Total Coverage	Total Losses
Fortuna, City of	060063B	$30,285	30	$9,976,000.00	4

Table 174: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	City Engineer

[15] FPF: Federal Policy Fee

Question	Response
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	The city ensures the enforcement of floodplain rules through participation in the NFIP, the building permit review process and inspections to ensure compliance.
When was the community's most recent Community Assistance Visit (CAV)?	04/2024
Were any violations noted on the community's most recent CAV?	No.
Is there an upcoming CAV? If no, is one needed?	Upcoming CAV: No. Is one needed? No
When was the most recent floodplain management ordinance adopted?	11/1987
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Engineering and Community Development staff
How does the community issue development permits in the special flood hazard area?	Development permits in special flood hazard areas are evaluated for NFIP conformance through the building permit and inspection process.
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes. In the prior six years, two building permits have been approved in the flood hazard area.
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	0

Question	Response
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	0
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	City Engineer, Community Development Director and Building Official
How does the substantial damage/substantial improvement process work in your community?	City staff evaluates and assesses each situation on a case-by-case basis, then follows the NFIP and any other applicable regulations.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	We have not been faced with this issue.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (Simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	The city will implement any recommendations identified through Community Assistance visits. We will ensure that ordinances meet NFIP minimum standards and continue to train city staff on NFIP requirements.

Table 175: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	The community provided maintenance easements that allowed for flood mitigation projects along Rohner Creek.

Question	Response
When did the latest Flood Insurance Rate Map (FIRM) become effective?	11/2016
When was the latest FIRM adopted?	11/2016
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Yes. It is available on the city's website and also posted on FEMA's website.
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes

Table 176: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	By providing access to FEMA's FIRM through the city's GIS Parcel Finder web application
How does the community engage with insurance agents on flood insurance?	N/A
Does the community (or state) have flood hazard disclosure laws?	Yes
How familiar is the public with their flood insurance options?	Needs further investigation
How many properties have flood insurance in the community?	30
Are there any areas where flood insurance is lacking?	Yes, land areas adjacent to creeks

9.5. Mitigation Strategy

The City of Fortuna has adopted the same goals and prioritization process as Humboldt County in Volume 1. Previous mitigation actions and their statuses are in Table 177, while new mitigation action items and those carried forward from the previous plan are in Table 178.

9.5.1. Previous Mitigation Actions

Table 177: Previous Mitigation Actions

Mitigation Action	Description	Status
FOR1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Deferred
FOR2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including General Plan, Storm Drain Master Plan, Emergency Operations Plan, Debris Management Plan.	Deferred
FOR3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Deferred
FOR4	Continue to maintain good standing and compliance under the NFIP through the implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.	Deferred

Mitigation Action	Description	Status
FOR5	Identify and pursue strategies to increase adaptive capacity to climate change, including but not limited to the following: • Assess storm drain infrastructure, natural waterways and associated floodplains for condition and capacity and implement and prioritize projects that provide adaptive capacity for increased rainfall and runoff. • Mitigate fire-related risk by participating in fire mitigation measures, defensible space, education and outreach and supporting Firewise communities' programs.	Deferred
FOR6	Implement flap gate valves at various locations throughout the city.	Deferred
FOR7	Increase channel capacity in localized regions affected by repetitive flooding incidents.	Deferred
FOR8	Stabilize hillsides from mass landslide movements at or adjacent to street rights-of-way, including but not limited to P Street (12th to 14th) bank stabilization (CIP 9656).	Deferred
FOR9	Prepare the Citywide Storm Water Management Master Plan to inform future Citywide Vulnerability Assessments (CVAs) in the High-Priority Management Plans (HPMs) and implement high-priority projects that improve the capacity and resiliency of the system, including the Home Avenue Culvert Replacement (CIP 9704) and the 3rd Street culvert replacement.	Deferred. Plan completed in 2024. Follow-up action for this item will be to complete the project identified in the Vulnerability Assessment.
FOR10	Elevate control panels at the Water Supply facility above 100-year Flood Elevation and provide seismic retrofit of electrical connections.	Deferred
FOR11	Seismic Retrofit of At-Grade Water Storage Tanks. Including but not limited to Campton Heights and Hilltop Reservoirs.	Deferred
FOR12	Elevate the roadway above the flood elevation, including the Dinsmore Drive flood control (CIP 9502).	Deferred

Mitigation Action	Description	Status
FOR13	Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts	Deferred
FOR14	Implement generators for critical facilities and infrastructure that lack adequate backup power, including water pump stations, water disinfection and corrosion control facilities, sewer pump stations, emergency operations centers.	Deferred. Two generator installations were completed in 2024 using HMGP funds; however, the city would like to plan for other possible locations.
FOR15	Develop an Emergency Operation Plan, establish an Emergency Operations Center and training for staff related to hazard mitigation or post-disaster recovery.	Deferred
FOR16	Update FEMA FIRM special flood hazard areas to reflect current flood risk based on updated topography and rainfall frequencies to better communicate risk and identify and implement flood mitigation projects through channel and floodplain restoration.	Deferred. Some of this work was completed in 2022 by remapping the floodplain for Rohner Creek. Other areas of Strongs or Mill Creek could be explored in the future.
FOR17	Coordinate the upgrading or implementation of radio communications and emergency communication equipment with other area jurisdictions.	Deferred
FOR18	Support the development of Firewise Community programs; implement defensible space requirements including education and outreach.	Deferred

9.5.2. Updated Mitigation Actions

Table 178: 2025 Mitigation Actions[16]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FOR1	Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are situated in high- or medium-risk hazard areas.	Medium	Fortuna City Manager	Earthquake, flooding, landslide, wildfire	HMGP, PDM, FMA	$20,000,000	Existing	5+ years	Yes	All
FOR2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the General Plan, Storm Drain Master Plan, Emergency Operations Plan and Debris Management Plan.	Medium	Fortuna City Manager	Drought, earthquake, flooding, landslide, wildfire	Staff time, general funds	$65,000	Both	1–2 years	Yes	All
FOR3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Medium	Fortuna City Manager	All hazards	Staff time, general funds	$100,000	Both	1–5 years	Yes	All

[16] BRIC: Building Resilience Infrastructure and Communities, FMA: Flood Mitigation Assistance, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FOR4	Continue to maintain good standing and compliance under the NFIP through the implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in updating floodplain identification and mapping. • Provide public assistance and information on floodplain requirements and impacts.	Medium	Fortuna City Manager	Flooding, severe weather	Staff time, general funds	$1,000,000	Both	1–2 years	Yes	All
FOR5	Identify and pursue strategies to increase adaptive capacity to climate change, including but not limited to the following: • Assess storm drain infrastructure, natural waterways and associated floodplains for condition and capacity, then implement projects that provide adaptive capacity for increased rainfall and runoff. • Mitigate fire-related risk by participating in fire mitigation measures, defensible space, education and outreach and supporting Firewise communities' programs.	Medium	Fortuna City Manager	Flooding, wildfire	Staff time, general funds	$1,000,000	Both	1–2 years	Yes	All
FOR6	Implement flap gate valves at various locations throughout the city.	Medium	Fortuna City Manager	Flooding, severe weather	Staff time, general funds	$2,000,000	Existing	1–2 years	Yes	All
FOR7	Increase channel capacity at localized regions of repetitive flooding incidents.	Medium	Fortuna City Manager	Flooding	HMGP, PDM, FMA	$2,000,000	Existing	1–2 years	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FOR8	Stabilize hillsides from mass landslide movements at or adjacent to street rights of way, including but not limited to P Street (12th to 14th) bank stabilization (CIP 9656).	Medium	Fortuna City Manager	Earthquake, flooding, landslide, wildfire	HMGP, PDM, FMA	$10,000,000	Both	3–5 years	Yes	Transportation
FOR9	Prepare Citywide Storm Water Management Master Plan to inform citywide vulnerability assessment in future High Priority Management HPMs and Implement high priority projects that improve the capacity and resiliency of the system, including Home Avenue Culvert Replacement CIP 9704 and 3rd street culvert replacement.	Medium	Fortuna City Manager	Flooding	HMGP, PDM, FMA	$100,000	Both	1–2 years	Yes	Water Systems, Hydration, Transportation
FOR10	Elevate control panels at Water Supply facility above 100-year Flood Elevation and provide seismic retrofit of electrical connections.	Medium	Fortuna City Manager	Flooding, Earthquake	Staff time, general funds	$2,000,000	Existing	3–5 years	Yes	Safety and Security, Transportation
FOR11	Seismic Retrofit of at-grade water storage tanks, including but not limited to Campton Heights and Hilltop Reservoirs.	Medium	Fortuna City Manager	Earthquake	HMGP, PDM, FMA	$1,000,000	Existing	1–2 years	Yes	Hydration, Water Systems
FOR12	Elevate roadway above flood elevation, including Dinsmore Drive flood control (CIP 9502).	Medium	Fortuna City Manager	Flooding	HMGP, PDM, FMA	$10,000,000	Existing	1–2 years	Yes	Transportation, Safety and Security
FOR14	Implement generators for critical facilities and infrastructure that lack adequate backup power, including water pump stations, water disinfection and corrosion control facilities, sewer pump stations, emergency operations centers.	Medium	Fortuna City Manager	Earthquake, flooding, landslide, severe weather, wildfire	HMGP, PDM, FMA	$1,000,000	Both	1–2 years	Yes	Power

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FOR15	Develop an Emergency Operation Plan, establish an Emergency Operations Center and training for staff related to hazard mitigation or post-disaster recovery.	Medium	Fortuna City Manager	Earthquake, flooding, landslide, severe weather, wildfire	Staff time, general funds	$1,000,000	Both	1–2 years	Yes	Safety and Security
FOR15	Update FEMA FIRM special flood hazard areas to reflect current flood risk based on updated topography and rainfall frequencies to better communicate risk and identify and implement flood mitigation projects through channel and floodplain restoration.	Medium	Fortuna City Manager	Flooding	HMGP, PDM, FMA	$1,000,000	Both	1–2 years	Yes	Safety and Security
FOR16	Coordinate the upgrading or implementation of radio communications and emergency communication equipment with other area jurisdictions.	Medium	Fortuna City Manager	Earthquake, flooding, landslide, severe weather, wildfire	Staff time, general funds	$50,000	Both	1–2 years	Yes	Safety and Security, Communication
FOR17	Support the development of Firewise Community programs; implement defensible space requirements including education and outreach.	Medium	Fortuna City Manager	Wildfire	Staff time, general funds	$50,000	Both	1–2 years	Yes	Safety and Security
FOR18	Consider adopting a vegetation management ordinance for existing and new development in wildland-urban interface and/or areas designated as having moderate or greater fire risk.	High	Fortuna City Manager	Wildfire, landslides	Staff time, general funds	$50,000	Both	1–2 years	Yes	Safety and Security
FOR19	Develop ordinance requiring a certain percentage of front and rear setback areas to contain only permeable development features to promote infiltration and reduce stormwater runoff.	High	Fortuna City Manager	Drought, flooding, landslide, extreme temperatures, dam failure	Staff time, general funds	$50,000	Both	1–2 years	Yes	Safety and Security, water systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FOR21	Prepare a comprehensive Hazardous Materials Area Response Plan	Medium	Fortuna City Manager	Fire	General funds, HMGP, PDM, FMA	$100,000	Both	1–2 years	Yes	All lifelines
FOR22	Conduct microgrid feasibility study	High	Fortuna City Manager	Earthquake, wildfire, extreme temperatures, dam failure, flooding, wind	General funds, HMGP, PDM, FMA	$100,000	Both	1–2 years	Yes	Power
FOR23	Consider prohibiting shake roofs in wildland-urban interface and/or areas designated as having moderate or greater fire risk.	Medium	Fortuna City Manager	Wildfire	Staff time, general funds	$50,000	Both	1–3 years	Yes	Safety and Security
FOR24	Explore the feasibility of establishing community resilience hubs	Medium	Fortuna City Manager	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	Staff time, general funds	$50,000	New	1–3 years	Yes	Safety and Security
FOR25	Actively participate in the area wide mitigation actions.	High	Fortuna City Manager	All hazards	Staff time, general funds	$150,000	Both	5+ years	Yes	All
FOR26	Perform a feasibility study for potential evacuation routes for rural, single access roadways, including Home Avenue, Carson Woods Road and Mill Street.	Medium	Fortuna City Manager	Wildfire, landslide, severe weather, earthquake, wind	HMGP, PDM, FMA, BRIC	$100,000	Existing	1–2 years	Yes	Transportation, Safety and Security

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
FOR27	Install creek bank revetments or other engineered system to protect structures against bank erosion or landslides, specifically along Jameson and Mill Creeks	High	Fortuna City Manager	Landslide, flooding	HMGP, PDM, FMA, BRIC	$20,000,000	Both	3–5 years	Yes	All
FOR28	Install a new water tank in the southern Fortuna area servicing City Pressure Zone 8 to increase firefighting capacity and water supply resiliency	High	Fortuna City Manager	Wildfire, drought	City enterprise funds, HMGP, BRIC, PDM, FMA	$50,000	New	1 year	Yes	Water Systems, Safety and Security
FOR29	Install PV systems at critical city facilities to provide energy resiliency for buildings and vehicle charging	High	Fortuna City Manager	Earthquake, extreme temperature, flooding, wind	HMGP, PDM, FMA, BRIC	$1,000,000	New	3–5 years	Yes	Power
FOR30	Develop a Hillside Development Ordinance	High	City of Fortuna	Earthquake, flooding, landslide, wildfire, wind	Staff time, general funds	$50,000	Both	2–5 years	No	Transportation

10. Fortuna Fire Protection District Annex

This section presents the jurisdictional annex for the Fortuna Fire Protection District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The Fortuna Fire Protection District identified no significant changes in priorities since the last plan update. The Fortuna Fire Protection District did construct a new fire station to accommodate newer fire trucks that cannot be housed in the older fire station.

10.1. Planning Process

10.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Fortuna Fire Protection District, the stakeholders and the public. The Fortuna Fire Protection District was represented during the planning process by the following individual listed in Table 179.

Table 179: Fortuna Fire Protection District Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Kyle Kertscher	Division Chief	Fortuna Fire Protection District	kkertscher@fortunafire.com 707-725-5021

10.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 180. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 180: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Shari Meads	City Manager	City of Fortuna	smeads@ci.fortuna.ca.us	1. Local and regional agencies involved in hazard mitigation activities
Brendan Byrd	Public Works Director	City of Fortuna	bbyrd@ci.fortuna.ca.us	2. Agencies that have the authority to regulate development.
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
–	–	Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

10.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 17 illustrates how the public was encouraged to participate in the survey. The Fortuna Fire Protection District utilized a variety of communication channels that are free and easily accessible, such as Facebook and Instagram.

Figure 17: Public Outreach Methods

Community engagement played an important role in developing the Fortuna Fire Protection District's risk assessment and mitigation strategy for this update. As part of the public outreach process, residents shared feedback through bilingual surveys and social media platforms. This highlighted key concerns across the district's service area. A recurring theme was the need to better protect vulnerable populations. Respondents also stressed the importance of public education, emergency preparedness and reliable access to water for fire suppression. These issues were discussed during the Mitigation Action Workshop and helped guide the selection of updated mitigation actions. The resulting strategy includes measures such as community outreach and CERT programs which reflect the technical findings and public priorities identified during the planning process.

10.1.3.1.VULNERABLE POPULATION OUTREACH

Some district residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Fortuna Fire Protection District might have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update developed a bilingual public survey to identify ways to support, enhance and broaden capacity and resilience at the individual and social network levels.

10.1.4. Plan Integration

10.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 181.

Table 181: Previous Plan Integration for the Fortuna Fire Protection District

Plan Name	Description
None	The previous plan was not integrated into any planning mechanisms as there were no documents updated during the last 5 years.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 182 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future. As the district deals with staffing concerns, the district will continue to explore ways to integrate the plan into current operations as staffing allows.

Table 182: Future Types of Plan Integration for the Fortuna Fire Protection District

Type of Plan	Integration Method
Mutual Aid Agreements	The wildfire section demonstrates a need in a shift from metropolitan to rural firefighting needs.

10.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 183 and Table 184. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 183: Fortuna Fire Protection District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	Nearest major dam is the Potter Valley Dam.
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Heat	Yes	N/A
Extreme Cold	No	Temperatures are not as critical given geographical location.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	The last tsunami to affect the Eel River Valley was in 1700, following an earthquake. It still presents a threat, but there is no recent history.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 184: Fortuna Fire Protection District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	High	High	High	Low	High
Earthquake	High	High	Low	High	High
Extreme Heat	High	Medium	High	Low	High

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Flooding	High	High	Low	High	High
Landslide	High	Low	No impact	High	Medium
Tsunami	Low	High	High	High	Medium
Wildfire	High	Medium	Medium	Medium	High
Wind	High	High	Low	Low	High
Winter Weather	High	Medium	Low	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

10.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Fortuna Fire Protection District. Other hazard events that broadly affected the entire planning area, including the Fortuna Fire Protection District, are listed in the risk assessments in Volume 1.

10.2.1.1. HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) database does not always capture localized hazard data for fire districts. To address this gap, the Fortuna Fire Protection District has documented additional significant events, with their impacts detailed below.

DROUGHT

- **2020–2022:** Moderate to severe impacts on local watersheds, including the Eel and Van Duzen rivers.

EARTHQUAKE

- **2022 and 2024:** Moderate to major damage.

EXTREME HEAT

- **Annually:** Extreme temperatures can be red flag warnings for extreme heat.

FLOODING

- **2019, 2021, 2022, 2023 and 2024:** Minor to catastrophic damage occurred to anything in flood zones.

LANDSLIDE

- **Yearly:** Minor to moderate slides throughout the jurisdiction impacting all lifelines.

TSUNAMI

- No events have occurred for this hazard.

WILDFIRE

- **Yearly:** Minor to moderate damage with impacts on safety and transportation.

WIND

- **Yearly:** Minor to moderate damage with impacts on safety and transportation.

WINTER WEATHER

- **Yearly:** Minor to severe damage with atmospheric rivers becoming constant threats.

10.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 185 provides information on a few key vulnerabilities and impacts on the jurisdiction.

Table 185: Fortuna Fire Protection District Vulnerabilities and Impacts

Hazard	Vulnerabilities
Drought	*Vulnerabilities:* Low water supply or mandatory conservation measures could significantly impact both the district's ability to provide fire suppression services and the safety of the community. People reliant on consistent water access for health, sanitation and cooling are vulnerable in Fortuna. Critical infrastructure such as water storage and distribution systems may be strained or disrupted. *Impacts:* A reduction in water availability would compromise the district's capacity to respond effectively to fires. Prolonged drought would increase the risk of infrastructure failure, hinder emergency services and possibly force mutual aid agreements or alternative water sources. Fire crews may face limited water access and may be vulnerable to certain health impacts.

Hazard	Vulnerabilities
Earthquake	*Vulnerabilities:* The entire population of the City of Fortuna is vulnerable to seismic activity from the Big Lagoon Bald Mountain Fault, from very strong peak ground acceleration (18-34%g). The district is highly vulnerable to earthquakes due to its geographic location in a seismically active region. All three fire stations are at risk. Older buildings and unreinforced infrastructure along with water, power and communication lifelines are highly vulnerable. People living in older or poorly constructed housing are highly vulnerable to seismic activity. *Impacts:* A strong earthquake could result in structural damage or collapse while disrupting emergency response operations and threatening the safety of residents and fire crews. Damage to critical infrastructure could severely impact firefighting capabilities and delay recovery efforts. For critical infrastructure, such as City of Fortuna hospitals, schools, EOCs, police stations and fire stations, service disruptions could occur, with damaged roads hindering emergency responses and compromised utilities depriving residents of essential services.
Extreme Heat	*Vulnerabilities:* Inland portions of the district and certain microclimates may experience dangerously high temperatures during heat waves. Vulnerable populations such as those exposed to the elements are at an elevated risk. Critical infrastructure such as emergency response systems and the electrical grid may be strained by increased demand. *Impacts:* Extreme heat can lead to heat exhaustion, heat stroke and dehydration especially for emergency workers who may have to work in the elements. High temperatures will increase the likelihood of power outages due to overburdened electrical systems. This would disrupt fire station operations, emergency communications and medical equipment.

Hazard	Vulnerabilities
Flooding	*Vulnerabilities:* Heavy rainfall or snowmelt can make areas along the Eel River and its tributaries vulnerable to riverine and localized flooding. Low-lying neighborhoods, roadways and critical facilities are at an elevated risk especially those in FEMA-designated flood zones. Vulnerable populations may face additional challenges during flooding events especially during evacuation and recovery operations. Critical infrastructure such as fire stations and road networks may be damaged and impede rescue operations. *Impacts:* Flooding can damage homes, displace residents and threaten public health. Access to essential services may be disrupted due to flood waters inundating work networks isolating areas. Floodwaters might overwhelm stormwater and wastewater systems, damage critical infrastructure and compromise fire suppression capabilities.
Landslide	*Vulnerabilities:* The district, especially near hillsides and sloped areas, is highly vulnerable to landslides. Populations living in or near these areas are vulnerable to the hazard of landslides. Critical infrastructure such as fire access roads, water lines and power poles may be damaged or obstructed. *Impacts:* Landslides can destroy or severely damage homes and infrastructure and cause injury or death for those caught in the affected areas. Damage to critical infrastructure such as fire stations and water systems can disrupt emergency response and essential services, and debris can create additional hazards for firefighting personnel.
Tsunami	*Vulnerabilities:* The district includes areas that may be affected by tsunamis, including low-lying areas and areas along the Eel River estuary. While the district is geographically located outside the high-risk tsunami inundation area, transportation routes, utility corridors and mutual aid response may be impacted. Populations in or traveling through these areas are vulnerable. Critical infrastructure such as fire stations and road networks near the coast or river mouth may be disrupted by inundation or debris flows. *Impacts:* A tsunami can cause extensive damage to critical infrastructure and access routes for emergency response. Emergency operations could be hampered if personnel or equipment cannot reach affected areas. Vulnerable populations will face a heightened risk of injury, displacement or even injury/death.

Hazard	Vulnerabilities
Wildfire	*Vulnerabilities:* The district is increasingly vulnerable to wildfires given where development intersects with the wildland–urban interface. Vegetation, dry conditions and seasonal wind patterns heighten fire risk. Critical facilities near forested or brush-covered areas are at an elevated risk. Populations in these zones may face a significantly higher risk and longer responses during events. Fire crews are highly vulnerable during emergency response operations. *Impacts:* Wildfires can cause widespread destruction of homes, businesses and critical facilities. Firefighting operations can be hampered by limited access in remote or densely vegetated areas. Power outages and other utility failures can compound the threat to vulnerable populations and delay recovery. Critical infrastructure can be cut off or severely damaged by wildfire events.
Wind	*Vulnerabilities:* Populations living in areas with dense vegetation or older housing structures are more vulnerable to damage from falling trees and windborne debris. Critical infrastructure such as utilities and fire stations are at risk of damage from high wind events. *Impacts:* Strong winds can cause widespread damage by toppling trees, downing power lines and damaging roofs. Critical infrastructure such as electrical systems and communications networks can be disrupted, delaying emergency response and affecting public safety. Vulnerable populations may face increased risk from loss of heating, lighting or communication during extended outages.
Winter Weather	*Vulnerabilities:* While the region typically experiences a temperate climate, winter storms can still cause hazardous conditions that impact both the population and critical infrastructure. Roadways, water systems and electrical grids may be impacted by storm-related occurrences. Individuals such as firefighters who are exposed to the elements are vulnerable to the effects of the storm. *Impacts:* Winter weather can lead to power outages, roadway closures and localized flooding. These can disrupt emergency response operations and isolate residents. Icy or debris-covered roads may increase response times for fire and EMS personnel. Vulnerable populations are more likely to experience cold-related illnesses and difficulty accessing necessary supplies.

10.2.2.1. DEVELOPMENT CHANGES

Table 186 summarizes development trends in the Fortuna Fire Protection District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 186: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Moderate growth	Moderate growth	Increase
Commercial	Moderate growth	Rapid growth	Increase
Industrial	Moderate decline	Moderate growth	No change

10.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Fortuna Fire Protection District performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is based on a multifaceted approach that includes the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

10.3.1. Planning and Regulatory Capabilities

Table 187 and Table 188 summarize the Fortuna Fire Protection District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The Fortuna Fire Protection District is a special district without land use authority or its own building code enforcement. It relies on the City of Fortuna and Humboldt County (2022 California Building Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 187: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No Assembly Plan: No	The General Plan needs to be updated to fit current needs. This includes staffing and providing care in a more expensive climate. The district needs to plan for the eventual reality of being partly staffed with paid personnel.	N/A
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	No	Because the district operates in such a tight margin, it unfortunately has to focus on present hazards.	N/A
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	No	The district currently has a Firewise council in Hydesville; this is a multi-jurisdictional plan. It does not have a clear update timeframe.	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	No	The district has one that is administered through Humboldt County.	
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 188: Regulations and Ordinances

Regulation or Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	No	Yes	Last Update: 03/2025 Next Update: 03/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	Yes	Yes	Last Update: 03/2025 Next Update: Unknown
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

10.3.2. Administrative and Technical Capabilities

Table 189 and Table 190 summarize the Fortuna Fire Protection District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 189: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	Yes	Yes	Yes
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Non-Vacant	Yes	Yes	Yes
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 190: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	The district uses data from call logs to map and identify specific hazards in the jurisdiction.	By using the same data entry methods that it currently uses and implementing improvements.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
GIS	Yes	The district maps "hot zones" in its Computer Aided Design to identify target hazards. Hot zones include a more concentrated area of a specific call or emergency type.	By utilizing it the same way it has been, since the implementation of the updated plan in 2016 and adding more data as time goes by.
Mutual Aid Agreements	Yes	The district utilizes mutual aid in geographical boundaries where one jurisdiction would have difficulty performing quality hazard mitigation operations by itself. It utilizes mutual aid with firefighting efforts, rescue, automobile accidents and natural disasters. An example of this during a natural disaster would be providing service to the Fernbridge area during a flooding event and creating a plan to mitigate limited access for emergency resources into and out of Ferndale.	It is seeing a decrease in staffing in the fire service across the board; it has to rely on mutual aid to supplement each other's operations with ever-increasing regularity.
Eel River Technical Rescue Team (TRT)	Yes	By providing specialized rescue to areas in central Humboldt where the skills needed greatly outpace the general knowledge of the average jurisdiction. Since its implementation, the TRT has responded to hundreds of calls in Humboldt County.	This is an operational team and does not offer any formal recommendations.

10.3.3. Financial Capabilities

Table 191 summarizes the Fortuna Fire Protection District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 191: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	No	No	No
General Funds	Yes	Yes The district has a school-age child fire safety education program that visits early grades. It has replaced and maintained fire district infrastructure and assets, including building a new fire station and having a 30-year replacement plan for fire equipment.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)				
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Yes Activities include those noted above. However, in the future, it plans to utilize those funds to hire full-time staff to address population growth and a larger aging community. With the implementation of a full-time fire service, the general capability of operations will be dramatically improved, including fire protection, fire prevention and community outreach.	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	N/A
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

10.3.4. Education and Outreach Capabilities

Table 192 summarizes the Fortuna Fire Protection District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 192: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A
Public Meetings/Events	Yes	Yes	Fortuna Fire hosts a Disaster Fair during our open house event. It invites resources and organizations from around Humboldt County to interact and educate the public during the event.
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	Fortuna Senior Resource Center, Gene Lucas Center, CERT disaster training, including training for the Spanish-speaking community.

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Social Media	Yes	Yes	Instagram, Facebook

10.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 193. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 193: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The district has no room or plans to mitigate any natural hazards in our jurisdiction; it is focused on response and basic operations.
Administrative and Technical	The district has no room or plans to mitigate any natural hazards in our jurisdiction; it is focused on response and basic operations.
Financial	Fortuna Fire is exploring new revenue sources, including but not limited to special assessments and taxes; however, these funds will be used in providing adequate staffing levels and services to our district.
Education and Outreach	Fortuna Fire is mandated to provide a Fire Prevention Bureau and will continue to inspect, investigate and educate the public.

10.4. National Flood Insurance Program

The Fortuna Fire Protection District does not participant in the NFIP because, as a special district, it does not have the authority to do so. However, a flood event might lead to the loss of potable water infrastructure, which would impact fire services, hydration and public health.

10.5. Mitigation Strategy

The Fortuna Fire Protection District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 194, while new mitigation actions and those carried forward from the previous plan are in Table 195.

10.5.1. Previous Mitigation Actions

Table 194: Previous Mitigation Actions

Mitigation Action	Description	Status
FFD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Delete; no fire stations are in flood zones.
FFD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Carried forward, always actively participating.
FFD3	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including Hydesville and Campton Heights fire stations.	Completed. Hydesville was completed in 2015. The new station in Campton Heights was completed in 2024.
FFD4	Actively participate in Fire Safe Council and Firewise Community programs to better train residents about the hazards of wildfires in our area.	Carried forward. Continuously engaging in Fire Safe Council and Firewise Community.

10.5.2. Updated Mitigation Actions

Table 195: 2025 Mitigation Actions

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
FFD1	Support countywide initiatives in the Humboldt Operational Area Hazard Mitigation Plan.	Fortuna Fire Protection District	High	Dam failure, drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Staff time	3–5 years	Both	Yes	All
FFD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Fortuna Fire Protection District	High	Dam failure, drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Staff time, $10,000-$20,000	3–5 years	Both	Yes	All
FFD3	Actively participate in Fire Safe Council and Firewise Community programs to better train residents about the hazards of wildfires in our area.	Fortuna Fire Protection District	High	Wildfire	General funds, staff time	Staff time, $5,000-$10,000	3–5 years	Both	Yes	All

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11. Humboldt Bay Fire Joint Powers Authority Annex

This section presents the jurisdictional annex for the Humboldt Bay Fire Joint Powers Authority. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The Humboldt Bay Fire Joint Powers Authority did not identify any changes in priority for this plan update.

11.1. Planning Process

11.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Humboldt Bay Fire Joint Powers Authority, the stakeholders and the public. The Humboldt Bay Fire Joint Powers Authority was represented during the planning process by the following individual listed in Table 196.

Table 196: Humboldt Bay Fire Joint Powers Authority Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Tim Citro	Fire Chief	Humboldt Bay Fire Joint Powers Authority	tcitro@hbfire.org 707-441-4000
William Reynolds	Deputy Fire Chief	Humboldt Bay Fire Joint Powers Authority	wreynolds@hbfire.org 707-441-4000

11.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 197. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to

complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 197: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Jo Wattle	Board of Directors	Humboldt No. 1 Fire Protection District	None	1. Local and regional agencies involved in hazard mitigation activities
Robert Murias	Board of Directors	Humboldt No. 1 Fire Protection District	None	1. Local and regional agencies involved in hazard mitigation activities
Scott Bauer	Board of Directors	City of Eureka	None	2. Agencies that have the authority to regulate development.
Kati Moulton	Board of Directors	City of Eureka	None	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

11.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder

involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 18 illustrates how the public was encouraged to participate in the survey. The Humboldt Bay Fire Joint Powers Authority utilized a variety of communications channels that are free and easily accessible such as Facebook and Instagram.

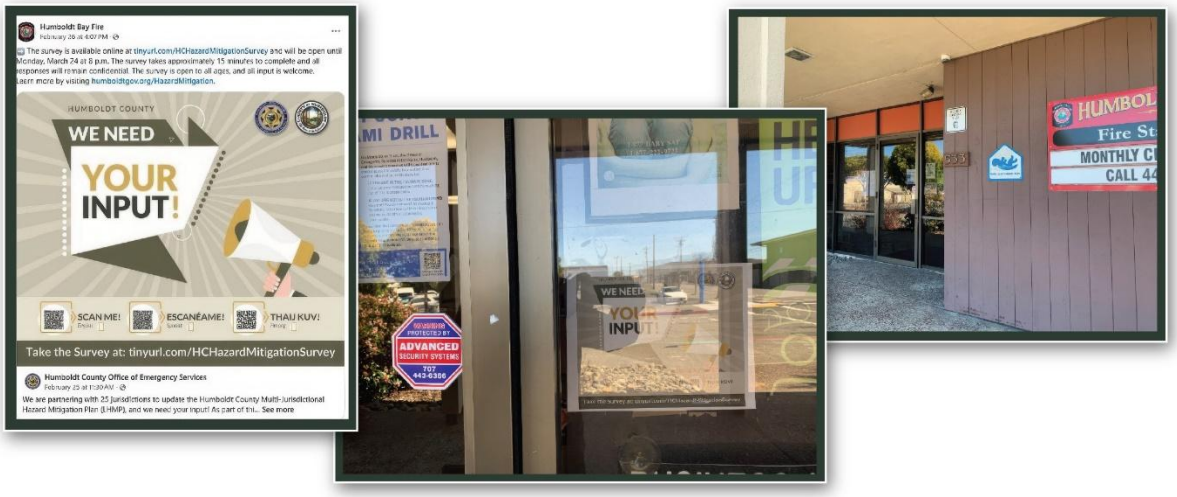

Figure 18: Public Outreach Methods

Public feedback was a critical component of the Humboldt Bay Fire Joint Powers Authority's risk assessment, and it directly influenced the development of the updated mitigation strategy. Input was collected through bilingual public surveys and social media engagement, with a strong emphasis on understanding the needs of vulnerable and underserved populations across the district.

These priorities were discussed during the Mitigation Action Workshop and helped shape the updated mitigation actions included in this plan. Several actions directly reflect public input including enhancements to the department's website to provide better access to disaster planning materials. The Rural Water Supply Program was prioritized, based on community concern for hydrant access and drought-related vulnerabilities. These actions demonstrate a comprehensive approach that integrates technical risk analysis with community-driven priorities to strengthen local resilience.

11.1.3.1.VULNERABLE POPULATION OUTREACH

Some district residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Humboldt Bay Fire Joint Powers Authority might have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update developed a bilingual public

survey to identify ways to support, enhance and broaden capacity and resilience at the individual and social network levels.

Figure 19: Vulnerable Population Outreach Methods

11.1.4. Plan Integration

11.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 198.

Table 198: Previous Plan Integration for the Humboldt Bay Fire Joint Powers Authority

Plan Name	Description
None	Due to a lack of staffing opportunities for integration of the previous plan into local planning mechanisms was not operationalized.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 199 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 199: Future Types of Plan Integration for the Humboldt Bay Fire Joint Powers Authority

Type of Plan	Integration Method
Not at this time	As the authority is able to address its current staffing crisis it will explore ways to integrate the HMP with current and future operational mechanisms.

11.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that the most concern for each jurisdiction, as displayed in Table 200 and Table 201. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 200: Humboldt Bay Fire Joint Powers Authority Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	No dams in jurisdiction or neighboring jurisdiction.
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	No	Temperatures rarely above 75 F or below 32 F.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 201: Humboldt Bay Fire Joint Powers Authority Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	High	High	Low	Medium	Low
Earthquake	High	High	High	High	High
Flooding	High	Medium	Medium	Low	Medium
Landslide	Low	Low	Low	Low	Low
Tsunami	Medium	High	High	High	High
Wildfire	Medium	Medium	Medium	Medium	Medium
Wind	High	High	High	Medium	High
Winter Weather	High	High	High	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

11.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Humboldt Bay Fire Joint Powers Authority. Other hazard events that broadly affected the entire planning area, including the Humboldt Bay Fire Joint Powers Authority, are listed in the risk assessments in Volume 1.

11.2.1.1. HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) database does not always capture localized hazard data for fire districts. To address this gap, the Humboldt Bay Fire Joint Powers Authority has documented additional significant events, with their impacts detailed below.

DROUGHT

- **2020–2022:** Dry vegetation and limited water supplies.

EARTHQUAKE

- **Dec. 5, 2022:** Minor damage throughout jurisdiction.

FLOODING

- **Winter, 2024–2025:** Atmospheric river impacted the annex causing mild to moderate damage throughout the jurisdiction.

LANDSLIDE

- Minor slides throughout jurisdiction sporadically impacting roadways.

TSUNAMI

- **Dec. 5, 2025:** Earthquake occurred, causing a tsunami warning immediately after for one hour. No damage.

WILDFIRE

- Multiple small fires annually with no major damage in jurisdiction.

WIND

- Multiple storms throughout the year with minor to moderate damage to structures.

WINTER WEATHER

- Multiple storms throughout the year. Limited rain and wind with very rare snow and freezing rain.

11.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 202 provides information on a few key vulnerabilities for the jurisdiction.

Table 202: Humboldt Bay Fire Joint Powers Authority Vulnerabilities

Hazard	Vulnerabilities
Drought	*Vulnerabilities:* Prolonged drought and water conservation mandates may reduce water for fire suppression and place additional stress on the district's response capabilities. Critical water infrastructure, including reservoirs, supporting fire suppression in Humboldt County is vulnerable to drought conditions, decreasing water levels. Eureka where the district operates is particularly vulnerable due to its reliance on local sources of water. Vulnerable populations may be disproportionately affected by service disruptions, especially in areas with limited hydrant coverage or reduced water pressure. *Impacts:* A substantial reduction in water supply would compromise the district's ability to respond effectively to structure fires and wildfires. This challenge is especially critical during peak fire season when demand on fire suppression resources is highest. Continued drought conditions may require reliance on alternative water delivery systems. Fire crews exposed to the elements can experience health issues.

Hazard	Vulnerabilities
Earthquake	*Vulnerabilities:* The service area contains numerous aging and unreinforced structures that are particularly susceptible to earthquake damage. The entire district is vulnerable to earthquakes due to the close proximity to the Cascadia Subduction Zone fault, Little Salmon Onshore fault, the Big Lagoon Bald Mountain fault, the Russ fault, and the Mad River-Trinidad fault. The entire population and all critical infrastructure including fire stations are at risk. Vulnerable populations including the elderly and low-income residents face a heightened risk of injury, displacement and loss of access to critical services following a major seismic event. These populations may also lack the resources needed for evacuation, temporary shelter or recovery. *Impacts:* A significant earthquake would result in widespread damage, road closures, utility disruptions and impaired access to emergency facilities. Damage to fire stations, water infrastructure and transportation routes may delay response times and reduce emergency response capabilities during critical periods. Communications systems and power supply interruptions may hinder response coordination. Widespread impacts on all life and property depending on the magnitude of the earthquake could be expected.
Flooding	*Vulnerabilities:* Localized inland flooding and coastal storm surge events can pose serious threats to public safety, disrupt emergency services and damage critical infrastructure in the Humboldt Bay Fire Joint Powers Authority's jurisdiction. Vulnerable populations may face limited evacuation options and difficulty accessing emergency services during a flood event. *Impacts:* Floodwaters can block transportation routes, damage fire stations and impact hydrant functionality. Coastal flooding may also threaten infrastructure near Humboldt Bay, including power systems, communication networks and water distribution lines. Flood damage to these systems could impair firefighting capabilities. Those living in low-lying areas are near waterbodies would experience flood inundation and impact their health.

Hazard	Vulnerabilities
Landslide	*Vulnerabilities:* While landslides are generally localized in the Humboldt Bay Fire Joint Powers Authority's jurisdiction, they pose a notable risk in hilly or unstable terrain. Vulnerable populations may be disproportionately affected by disrupted road access, isolation or loss of utility services caused by slope failures. Emergency access to these areas may be delayed, increasing the risk to life safety. Critical infrastructure located near highly or unstable terrain can be vulnerable to landslides. *Impacts:* Landslides can obstruct critical transportation routes, limiting the district's ability to reach impacted areas during emergencies. Road closures may also interfere with the delivery of mutual aid, evacuation operations and access to essential services. Damage to underground utilities may pose additional safety hazards and hinder firefighting operations. Fire crews responding to emergency incidents are exposed to landslide dangers and can be drastically impacted.
Tsunami	*Vulnerabilities:* The coastal location of the Humboldt Bay Fire Joint Powers Authority places portions of the district at risk from tsunami events. High-risk areas where critical infrastructure such as transportation routes and people are vulnerable including the downtown area of Eureka, Old Town Eureka, Eureka Harbor, and the Humboldt Bay areas. Vulnerable populations such as the elderly and people with disabilities may face mobility challenges or lack access to timely warnings and transportation during a rapid-onset tsunami threat. Limited awareness of evacuation routes and procedures among these groups can further increase life safety risks. The district's training center is also located in the tsunami inundation area. *Impacts:* A significant tsunami event could cause widespread damage to critical infrastructure and populations in coastal zones, disrupt emergency communications and render key facilities inoperable. Flooding and debris could obstruct evacuation routes, delay response operations and damage vital infrastructure such as fire stations, power supply systems and water distribution networks. People can be injured and killed, including first responders.

Hazard	Vulnerabilities
Wildfire	*Vulnerabilities:* Wildfires pose a growing threat to areas in the Humboldt Bay Fire Joint Powers Authority jurisdiction especially in Greater Eureka moderate fire hazard severity zones. Vulnerable populations such as the elderly or people with disabilities may face challenges evacuating quickly or receiving timely alerts. Locations more vulnerable to wildfire include those areas near the Headwaters Forest Reserve and neighborhoods surrounded by thick brush and dense vegetation. These communities include Freshwater, Ridgewood, Lundbar Hills, and Cutten. Critical infrastructure such as fire stations located near the Greater Eureka moderate fire hazard severity zones such as Station 5 are vulnerable to wildfires. *Impacts:* A fast-moving wildfire could threaten residential areas, critical facilities and transportation corridors, overwhelming local firefighting resources. Communities in the wildland urban interface, like Freshwater, Ridgewood, Lundbar Hills, and Cutten could quickly be damaged by wildfires under extreme circumstances, forcing residents to evacuate and potentially losing property. Power lines, communications towers and water infrastructure may be compromised, reducing fire suppression capacity and impacting public safety services. Vulnerable populations in moderate fire hazard severity zones would be impacted.

Hazard	Vulnerabilities
Wind	*Vulnerabilities:* High wind events pose risks throughout the Humboldt Bay Fire Joint Powers Authority's jurisdiction. Vulnerable populations may be disproportionately affected by wind-related hazards such as falling trees, flying debris and extended power outages. Residents in low-income areas may also lack the resources to prepare for or recover from wind damage. All residents may be vulnerable to wind, particularly in the natural environment such as the Parkland Forest where falling trees and branches can threaten homes and infrastructure. Vulnerable populations such as the elderly and individuals with disabilities may be more vulnerable due to limited mobility. All critical infrastructure in the Humboldt Bay Fire Joint Powers Authority is vulnerable to high wind events that can cause widespread damage and disrupt essential services including transportation and water systems dependent on electricity. *Impacts:* Strong winds can cause widespread damage to structures, down power lines and block transportation routes with fallen trees and debris. These impacts can delay emergency response, disrupt communications and impair access to critical infrastructure, including fire stations and hydrants. Prolonged outages may also affect water pumping systems and emergency coordination particularly in rural or underserved areas containing vulnerable populations. Fire crews would be exposed to the elements, increasing their risk of injury and/or loss of life.

Hazard	Vulnerabilities
Winter Weather	*Vulnerabilities:* While severe winter weather is relatively infrequent in the Humboldt Bay Fire Joint Powers Authority's jurisdiction, storms that bring heavy rain, high winds and occasional below-freezing temperatures can significantly impact vulnerable populations. Elderly residents, individuals with limited mobility, medically dependent individuals and low-income households may be disproportionately affected by power outages, roadway hazards and limited access to heating or emergency services. Those living in poorly insulated housing or without backup power are particularly at risk during cold-weather events. Critical infrastructure such as hydrants might freeze, restricting access to water. *Impacts:* Winter storms can cause road closures, down trees and power lines and temporarily isolate neighborhoods. These impacts may delay emergency response and hinder mutual aid efforts, while compromising access to critical infrastructure such as fire stations, water supply systems and communications networks. Extended outages or transportation disruptions may further strain the district's capacity to respond to multiple incidents simultaneously as well as impact vulnerable populations. Fire crews exposed to the elements face increase health risks.

11.2.2.1. DEVELOPMENT CHANGES

Table 203 summarizes development trends in the Humboldt Bay Fire Joint Powers Authority since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 203: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Remodels of current facilities	Modernization of fire stations	Increased
Commercial	N/A	N/A	No change
Industrial	N/A	N/A	No change

11.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Humboldt Bay Fire Joint Powers Authority performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

11.3.1. Planning and Regulatory Capabilities

Table 204 and Table 205 summarize the Humboldt Bay Fire Joint Powers Authority's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The Humboldt Bay Fire Joint Powers Authority is a special district without land use authority or its own building code enforcement. It relies on Humboldt County (2022 California Building Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 204: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	N/A	N/A	N/A
Recovery Plan	Yes	The recovery plan will be used to assess our needs following a recoverable event and determine actions going forward. The plan covers infrastructure assessment and needs as well as employee needs following events to help us get back to normal.	Last Update: 09/2019 Next Update: 09/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Capital Improvement Plan	Yes	The CIP looks to help update/remodel/retrofit facilities that are at risk from disaster and helps with timelines for improvement. This covers facilities, infrastructure, mobile assets, etc.	Last Update: 09/2020 Next Update: 09/2025
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Our emergency plan works in tandem with our parent agencies such as the City of Eureka. It covers disaster response before, during and post incident to help guide the agency in preparation, response and recovery.	Last Update: 04/2014 Next Update: 04/2025
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 205: Regulations and Ordinances

Regulation or Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes	Yes (County)	Last Update: 01/2022 Next Update: 01/2026
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

11.3.2. Administrative and Technical Capabilities

Table 206 and Table 207 summarize the Humboldt Bay Fire Joint Powers Authority's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 206: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	No	Yes	Yes
Grant Writer	Non-Vacant	Yes	Yes	Yes
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 207: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	We rely on mutual aid on a regular basis. We have a Northern Humboldt Bay auto-aid agreement between 9 neighboring fire agencies.	If we could form regional teams relative to some of the hazards, that would help all agencies.
Humboldt Bay Fire Urban Search and Rescue Team	Yes	Specially trained personnel trained in heavy rescue, technical rescue and disaster operations.	The Humboldt Urban Search and Rescue Team has a very wide range of capabilities that are focused on disaster operations.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Humboldt Bay Fire Regional Hazardous Materials Response Team	Yes	The Hazardous Materials Response Team is the regional response authority for all manner of hazardous materials response serving Humboldt and Del Norte Counties.	The Hazardous Materials Response Team trains throughout multiple jurisdictions to be familiar with countywide hazards, facilities and jurisdictions. This includes preplanning for events.

11.3.3. Financial Capabilities

Table 208 summarizes the Humboldt Bay Fire Joint Powers Authority's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 208: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	Yes	Yes Retrofit of facilities for seismic concerns.	Yes	Yes
General Funds	Yes	Yes Retrofit/improvement of facilities for a wide range of reasons.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	Yes	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	No	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	N/A
Impact Fees from New Development and Redevelopment	Yes	Yes Retrofit of facilities	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

11.3.4. Education and Outreach Capabilities

Table 209 summarizes the Humboldt Bay Fire Joint Powers Authority's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 209: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Public Meetings/Events	Yes	Yes	Annual open house event in October for Fire Prevention Week that includes our CERT team and disaster preparation information. We also do community outreach through schools and upon request touching on a variety of topics including disaster preparation, response and recovery.
Emergency Management Listserv	Yes	No	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	Yes	Facebook, YouTube, Instagram
Public First Aid and CPR (Cardiopulmonary Resuscitation) Training	Yes	No	N/A

11.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 210. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 210: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	We are interested in developing a community wildfire protection plan and Firewise community and have begun research into what steps are needed. We are also looking toward strengthening and updating our disaster planning and training as with retirements we lose senior personnel with those skill sets.
Administrative and Technical	Our community risk reduction division is understaffed and does have a need for additional staffing funding permitting. We also continue to struggle, as most California fire agencies do, to recruit and retain suppression personnel.
Financial	With retirements, promotions and reassignments, we lose personnel with grant writing experience. We need to find new training opportunities to train new personnel in this skill set.
Education and Outreach	Our existing educational programs are effective, but more emphasis could be placed on disaster preparation not only for private citizens but for business owners as well. During the earthquake on Dec. 5, 2024, we did discover a need for educating business owners in the Eureka Old Town area regarding tsunami zones, evacuation routes and procedures and other miscellaneous items.

11.4. National Flood Insurance Program

The Humboldt Bay Fire Joint Powers Authority does not participate in the NFIP because, as a special district, it does not have the authority to do so. However, a flood event might lead to the loss of potable water infrastructure, which will impact fire services, hydration and public health.

11.5. Mitigation Strategy

The Humboldt Bay Fire Joint Powers Authority has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 211, while new mitigation action items and those carried forward from the previous plan are in Table 212.

11.5.1. Previous Mitigation Actions

Table 211: Previous Mitigation Actions

Mitigation Action	Description	Status
HBF1	Upgrade to full-time advanced life support.	Deleted. This is deleted for many reasons, such as staff turnover (losing paramedic personnel to other higher paying agencies), difficulties in recruiting (with our wage scale it is difficult to compete with higher paying agencies outside our area) and the length of training existing personnel.(Three personnel are currently in training, but it is a two-year program under the local training program, and sending personnel to outside training is not an option.) This is still a department priority that will benefit the entire area, but it will take a very long time to complete. It is very unrealistic that this will be completed in the next 5 years.
HBF2	Establish a comprehensive and regular training regimen with Humboldt County Office of Emergency Services (OES) Emergency Operations Center (EOC) plan.	Deferred but in progress. Our personnel are integrated into the county EOC and an integral part of the county's EOC per a memorandum of understanding relying on our personnel, but with factors such as the COVID pandemic, we haven't seen a regular training program established or regular drills become a reality. Our personnel were a big part of the county's EOC staffing during the pandemic, showing the benefit of this integration, but there is still work to be done in establishing a regular training regimen.
HBF3	Enhance department website to include more comprehensive disaster planning resources.	Partially completed. Our department website recently underwent a major overhaul, but we are still working on incorporating disaster planning and training resources.

Mitigation Action	Description	Status
HBF4	Rural Water Supply Tank Program	In progress. Over the past year, we have been inventorying out jurisdictional privately owned and maintained rural water tanks, but the process has hit a bump in the road with the loss of key personnel that has halted the progress. We are reassessing what will be needed to continue the progress.
HBF5	Support countywide initiatives in the Humboldt Operational Area Hazard Mitigation Plan.	This is ongoing and will be recycled into the next local hazard mitigation plan.
HBF6	Continue to participate not only in general mutual-aid agreements but also in agreements with adjoining jurisdictions for cooperative response to all hazards and disasters.	This is ongoing and will be recycled into our next local hazard mitigation plan. We have several unique teams that are provided by our agency (such as the Regional Hazardous Materials Response Team and Urban Search and Rescue Team) and staffed, but our personnel are key resources for our county going forward.

11.5.2. Updated Mitigation Actions

Table 212: 2025 Mitigation Actions[17]

#	Action Description	Lead Agency	Priority	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBF1	Support countywide initiatives in the Humboldt Operational Area Hazard Mitigation Plan.	Humboldt Bay Fire and Humboldt County	High	Drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Staff time	Both	Short-term	Yes	Yes
HBF2	Rural Water Supply Program	Humboldt Bay Fire	High	Drought, wildfire	General funds, staff time	Staff time, $10,000-$20,000	Both	Medium-term	Yes	Yes
HBF3	Establish a comprehensive and regular training regimen with Humboldt County Office of Emergency Services Emergency Operations Center Plan.	Humboldt Bay Fire and Humboldt County	High	Drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Staff time, $5,000-$10,000	Both	Medium-term	Yes	Yes
HBF4	Enhance department website to include more comprehensive disaster planning resources.	Humboldt Bay Fire	High	Drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Staff time	Both	Short-term	Yes	Yes
HBF5	Continue to participate not only in general mutual-aid agreements but also in agreements with adjoining jurisdictions for cooperative response to all hazards and disasters.	Humboldt Bay Fire, Mutual Aid Partners, Humboldt County	Medium	Drought, earthquake, flooding, landslide, tsunami, wildfire, wind, winter weather	General funds, staff time	Staff time	Both	Short-term	Yes	Yes

[17] NOAA: National Oceanic and Atmospheric Administration

#	Action Description	Lead Agency	Priority	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBF6	Support earthquake public outreach and education campaigns.	Humboldt Bay Fire, Humboldt County, Local Community Groups	Medium	Earthquake	General funds, staff time	Staff time	Both	Medium-term	Yes	Yes
HBF7	Increase public awareness of the tsunami hazard.	Humboldt Bay Fire, North Coast Tsunami workgroup	Medium	Tsunami	General funds, staff time	Staff time	Both	Short-term	Yes	Yes
HBF8	Increase wildfire risk awareness.	Humboldt Bay Fire, CAL FIRE, Humboldt County	Medium	Wildfire	General funds, staff time	Staff time	Both	Short-term	Yes	Yes
HBF9	Conduct winter weather risk awareness activities.	Humboldt Bay Fire, NOAA, Humboldt County	Low	Winter weather	General funds, staff time	Staff time	Both	Medium-term	Yes	Yes

12. Humboldt Bay Harbor, Recreation and Conservation District Annex

This section presents the jurisdictional annex for the Humboldt Bay Harbor, Recreation and Conservation District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Planning priorities for the Humboldt Bay Harbor, Recreation and Conservation District have changed since the last plan update. The district has experienced multiple hazards that highlight the need for resilience that is specifically related to Shelter Cove Boat Launch and a Marine Outfall Line. This was due to severe weather events in 2022 and 2024 when winter storms caused extreme surf and wave action. Shelter Cove is an active FEMA project that has been partially approved, and the marine outfall line has been secured with a 5-year temporary option while a permanent solution is explored. These priorities are reflected in the mitigation actions identified in this annex.

12.1. Planning Process

12.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Humboldt Bay Harbor, Recreation and Conservation District, the stakeholders and the public. The Humboldt Bay Harbor, Recreation and Conservation District was represented during the planning process by the following individuals listed in Table 213.

Table 213: Humboldt Bay Harbor, Recreation and Conservation District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Chris Mikkelsen	Executive Director	Humboldt Bay Harbor, Recreation and Conservation District	cmikkelsen@humboldtbay.org
Bryan Robinson	Facilities Coordinator	Humboldt Bay Harbor, Recreation and Conservation District	brobinson@humboldtbay.org

12.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 214. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 214: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Michiko Mares	General Manager	Humboldt Bay Municipal Water District	gm@hbmwd.com	1. Local and regional agencies involved in hazard mitigation activities
Kelly Allen	Public Works Director	City of Eureka	kallen@eurekaca.gov	2. Agencies that have the authority to regulate development.
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

12.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. The Humboldt Bay Harbor, Recreation and Conservation District utilized their website to solicit participation in the public survey conducted by Humboldt County.

Public feedback was incorporated into the Humboldt Bay Harbor, Recreation and Conservation District's risk assessment and directly informed the development of updated mitigation actions. Residents provided input through a bilingual survey hosted on the district's website and promoted by Humboldt County. Survey responses and stakeholder engagement efforts indicated strong concern about the vulnerability of coastal infrastructure. These concerns were discussed during stakeholder meetings and reviewed during the Mitigation Action Workshop. The updated mitigation strategy reflects both the technical analysis of risk and the priorities identified through public engagement. These actions demonstrate a comprehensive approach that integrates technical risk analysis with community driven priorities to strengthen local resilience.

12.1.3.1. VULNERABLE POPULATION OUTREACH

Some district residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Humboldt Bay Harbor, Recreation and Conservation District might have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update developed a bilingual public survey to identify ways to support, enhance and broaden capacity and resilience at the individual and social network levels.

12.1.4. Plan Integration

12.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 215.

Table 215: Previous Plan Integration for the Humboldt Bay Harbor, Recreation and Conservation District

Plan Name	Description
None	The previous plan was not integrated into any planning options as there were no plans updated by the annex during this time.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 216 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future. The district will continue to explore ways of integrating the current plan into planning mechanisms as funding is extremely limited.

Table 216: Future Types of Plan Integration for the Humboldt Bay Harbor, Recreation and Conservation District

Type of Plan	Integration Method
None	The district will continue to explore ways of integrating the current plan into planning mechanisms as funding is extremely limited.

12.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 217 and Table 218. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 217: Humboldt Bay Harbor, Recreation and Conservation District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	Not in direct line with the regional dam (Ruth).
Drought	Yes	N/A

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Earthquake	Yes	N/A
Extreme Temperatures	No	Not typical of jurisdictional geography. No historical basis.
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	No	Not a factor for the jurisdiction.

Table 218: Humboldt Bay Harbor, Recreation and Conservation District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	High	High	Low	Low	Medium
Earthquake	High	High	High	High	High
Flooding	Medium	Medium	Medium	Low	Medium
Landslide	Low	Low	Low	Low	Low
Tsunami	Medium	Medium	Medium	Medium	Medium
Wildfire	Medium	High	Low	Low	Medium
Wind	High	Low	Low	Low	Medium

Note: The process used to assign risk rankings is described in Volume 1.

12.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Humboldt Bay Harbor, Recreation and Conservation District. Other hazard events that broadly affected the entire planning area, including the Humboldt Bay Harbor, Recreation and Conservation District, are listed in the risk assessments in Volume 1.

12.2.1.1.HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) database does not always capture localized hazard data for fire districts. To address this gap, the Humboldt Bay Harbor, Recreation and Conservation District has documented additional significant events, with their impacts detailed below.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- **Dec. 5, 2024:** Limited to no impacts.

FLOODING

- No events have occurred for this hazard.

LANDSLIDE

- **Winter, 2022 and 2023:** Significant threat as impacts from tide inundation and landslides.

TSUNAMI

- Dec. 5, 2024: Threat only.

WILDFIRE

- **July 16, 2024:** Wildfire smoke caused air quality issues.

WIND

- **July 19, 2024:** Severe wind caused broken dock lines on several boats.

12.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 219 provides information on a few key vulnerabilities for the jurisdiction.

Table 219: Humboldt Bay Harbor, Recreation and Conservation District Vulnerabilities

Hazard	Vulnerabilities
Drought	*Vulnerabilities:* Prolonged drought conditions can impair fire suppression capabilities and impact water-dependent port operations. Low-income or underserved populations could face reduced access to safe water or public facilities. *Impacts:* Reduced water availability could threaten harbor-based emergency operations and increase the risk of equipment failure due to inadequate cooling or hydration. Emergency water distribution may be required, especially for vessels or dockside facilities. Staff may face health issues related to drought, especially in extreme heat.
Earthquake	*Vulnerabilities*: An earthquake could cause structural damage to docks, bridges, roads and utility infrastructure. Much of the district's critical infrastructure is highly susceptible to seismic damage due to the region's proximity to the Cascadia Subduction Zone. The district employees working in the field or in unreinforced structures may be vulnerable to injury or fatality in the event of a major seismic activity. *Impacts:* Earthquakes could collapse or severely damage shoreline infrastructure, displace vessels, disrupt access roads and disable utilities. Vulnerable populations may face isolation or loss of access to emergency services.
Flooding	*Vulnerabilities:* Heavy flooding could cause significant erosion, damage buildings and cause docks to fail. The district's location along Humboldt Bay makes it highly susceptible to coastal and tidal flooding, particularly in low-lying port facilities. Essential infrastructure such as the Fields Landing Terminal, Samoa Peninsula and Woodley Island Marina are exposed. Populations located in low-lying areas are highly vulnerable. *Impacts:* Flooding can damage or destroy docks, marinas and coastal roads; disable utilities and fuel systems; and displace vessels. Floodwaters may isolate vulnerable populations residing on boats or in shoreline communities and interrupt maritime and emergency operations.

Hazard	Vulnerabilities
Landslide	*Vulnerabilities:* The district infrastructure and resources are vulnerable to tideland disruption, silt and sediment depositions. Slopes near tide-influenced areas may experience instability, especially during heavy rainfall. This can threaten transportation routes, sensitive shoreline infrastructure and vulnerable populations. *Impacts:* Landslides may damage containment structures, transportation corridors and utility lines. Deposits of sediment can obstruct waterways and restrict harbor access, disrupting emergency response and commercial activity. Staff may be directly impacted by landslide hazards, causing injury or loss of life.
Tsunami	*Vulnerabilities:* A tsunami could displace vessels and cause docks to fail, damage buildings, close roads and create flooding in inland areas. Displaced Vessels (Boats). Large portions of the district, including Woodley Island Marina, Fields Landing and Samoa Peninsula, lie in the tsunami inundation zone. Residents, workers and infrastructure in these zones are extremely vulnerable. *Impacts:* A tsunami could cause catastrophic damage to harbor infrastructure, displace vessels and flood low-lying facilities. Communications and power systems may be destroyed, impeding emergency coordination. Vulnerable populations without reliable transportation or awareness of evacuation procedures may be at high risk.
Wildfire	*Vulnerabilities:* Although not highly forested, the Samoa Peninsula and other undeveloped areas in the district are at risk from wildfires and wildfire smoke. Vulnerable populations in nearby mobile home communities or those working outdoors are especially affected. *Impacts:* Wildfire smoke can severely affect air quality, delaying port operations and threatening respiratory health. Fires may impact utility systems and hinder road access which would isolate communities and disrupt emergency response.
Wind	*Vulnerabilities:* High winds can damage docks, break mooring lines, and endanger vessels. Infrastructure along exposed coastlines is particularly at risk. Individuals living on boats or working in marine environments are especially vulnerable. *Impacts:* Windstorms can cause property damage, down power lines, and impair transportation across harbor bridges and piers. Dock failures and vessel collisions may require immediate emergency response, potentially straining resources and injuring staff.

12.2.2.1. DEVELOPMENT CHANGES

Table 220 summarizes development trends in the Humboldt Bay Harbor, Recreation, and Conservation District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 220: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	The district has experienced about 0.2% annual residential growth year over year for the past decade.	A 300+ unit subdivision is in the approval stages with the county. The developer expects this to take 20 years to build out.	No change
Commercial	Minimal	Very little	No change
Industrial	None	None planned	No change

12.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Humboldt Bay Harbor, Recreation, and Conservation District performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

12.3.1. Planning and Regulatory Capabilities

Table 221 and Table 222 summarize the Humboldt Bay Harbor, Recreation, and Conservation District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The Humboldt Bay Harbor, Recreation and Conservation district is a special district without land use authority or its own building code

enforcement. It relies on Humboldt County (2022 California Building Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 221: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes Assembly Plan: Yes	Develop and implement protections for shoreline areas most vulnerable to tsunami and sea level rise impacts.	Last Update: 01/2025 Next Update: 07/2025
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	Yes	The CIP is used to plan and budget for capital projects. Most mitigation actions are implemented as capital projects. The district continuously uses the CIP to plan for the implementation of mitigation projects.	Last Update: 06/2024 Next Update: 06/2025
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	N/A	N/A	N/A
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 222: Regulations and Ordinances

Regulation or Ordinance	Does this regulation/ ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes	Yes	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

12.3.2. Administrative and Technical Capabilities

Table 223 and Table 224 summarize the Humboldt Bay Harbor, Recreation, and Conservation District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 223: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	No	N/A	N/A	N/A
Grant Writer	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Active Organizations Active in Disaster	No	N/A	N/A	N/A

Table 224: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Hazard data regarding unplanned power outages has helped prioritize which sites to install standby generators.	Hazard data regarding flooding and sea level rise is informing the design for a containment berm/wall for a critical lift station. Hazard data regarding fire suppression will be used to determine the size of water storage and water transmission mains to serve a new development.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
GIS	Yes	Reviewing flood maps and identifying critical infrastructure that is vulnerable and identifying elevations and retreat scenarios.	Reviewing fault lines that intersect with district infrastructure and identifying mitigation projects that will reduce vulnerability and risk.
Mutual Aid Agreements	Yes	Mutual aid is used to access operators and equipment during emergencies and recovery efforts.	We work with our partners to identify regional projects that will mitigate hazards and vulnerabilities.
Water and Wastewater Operations	Yes	Hazard data regarding unplanned power outages has helped prioritize which sites to install standby generators.	Hazard data regarding flooding and sea level rise is informing the design for a containment berm/wall for a critical lift station. Hazard data regarding fire suppression will be used to determine the size of water storage and water transmission mains to serve a new development.

12.3.3. Financial Capabilities

Table 225 summarizes the Humboldt Bay Harbor, Recreation, and Conservation District's financial capabilities, which refer to the resources available to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 225: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	Yes	Yes Retrofit of facilities for seismic concerns.	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant?
General Funds	Yes	Yes Retrofit/improvement of facilities for a wide range of reasons.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant?
Property, Sales, Income or Special Purpose Taxes	Yes	Yes Flood hardening. Seismic retrofitting. Standby generators. Monitoring, data logging and fault altering equipment. Seismic isolation valves. Increased water storage for drinking water and fire suppression. Hydrants. Inspection equipment including CCTV (closed-circuit television) for internal pipe inspections. Sea level rise adaptation.	Yes	Yes
Stormwater Utility Fee	Yes	Yes. The general fund is used to fund outreach activities, including the website and PSAs. Also, the general fund is a mitigation action because it is used to build reserves for use in an emergency or unexpected catastrophic failure that requires immediate funding.	Yes	Yes
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	N/A
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant?
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

12.3.4. Education and Outreach Capabilities

Table 226 summarizes the Humboldt Bay Harbor, Recreation, and Conservation District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 226: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Public Meetings/Events	Yes	Yes	The District Board meets in public session every second Thursday of the month at 6 p.m. at the district conference room. The meetings include transactional business of the district plus public input and comment. Also, staff provides updates and reports on the district's activities including hazard mitigation work and public education and outreach.
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	Yes	Yes	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	Local tribes and Samoa community outreach
Social Media	No	N/A	N/A

12.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 227. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 227: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	None at this time.
Administrative and Technical	None at this time.
Financial	None at this time.
Education and Outreach	None at this time.

12.4. National Flood Insurance Program

The Humboldt Bay Harbor, Recreation, and Conservation District does not participate in the NFIP because, as a special district, it does not have the authority to do so.

12.5. Mitigation Strategy

The Humboldt Bay Harbor, Recreation, and Conservation District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 228, while new mitigation action items and those carried forward from the previous plan are in Table 229.

12.5.1. Previous Mitigation Actions

Table 228: Previous Mitigation Actions

Mitigation Action	Description	Status
HB1	Replace dock float at Woodley Island Marina.	Deferred. No funding.
HB2	Rebuild/retrofit Redwood Marine Terminal Berth 1.	Deferred. Part of the heavy-lift terminal.
HB3	Rebuild dike in preparation for sea level rise.	Deferred. No funding.
HB4	Assess and enhance the Harbor District's storm and tsunami warning capability by joining NOAA's "Storm Ready" and "Tsunami Ready" programs.	Completed. Working with NOAA.
HB5	Retrofit breakwater at Woodley Island Marina.	Deferred. No funding.
HB6	Retrofit work dock at Woodley Island Marina.	Deferred. Part of the heavy-lift terminal.

Mitigation Action	Description	Status
HB7	Retrofit breakwater at Shelter Cove.	Deferred. No funding.
HB8	Install floating breakwater on east end of Woodley Island Marina.	Deferred. No funding.
HB9	Develop standard specifications for levee repair/rehabilitation to minimize breaching and overtopping.	Deferred. No funding.
HB10	Develop Dredge Material Management Program to ensure adequate water depths necessary for safe navigation and emergency access.	In progress, along with the Army Corps of Engineers.
HB11	Fields Landing Terminal Berths.	Deferred. No funding.
HB12	Acquire and make available a floating emergency water delivery booster pump for fire protection.	Deferred. No funding.
HB13	Establish backup power sources for vulnerable infrastructure.	Deferred. No funding.
HB14	Establish a comprehensive dredging program to ensure that channels and marinas are maintained at safe depths for boating and shipping.	In progress, along with the Army Corps of Engineers.
HB15	Develop and implement protections for shoreline areas most vulnerable to tsunami and sea level rise impacts.	Deferred. No funding.
HB16	Improve fire suppression infrastructure (water pumps, generators, etc.) on the Humboldt Bay Samoa Peninsula.	Deferred. Part of the heavy lift terminal.

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12.5.2. Updated Mitigation Actions

Table 229: 2025 Mitigation Actions[18]

#	Action Description	Priority Score	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HB1	Replace dock float at Woodley Island Marina.	Low	HBHD	Sea level rise, tsunami	General fund	High (over $500,000)	Short-term (1–2 years)	Existing	No	No
HB2	Rebuild/retrofit Redwood Marine Terminal Berth 1.	Medium	HBHD	Sea level rise, tsunami	Heavy lift terminal funds	High (over $500,000)	Medium-term (3–5 years)	Existing	No	No
HB3	Rebuild dike in preparation for sea level rise.	High	HBHD	Sea level rise, tsunami	General fund, HMGP	Medium ($100,000-$500,000)	Medium-term (3–5 years)	Existing	Yes	Yes
HB4	Retrofit breakwater at Woodley Island Marina.	Low	HBHD	Sea level rise, tsunami	General fund, HMGP	Medium ($100,000-$500,000)	Short-term (1–2 years)	Existing	No	No
HB5	Retrofit work dock at Woodley Island Marina.	Low	HBHD	Sea level rise, tsunami	General fund, HMGP	Medium ($100,000-$500,000)	Short-term (1–2 years)	Existing	No	No
HB6	Retrofit breakwater at Shelter Cove.	Medium	HBHD	Sea level rise, tsunami	General fund, HMGP	High (over $500,000)	Short-term (1–2 years)	Existing	No	No
HB7	Install floating breakwater on east end of Woodley Island Marina.	Low	HBHD	Sea level rise, tsunami	General fund, HMGP	Medium ($100,000-$500,000)	Short-term (1–2 years)	Existing	No	No

[18] HBHD: Humboldt Bay Harbor District, HMGP: Hazard Mitigation Grant Program

#	Action Description	Priority Score	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HB8	Develop standard specifications for levee repair/rehabilitation to minimize breaching and overtopping	High	HBHD	Sea level rise, tsunami	General fund, HMGP	Medium ($100,000-$500,000)	Medium-term (3–5 years)	Existing	Yes	Yes
HB9	Field Landing Terminal Berths.	Low	HBHD	Sea level rise, tsunami	Heavy lift terminal funds	High (over $500,000)	Medium-term (3–5 years)	Existing	No	No
HB10	Acquire and make available a floating emergency water delivery booster pump for fire protection.	High	HBHD	Drought, wildfire	General fund	Low(less than $100,000)	Short-term (1–2 years)	New	No	No
HB11	Establish backup power sources for vulnerable infrastructure.	Medium	HBHD	All hazards	General fund, HMGP	Medium ($100,000-$500,000)	Medium-term (3–5 years)	New	No	No
HB12	Develop and implement protections for shoreline areas most vulnerable to tsunami and sea level rise impacts.	High	HBHD	Sea level rise, tsunami	General fund, HMGP	Medium ($100,000-$500,000)	Medium-term (3–5 years)	New	No	No
HB13	Improve fire suppression infrastructure (water pumps, generators, etc.) on the Humboldt Bay Samoa Peninsula.	High	HBHD	Drought, wildfire	General fund, HMGP	High (over $500,000)	Short-term (1–2 years)	Both	No	Water Systems, Safety and Security
HB14	Rebuild/retrofit Redwood Marine Terminal Berth 2.	Medium	HBHD	Sea level rise, tsunami	Heavy lift terminal funds	High (over $500,000)	Medium-term (3–5 years)	Existing	No	No
HB15	Retrofit the marine outfall line anchoring at the old pulp mill.	Low	HBHD	Dam failure, earthquake, tsunami	General fund, HMGP	High (over $500,000)	Short-term (1–2 years)	Existing	No	No

#	Action Description	Priority Score	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
HB16	Adopt all countywide mitigation actions.	High	HBHD	All hazards	HMGP, general fund	$150,000	Medium-term (3–5 years)	Both	Yes	All

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13. Humboldt Bay Municipal Water District Annex

This section presents the jurisdictional annex for the Humboldt Bay Municipal Water District (HBMWD). The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The HBMWD did not identify any new priorities for this plan update.

13.1. Planning Process

13.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including HBMWD, the stakeholders and the public. The HBMWD was represented during the planning process by the following individuals listed in Table 230.

Table 230: Humboldt Bay Municipal Water District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Contessa Dickson	Executive Assistant/ Board Secretary	HBMWD	contessa@hbmwd.com
Michiko Mares	General Manager	HBMWD	gm@hbmwd.com

13.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 231. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 231: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Richard Hanger	General Manager	Fieldbrook Glendale Community Services District	GM@fgcsd.org	1. Local and regional agencies involved in hazard mitigation activities
Caitlin Canale	District Manager	Ruth Lake CSD	Ruthlakecsd@yahoo.com	3. Neighboring communities, including special districts
Philip Simi	Emergency Operations Manager	Trinity County OES	Oes@trinitycounty.org	1. Local and regional agencies involved in hazard mitigation activities
Melony Higgins	STVFD Fire Chief	Southern Trinity County Volunteer Fire Department	Trvfdmel@gmail.com	1. Local and regional agencies involved in hazard mitigation activities
Brook Entsminger	Coordinator	Southern Trinity Area Rescue Emergency Medical Services	Bjohnston@sthsclinic.org	1. Local and regional agencies involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture (USDA)	Kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Tim Saxon	Trinity Sheriff	Trinity County	Tsaxon@trinitycounty.org	1. Local and regional agencies involved in hazard mitigation activities

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Amanda Mager	City Manager	City of Blue Lake	citymanager@bluelake.ca.gov	3. Neighboring communities, including special districts
Terrence Williams	General Manager	Humboldt County CSD	twilliams@humboldtcsd.org	3. Neighboring communities, including special districts
Christopher Drop	General Manager	Manila CSD	Manilacsd1@sbcglobal.net	3. Neighboring communities, including special districts
Pat Kaspari	General Manager	McKinleyville CSD	pkaspari@mckinleyvillecsd.com	3. Neighboring communities, including special districts
Miles Slattery	City Manager	City of Eureka	mslattery@ci.eureka.ca.gov	3. Neighboring communities, including special districts
Merritt Perry	City Manager	City of Arcata	citymgr@cityofarcata.org	3. Neighboring communities, including special districts
Anita Huff	OES Director	Blue Lake Rancheria Tribe	AHuff@bluelakerancheria-nsn.gov	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Simon Knopf	American Red Cross	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

13.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 20 illustrates how the public was encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages.

The HBMWD utilized a variety of communication channels that are free and easily accessible such as Facebook and Instagram. The HBMWD posted flyers on its doors and on local ad boards, sent out mailers to all of its residential customers and posted the flyer on the district's website. The district included a flyer in all of its employees' paystubs.

Figure 20: Public Outreach Methods

The public survey received 618 responses from residents of Humboldt County. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and

community service districts) should be doing to reduce damage and disruption from natural hazard events?" most respondents indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply and wastewater, improvement of public infrastructure against potential impacts from climate change, restoration of the natural environment to absorb impacts from natural hazards and opportunities for training for the public to better respond to natural disasters. One example of Humboldt Bay Municipal Water District's efforts to incorporate public feedback into mitigation actions is the addition of mitigation action HBMWD4 – Conduct public awareness education regarding hazards affecting water supplies.

13.1.3.1.VULNERABLE POPULATION OUTREACH

Some HBMWD customers may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved customers may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities customers face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels. Figure 21 displays how the district advertised the survey specifically to vulnerable populations. Some outreach methods included resources such as Nextdoor and website newsflashes since these are more frequently used by underserved populations such as seniors.

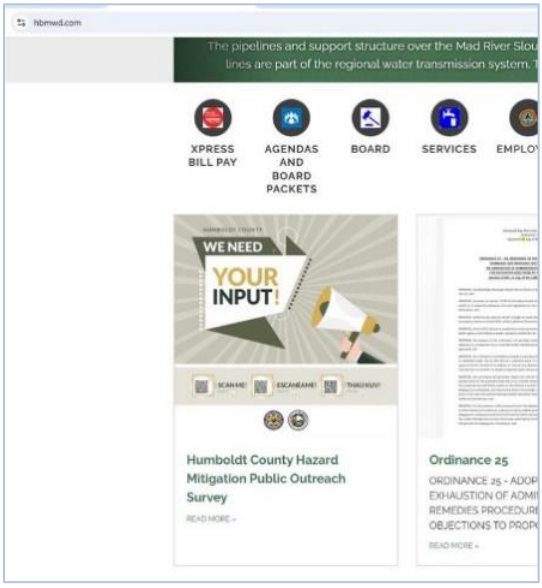

Figure 21: Public Outreach to Vulnerable Populations

13.1.4. Plan Integration

13.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 232.

Table 232: Previous Plan Integration for the Humboldt Bay Municipal Water District

Plan Name	Description
***None**	*N/A

*Minimal staff resources and funding have prevented the district from completing comprehensive condition, vulnerability and capacity assessments to support a robust and resilient capital improvement plan, which could have incorporated the hazard mitigation plan. Therefore, no plan integration occurred since the last plan update.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 233 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 233: Future Types of Plan Integration for the Humboldt Bay Municipal Water District

Type of Plan	Integration Method
Capital Improvement Plan	Staff are requesting a budget in FY27 (07/01/2026) to include development of a 25-year capital improvement plan which will include condition, vulnerability, and capacity assessments to inform the district for infrastructure investment priorities. These priorities will be used to develop a budget and funding strategy to support a robust and resilient 25-year capital improvement plan (CIP). The district will integrate the hazard mitigation plan, in particular the applicable mitigation actions, into the CIP.

13.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in

Table 234 and Table 235. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 234: Humboldt Bay Municipal Water District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 235: Humboldt Bay Municipal Water District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Medium	High	Medium	High	High
Drought	Low	Low	Low	Low	Low
Earthquake	High	High	High	High	High
Extreme Heat	Medium	Medium	Low	Low	Medium
Extreme Cold	Medium	Medium	Low	Low	Medium
Flooding	High	Medium	Medium	Med	High
Landslide	High	Medium	Low	Low	Medium
Tsunami	Medium	Medium	Medium	High	Medium
Wildfire	High	Low	Low	Medium	Medium

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Wind	High	Medium	Low	Low	Medium
Winter Weather	Medium	Low	Low	Low	Low

Note: The process used to assign risk rankings is described in Volume 1.

13.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the HBMWD. Other hazard events that broadly affected the entire planning area, including the HBMWD, are listed in the risk assessments in Volume 1.

13.2.1.1. HISTORICAL EVENTS

No storm events have occurred in HBMWD from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for Environmental Information (NCEI). The NCEI database does not always capture localized hazard data. To address this gap, the HBMWD has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- **Jan. 1, 2023:** Earthquake caused waterline break; no claim filed – expenses covered with emergency maintenance funds. A district water pipeline broke on Bay Street.

EXTREME HEAT

- No events have occurred for this hazard.

EXTREME COLD

- No events have occurred for this hazard.

FLOODING

- **Nov. 19–24, 2024**: Ruth Lake, the primary reservoir for the HBMWD, surged over its capacity following a major rain event that brought over 16 inches of rainfall to the Ruth area. Despite this overflow, the lake still had an additional 19 feet of spillway capacity, ensuring no immediate flood risk.
- **March, 2019:** Collector 4 parking lot erosion and erosion under pipeline from Collector 4, requiring rip-rap repair.

LANDSLIDE

- **March, 2019:** Cable Car 2 shed slid down the hill.

TSUNAMI

- No events have occurred for this hazard.

WILDFIRE

- **August–November, 2020:**
  - **Damage**: Destruction of district infrastructure at Ruth Lake Headquarters (HQ). Destruction of power supply to hydro plant. Destruction of lease lot holder's personal property on district property. Destruction of all vegetation in the headwaters of Mad River and surrounding Ruth Lake.

Impacts: Significant debris/sediment infill at top of lake and all tributaries into the lake. Rebuilt district infrastructure (potable water supply, supervisory control and data acquisition [SCADA] power at hydro plant). Facilitated large-scale hazardous debris removal, large-scale erosion control and large-scale shoreline debris removal. Implemented additional fire fuel reduction from unburned areas to reduce further risk. Reforestation is ongoing. Sediment and debris infill concerns are ongoing.

  - **FEMA DR-4558:** CAL FIRE Fuel Reduction funding; CAL FIRE Healthy Forest funding; insurance (fencing).

WIND

- **Jan. 13, 2024:** Wind and high water caused trees to fall and hit power lines in the vicinity of Park 4.

WINTER WEATHER

- **December, 2022–February, 2023:** Power lines were downed, creating power loss at the Turbidity Reduction Facility.
  - **Impact:** Large rental generators were required to deliver drinking water to local municipalities.

13.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 236 provides information on a few key vulnerabilities and impacts on the district .

Table 236: Humboldt Bay Municipal Water District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* R. W. Matthews Dam forms Ruth Lake in southern Trinity County. HBMWD Ruth Reservoir and the Mad River watershed–critical facilities located downstream from Matthews Dam—are vulnerable to flooding from dam failure. Some HBMWD infrastructure may be vulnerable to flooding from dam failure. HBMWD underground infrastructure in inundation zones is vulnerable to flooding from dam failure. HBMWD customers may experience prolonged disruptions to water distribution from dam failure flooding. *Impacts:* Dam failure could cause loss of life of HBMWD employees, disruption of the HBMWD water supply, loss of revenue and potential property damage to HBMWD critical underground infrastructure.
Drought	*Vulnerabilities:* HBMWD provides drinking water from the Mad River through its pipeline system to the cities of Arcata, Blue Lake and Eureka and the Community Services Districts of Manila, McKinleyville and Fieldbrook Glendale. All critical systems in the HBMWD service area that rely on sources for operations are vulnerable to drought. Also, HBMWD customers that rely on available local water supplies for hydration may become vulnerable to health and hygiene risks. HBMWD drinking water is drawn from Ranney wells located in the Mad River northeast of Arcata, from the sand and gravel of the aquifer under the riverbed at depths of 60 to 90 feet. For extended drought, water rationing could be imposed. HBMWD customers may be vulnerable to water restrictions during drought under reduced well production, or wells may go dry. *Impacts:* Drought events impact the water supply by reducing the water levels that could diminish firefighting efforts. In addition, a decline in the water supply can impact the CSD's ability to supply water to its customers. Any increase in water usage during drought conditions could lead to water restrictions and rationing.
Earthquake	*Vulnerabilities:* All unreinforced structures in the HBMWD service area are vulnerable to major earthquake damage. HBMWD critical infrastructure in the aquifer under the riverbed at depths of 60 to 90 feet and critical facilities such as the Regional Turbidity Reduction Facility—which is an unreinforced structure—are vulnerable to earthquake damage. HBMWD aquifers located below the bed of the

Hazard	Vulnerabilities and Impacts
	Mad River HBMWD and two water distribution pipelines and support structure over the Mad River Slough are vulnerable to seismic activity. The HBMWD's 59 year old water systems that supply water for public health and firefighting to residents and businesses on the Samoa Peninsula and the Humboldt Community Services District are vulnerable to seismic activity. *Impacts:* Earthquake events impact the water distribution and water treatment systems' ability to provide critical services to HBMWD customers. Also the HBMWD may face extensive costs to restore critical facilities and loss of revenue from prolonged service disruptions. Employees of the HBMWD risk potential loss of life during repair activities post-earthquake events or from aftershocks.
Extreme Cold	*Vulnerabilities:* HBMWD critical infrastructure that lacks proper weatherproofing is vulnerable extreme cold. Although temperatures seldom drop below freezing along the Mad River, infrastructure in this area could be at risk. Pipes connecting the public to HBMWD's facilities are at risk. HBMWD customers across the Humboldt Bay area are vulnerable to service disruptions from extreme cold events. Low-income populations and people with mobility concerns may be at increased risk due to difficulties in responding to a broken water pipe. *Impacts:* Extreme cold can freeze HBMWD underground infrastructure and facility equipment, resulting in frozen pipes and water main bursts that could lead to expensive repair and replacement costs and prolonged service disruption. Extreme cold can also cause icy roadways, making them inaccessible for water service delivery. Extreme cold can burst water main pipes and put a stress on the local electrical grid causing water service disruptions and impacting the water supply levels from increases in customer demand. Also HBMWD may be impacted from a loss of revenue during prolonged service disruptions during power outages. People can face financial losses and lack of water during service disruptions.
Extreme Heat	*Vulnerabilities:* HBMWD critical infrastructure that lacks proper weatherproofing or is reliant on electricity is vulnerable extreme heat. HBMWD customers are vulnerable to service disruptions from extreme heat events. People including employees of the district are vulnerable to heat-related illness from prolonged exposure to high temperatures. *Impacts:* Extreme heat can lead to increased demand on HBMWD water services. Extreme heat can also cause roadways to warp, making them inaccessible for water service delivery. Extreme heat can put a stress on the local electrical grid causing water service disruptions and

Hazard	Vulnerabilities and Impacts
	impacting the water supply levels from increases in customer demand. Also, HBMWD may be impacted by a loss of revenue during prolonged service disruptions during power outages.
Flooding	*Vulnerabilities:* The HBMWD operates facilities on the Mad River watershed and the Ruth Reservoir, making it vulnerable to flood events. Much of the HBMWD treatment and distribution system is around 59 years old and vulnerable to major damage from flooding events. CSD employees are vulnerable to fatalities and loss of life during flooding response efforts. All HMMWD customers are vulnerable to service disruptions in the event of flooding to critical infrastructure. All HBMWD critical infrastructure (channels, culverts and storm sewers) in Zone A or Zone AE SFHAs would be vulnerable to flooding. *Impacts:* Flood events can impact the water supply, potentially leading to contamination, and may also damage critical facilities and equipment, resulting in CSD revenue loss during prolonged service disruptions. Depending on the extent of the event, the public could experience public health concerns.
Landslide	*Vulnerabilities:* In landslide-susceptible parts of the HBMWD service area, all HBMWD operations are vulnerable to landslide damage to critical facility infrastructure. HBMWD customers may be vulnerable to prolonged service disruption in impacted service areas throughout Humboldt County including the population of communities like Arcata, Eureka, and Blue Lake. Transmission systems crossing the county bringing treated drinking water or untreated surface water to customers may be affected. *Impacts:* Landslide events can damage the HBMWD's water distribution and waste treatment systems. Extensive and expensive repair costs can impact the HBMWD financially and result in a loss of revenue during prolonged service disruptions for its customers. The public can experience economic losses and potentially public health concerns depending on the extent of the event.
Tsunami	*Vulnerabilities:* While most of HBMWD's infrastructure is not vulnerable to tsunamis, the transmission system, which delivers water to Manila CSD, is directly in the tsunami hazard zone as mapped by the California Geological Survey. People that rely on HBMWD service that live along the coast, like residents of Manila, western Arcata, and western Eureka are all vulnerable to prolonged service disruption from tsunami-related flooding stemming from damages to water infrastructure.

Hazard	Vulnerabilities and Impacts
	Impacts: Under a large tsunami the transmission system to Manila CSD could be destroyed making water delivery difficult until repairs could be made. Residents of Manila could have trouble accessing potable water during the service disruption. Although transmission to other parts of the HBMWD would likely be unharmed other coastal residents including in eastern Arcata and eastern Eureka could experience damage to their local water system, reducing their access to potable water as well. This lack of access to clean water could lead to public health impacts.
Wildfire	*Vulnerabilities:* Most of the people in HBMWD's service area are in a moderate wildfire severity zone. This includes southern Eureka, Freshwater, eastern Arcata, and Riverside, among others. These people are at risk of loss of life or property from wildfires as well as water service disruptions. HBMWD customers in wildfire risk zones are vulnerable to water service disruption from prolonged power outages during planned power safety shutoffs. Also, the HBMWD water supply is vulnerable to increased demand during wildfire events. HBMWD critical facilities in wildfire risk zones also are vulnerable to wildfire damage. Customers of HBMWD are vulnerable to prolonged service disruption during wildfire events. *Impacts:* Wildfire events can cause extensive damage to HBMWD critical infrastructure and loss of revenue from prolonged service disruptions. Firefighting efforts make an increase demand on HBMWD water system, impacting the water supply levels. People in HBMWD's service area could be directly impacted by wildfires including loss of life or property. They could also be impacted by prolonged service disruptions that limit access to water services due to damaged or inaccessible infrastructure, creating public health concerns and financial losses. These areas include southern Eureka, Freshwater, eastern Arcata, and Riverside, among others.
Wind	*Vulnerabilities:* People in HBMWD's district are vulnerable to loss power, injury, and damage to property from falling trees caused by high winds. While the whole county is vulnerable to high winds, houses and infrastructure near wooded areas like Arcata Community Forest are at higher risk to falling trees. HBMWD employees conducting repair activities during strong wind events are also vulnerable to injury or fatalities from downed trees and power lines. In addition, HBMWD may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. HBMWD critical facilities are vulnerable to damage from strong winds. Water infrastructure,

Hazard	Vulnerabilities and Impacts
	including diversion, pumping and control facilities on the Mad River near Arcata, that rely on electricity is particularly vulnerable. *Impacts:* People in HBMWD that live near forested areas like in eastern Arcata and southern Eureka, could be impacted by falling trees including injury, death, or damaged property. Severe wind events impact the ability of the HBMWD's water distribution and water treatment systems to provide services to its customers in service areas affected by severe wind preventative measures. Severe wind damage could impact the HBMWD's pump and control station in the Mad River. Falling trees or downed powerlines could halt operations causing a disruption in service. Flying debris can make roads inaccessible during water delivery and damage critical facilities, prolonging service disruptions. People may be injured.
Winter Weather	*Vulnerabilities:* HBMWD critical infrastructure and facilities lacking proper weatherization are vulnerable to extreme winter weather events. Unreinforced roofs on HBMWD critical facilities are vulnerable to collapse from snow piles during blizzards and heavy snow. Water delivery to HBMWD customers may be delayed when roads are inaccessible. People in HBMWD's service area are vulnerable to frozen and burst pipes during extreme cold snaps, which could leave them without water and flooding in their homes. This is particularly true in communities inland that do not benefit from the temperate effects of the Pacific Ocean, Arcata Bay, or Humboldt Bay. These include the communities of Freshwater, Blue Lake, Riverside, and Korbel. *Impacts:* Winter weather events impact the delivery of potable water to HBMWD customers and impact water treatment systems from prolonged power outages. They can also damage critical facilities and restrict road access to HBMWD facilities. Employees may also be injured during a winter weather event. People in HBMWD's service area with burst pipes could face damage to their homes from flooding, incur the cost of repair, and go for days without potable tap water until their pipes can be repaired.

13.2.2.1. DEVELOPMENT CHANGES

Table 237 summarizes development trends in the HBMWD since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 237: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	None	None	None
Commercial	None	None	None
Industrial	None	None	None

13.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The HBMWD performed an assessment of its existing capabilities for implementing hazard mitigation actions. HBMWD intends to use the assessment to identify and address gaps in capabilities, and it will support the update in the next LHMP. The capability assessment was evaluated using a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

13.3.1. Planning and Regulatory Capabilities

Table 238 and Table 239 summarize the HBMWD's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Land uses in the district are currently subject to the Humboldt County General Plan, Humboldt Bay Municipal Water District Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Humboldt Bay Municipal Water District operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 238: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	A section could be added to the CIP, identifying natural hazards and proposed mitigation actions to be included in the project scope of work.	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	Yes	The local emergency operations plan should identify natural hazards and mitigation actions to be implemented.	Last Update: 02/2024 Next Update: 02/2025
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A
Flood Contingency Plan	Yes	Identify areas of concern.	Last Update: Dec. 4, 2012

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Humboldt County Dam Failure Contingency Plan	Yes	Identify vulnerabilities in the dams.	Last Update: June, 2016
Emergency Action Plan	Yes	Identify vulnerabilities in the dams.	Last Update: 2010

Table 239: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

13.3.2. Administrative and Technical Capabilities

Table 240 and Table 241 summarize the HBMWD's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 240: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 241: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
GIS	Yes	GIS was used to document infrastructure inspections; however, it did not meet the photo documentation requirements for ongoing inspection documentation.	GIS can be used to identify critical system components for redundancy, rate of failure, condition and so on.
Mutual Aid Agreements	Yes	Collaboration	Ongoing collaboration

13.3.3. Financial Capabilities

Table 242 summarizes the HBMWD's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 242: Financial Capabilities

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Seismic retrofits, moving critical assets out of flood zones, critical infrastructure resiliency	Yes	Yes
General Funds	Yes	No	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A

Funding Resource	Used? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	No	No	No
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

13.3.4. Education and Outreach Capabilities

Table 243 summarizes the HBMWD's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 243: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	Public board meetings held every month
Emergency Management Listserv	No	N/A	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	Notifies customers of hazard mitigation plan survey, public review period and mitigation projects	None

13.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 244. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 244: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	N/A
Administrative and Technical	GIS Coordinator
Financial	More funding to be able to fulfill a grant writer position
Education and Outreach	N/A

13.4. National Flood Insurance Program

The HBMWD is not required to participate in the NFIP program because, as a special district, it does not have the authority to do so. However, a flooding event might result in the loss of potable water infrastructure, which would impact fire services, hydration and public health. Infrastructure vulnerable to flood includes collectors, pipelines and pump stations.

13.5. Mitigation Strategy

The HBMWD has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 245, while new mitigation action items and those carried forward from the previous plan are in Table 246.

13.5.1. Previous Mitigation Actions

Table 245: Previous Mitigation Actions

Mitigation Action	Description	Status
HBMWD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Carry forward
HBMWD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Carry forward
HBMWD3	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including booster stations.	Carry forward: Ruth Lake HQ and cabin complete, turbidity reduction facility is in progress, and booster stations are still in need.
HBMWD4	Conduct public awareness education regarding hazards affecting water supplies.	Carry forward
HBMWD5	Conduct design and feasibility studies for construction of critical infrastructure/facilities.	Carry forward
HBMWD6	Replace critical isolation valves on the domestic transmission system (one from Collectors 1, 3 and 4 and one from Collector 2).	Carry forward: Collector 4 complete, and Collector 1 is part of the Mainline Redundancy project. Collectors 2 and 3 remaining and still in need.
HBMWD7	Install cutout disconnects on district's 12-kV (kilovolt) electric distribution system to isolate outages and improve water supply reliability.	Remove: No longer relevant
HBMWD8	Install an emergency supply connection to the collector system at Essex (to access raw collector water in an emergency that damages the transmission system).	Completed
HBMWD9	Replace the laterals and pumps/motors in Ranney Collectors 2 or 4.	Carry forward: Complete for Collectors 2 and ongoing for Collector 4.

Mitigation Action	Description	Status
HBMWD10	Replace the transformers on Collectors 1 and 4.	Carry forward: Complete for Collector 1; Collector 4 will be completed in 2025.
HBMWD11	Remove the existing surge tower and replace it with alternate surge protection on the industrial water system on Samoa Peninsula (to protect domestic water supply).	Completed
HBMWD12	Replace or retrofit the Mad River Slough single pipeline crossing.	Carry forward
HBMWD13	Retrofit or replace the spillway wall at R. W. Matthews Dam.	Carry forward
HBMWD14	Relocate the 12kV switchgear outside the floodplain.	Completed
HBMWD15	Implement collector mainline redundancy.	Carry forward: Investigation and design in progress
HBMWD16	Complete a reservoir seismic retrofit for three reservoirs.	Carry forward: Construction in progress
HBMWD17	Conduct a Matthews Dam spillway retrofit.	Carry forward: Investigation and design in progress
HBMWD18	Install a chlorine scrubber for the Essex location.	Delete: The onsite hypochlorite system will replace the chlorine gas system.
HBMWD19	Provide an emergency generator for the Turbidity Reduction Facility.	Carry forward: Construction in progress
HBMWD20	Establish a turbidity reduction facility emergency operations center.	Carry forward
HBMWD21	Replace the sand dunes covering the water mainline on the Samoa Peninsula.	Carry forward
HBMWD22	Continue to support countywide initiatives identified in this plan.	Carry forward

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13.5.2. Updated Mitigation Actions

Table 246: 2025 Mitigation Actions[19]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBMWD 1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Medium	HBMWD	Earthquake, floods, landslide, tsunami, wildfire	HMGP, PDM, FMA	$1,000,000	Existing	Short-term	Yes	Safety and Security
HBMWD 2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	Staff time, general funds	$5,000	New	Short-term	Yes	All
HBMWD 3	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including booster stations.	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, district funds	$10,000,000	New	Short-term	Yes	All

[19] FMA: Flood Mitigation Assistance, HBMWD: Humboldt Bay Municipal Water District, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBMWD 4	Conduct public awareness education regarding hazards affecting water supplies.	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	District funds	$5,000	Existing	Ongoing	Yes	All
HBMWD 5	Conduct design and feasibility studies for the construction of critical infrastructure/facilities.	Medium	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	District funds	$500,000	Existing	Ongoing	No	All
HBMWD 6	Replace critical isolation valves on the domestic transmission system (one from Collectors 1, 3 and one from Collector 2).	Medium	HBMWD	Earthquakes, floods	District funds	$100,000	Existing	Short-term	No	All
HBMWD 7	Harden Collector 4 to protect it from erosion.	Medium	HBMWD	Flood, dam failure	HMGP, district funds	$300,00	Existing	Long-term	No	Water Systems, Energy
HBMWD 8	Relocate and retrofit the 2MW generator at Essex.	High	HBMWD	Flood, dam failure	HMGP, district funds	$2,000,000	Existing	Short-term	Yes	Water Systems, Energy
HBMWD 9	Replace the laterals and pumps/motors in Ranney Collector 4.	High	HBMWD	Earthquakes	District funds	$4,000,000	Existing	Long-term	No	Water Systems, Energy
HBMWD 10	Replace the transformers on Collector 4.	High	HBMWD	Earthquakes	District funds	$400,000	Existing	Long-term	No	Water Systems, Energy
HBMWD 11	Complete a sea-level rise vulnerability assessment for facilities and infrastructure.	High	HBMWD	Wind, winter weather, floods, tsunami	HMGP, district funds	$100,000	Existing	Short-term	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBMWD 12	Replace or retrofit the Mad River slough single pipeline crossing.	High	HBMWD	Earthquake, floods, dam failure, drought, tsunami, wildfire, wind, winter weather	District funds	$2,000,000	Existing	Long-term	Yes	Water Systems, Energy
HBMWD 13	Retrofit or replace the spillway wall at R. W. Matthews Dam.	High	HBMWD	Earthquake, dam failure, drought	HMGP, district funds	$250,000,000	Existing	Long-term	No	Energy, Water Systems
HBMWD 14	Harden the Samoa booster pump stations.	Medium	HBMWD	Floods, dam failure, drought, tsunami, wildfire, wind, winter weather	HMGP, district funds	$150,000	Existing	Long-term	No	Energy, Water Systems
HBMWD 15	Implement collector mainline redundancy.	Medium	HBMWD	Earthquake	HMGP, district funds	$5,000,000	New	Long-term	No	Energy, Water Systems
HBMWD 16	Complete a reservoir seismic retrofit for three reservoirs.	Medium	HBMWD	Earthquake	HMGP, district funds	$7,000,000	Existing	Long-term	No	Water Systems, Safety and Security
HBMWD 17	Conduct a Matthews Dam spillway retrofit.	Medium	HBMWD	Earthquake, dam failure	HMGP, district funds	$25,000,000	Existing	Long-term	No	Water Systems, Safety and Security
HBMWD 18	Complete condition and vulnerability assessments for Mad River Slough Crossings.	Medium	HBMWD	Earthquake, floods, drought, tsunami, wildfire, wind, winter weather	HMGP, district funds	$125,000	Existing	Long-term	Yes	All
HBMWD 19	Provide an emergency generator for the Turbidity Reduction Facility.	Medium	HBMWD	Earthquake, floods, drought, wildfire, wind, winter weather	HMGP, district funds	$2,000,000	New	Short-term	Yes	Energy, Water Systems
HBMWD 20	Establish a turbidity reduction facility emergency operations center.	Medium	HBMWD	Floods, dam failure	District funds	$10,000,000	New	Long-term	No	Energy, Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBMWD 21	Replace the sand dunes covering the water mainline on the Samoa Peninsula.	Medium	HBMWD	Earthquake, tsunami, floods, drought, wildfire, wind, winter weather	HMGP, district funds	$500,000	Existing	Long-term	Yes	Water Systems
HBMWD 22	Continue to support countywide initiatives identified in this plan.	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	HMGP, district funds	$100,000	Both	Short-term and ongoing	Yes	All
HBMWD 23	Prepare a debris management plan for critical facilities and infrastructure.	High	HBMWD	Earthquake, floods, dam failure, drought, landslide, tsunami, wildfire, wind, winter weather	District funds	$25,000	Existing	Short-term	Yes	All
HBMWD 24	Mitigate the landslide on the left abutment of R. W. Matthews Dam.	Medium	HBMWD	Dam Failure, landslide, floods	District funds	$10,000,000	Existing	Long-term	No	Safety and Security
HBMWD 25	Stabilize the hillside behind 1 MG Korblex tank.	Medium	HBMWD	Wind, winter weather, floods	District funds	$500,000	Existing	Long-term	No	Safety and Security
HBMWD 26	Develop a regional water supply resilience plan in coordination with all customers.	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	HMGP, district funds	$300,000	Both	Short-term	Yes	All
HBMWD 27	Implementation of Regional Water Supply Resiliency Infrastructure Project	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, district funds	$50,000,000	Both	Long-term	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HBMWD28	Construct an additional potable water storage reservoir	High	HBMWD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	HMGP, district funds	$200,000	New	Long-term	Yes	Water Systems

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14. Humboldt Community Services District Annex

This section presents the jurisdictional annex for the Humboldt Community Services District (HCSD). The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The district's priorities have changed since the last plan update. Since the previous LHMP was published, the district has gone through a significant turnover in staff and board members. Several projects that were de-prioritized and removed from the list for the 2020 LHMP were re-prioritized by the district and completed, placed back on the priority list for completion or re-added to longer term Hazard Mitigation Planning for potential grant funding. These include the following:

- HCSD-1—Retrofit Tanks. Four tanks have been retrofitted and rehabilitated; the other six more are scheduled.
- HCSD-8 – Develop and implement a plan to pump water for H.H. system to remainder of District. This project was included in District's plans for source resiliency in the 2025 LHMP and supports regional source water resiliency efforts.
- HCSD-11 – Donna Drive pump house rehabilitation included in District's priority plans going forward.
- HCSD-13 – Pine Hill SLS rebuild. This has been partially completed through emergency work. Additional work is necessary and has been scheduled and prioritized.
- HCSD-14 – Truesdale pump upgrade. This project has been initiated as a multi-year effort and is expected to be completed during FY-2026-27.

There have been several earthquakes on the North Coast that have caused significant damage to utilities including HCSD facilities. Additionally, there have been several significant severe weather storm events that have caused damage or otherwise disabled or rendered HCSD infrastructure inoperable. HCSD is currently focused on mitigating hazards associated with seismic activity, severe weather and flooding because these are our largest vulnerabilities. HCSD is also focused on mitigating failures of regional infrastructure (HBMWD dam/reservoir, transmission mains and wells; City of Eureka Waste Water Treatment Plant) through studies (Regional Source Water Resiliency Plan, Regional Wastewater Capacity Resiliency Plan) and associated infrastructure projects.

14.1. Planning Process

14.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including

the HCSD, the stakeholders and the public. The HCSD was represented during the planning process by the following individuals listed in Table 247.

Table 247: Humboldt Community Services District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Terrence Williams	General Manager	HCSD	twilliams@humboldtcsd.org
Robert Christensen	Board Secretary/ Administrative Services	HCSD	asm@humboldtcsd.org
Brian McNeill	Utility Services Planner	HCSD	bmcneill@humboldtcsd.org
Michael Montag	Finance Manager	HCSD	fm@humboldtcsd.org
Kush Rawal	Assistant Engineer	HCSD	krawal@humboldtcsd.org

14.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 248. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 248: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Michiko Mares	General Manager	HBMWD	gm@hbmwd.com	1. Local and regional agencies involved in hazard mitigation activities
Kelly Allen	Public Works Director	City of Eureka	kallen@eurekaca.gov	2. Agencies that have the authority to regulate development

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

14.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. Figure 22 illustrates how the public was encouraged to participate in the survey. The HCSD utilized a variety of communications channels to share the survey including the website for customers to see when accessing.

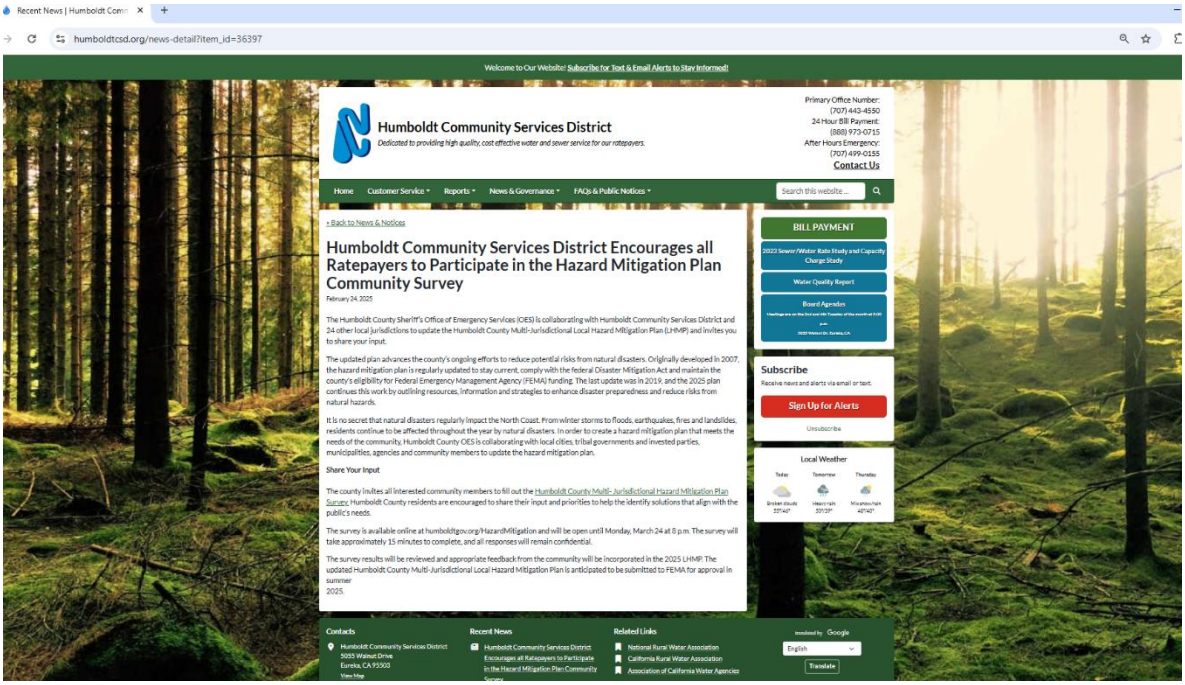

Figure 22: Public Outreach Methods

Public feedback was incorporated into the Humboldt Community Services District's risk assessment, and it directly informed the development of updated mitigation actions. Residents were invited during the public outreach process to participate in a bilingual survey, which was promoted through local partners such as Food for People and the Jefferson Center and the district's website. Residents emphasized the need for more-accessible public education on hazard risks, improved preparedness for power outages and enhanced system redundancies to ensure continuity of essential services. These concerns were reviewed during the Mitigation Action Workshop and are reflected in the mitigation strategy outlined in this plan update.

14.1.3.1. VULNERABLE POPULATION OUTREACH

Some district residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in HCSD might have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update developed a bilingual public survey to identify ways to support, enhance and broaden capacity and resilience at the individual and social network levels. Additional efforts were made through Julie Ryan at Food for People (https://www.foodforpeople.org/) and Heidi Benzonelli at the Jefferson Center (https://www.jefferson-project.org/), both of whom are board members for HCSD. The survey, along with a news item, is included on the district's website.

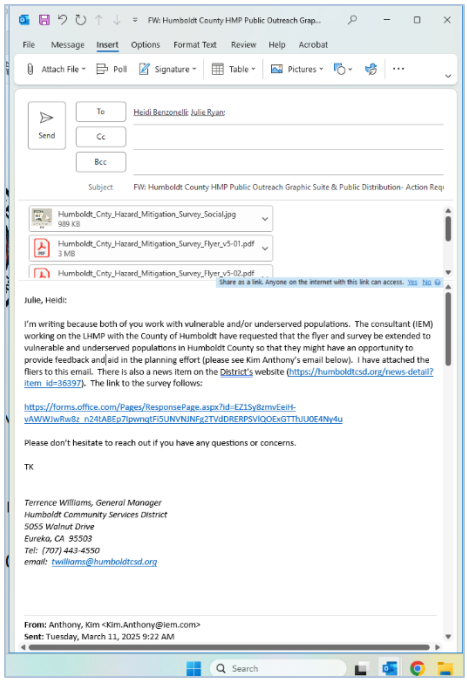

Figure 23: Vulnerable Population Outreach Methods

14.1.4. Plan Integration

14.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 249.

Table 249: Previous Plan Integration for the Humboldt Community Services District

Plan Name	Description
Local Emergency Response Plan	The district's local emergency response plan (ERP) is a comprehensive document that outlines the steps and procedures to ensure the safety, security, and restoration of essential water and wastewater services in the event of emergencies such as natural disasters, accidents or threats to water supply. The plan helps the district maintain the delivery of potable water and wastewater services, minimize disruptions and protect public health.

Plan Name	Description
Sanitary Sewer Management Plan	A sanitary sewer management plan is a strategy to effectively manage and maintain the infrastructure used to transport wastewater (e.g., from homes, businesses, and industries) to treatment facilities. The plan outlines procedures for: • **System Design and Capacity:** Ensuring the sewer system can handle current and future demand, including design specifications and capacity planning. • **Maintenance:** Regular inspections, cleaning and repair of sewer lines and equipment to prevent blockages and failures. • **Monitoring and Compliance:** Tracking wastewater flow and quality, ensuring adherence to environmental regulations and standards. • **Emergency Response:** Preparing for and responding to emergencies like blockages, overflows or system failures. • **Sustainability:** Incorporating energy-efficient practices and minimizing environmental impact. This plan aims to ensure the system's reliability, prevent health hazards, and protect the environment.
Urban Water Management Plan and Water Shortage Contingency Plan	An urban water management plan is a strategic framework designed to efficiently manage water resources in urban areas. It focuses on ensuring sustainable water supply, improving water quality and managing wastewater. The plan includes measures for reducing water consumption, enhancing infrastructure for distribution, incorporating green infrastructure like rain gardens, promoting water recycling and preparing for future challenges such as climate change and population growth. It aims to balance environmental protection, cost-efficiency and the needs of the community.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 250 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 250: Future Types of Plan Integration for the Humboldt Community Services District

Type of Plan	Integration Method
Regional Drinking Water Resiliency Plan	The regional drinking water resiliency plan is a strategic framework designed to ensure a reliable and sustainable supply of safe drinking water in the face of various challenges. These challenges can include climate change, drought, infrastructure failures or contamination events. The plan involves: • **Assessment of Current Water Resources:** Identifying available water sources, infrastructure and usage patterns. • **Risk Analysis:** Identifying vulnerabilities and potential threats, such as extreme weather events or pollution risks. • **Mitigation Strategies:** Developing measures like improving water storage, diversifying water sources, improving pumping and transmission infrastructure or enhancing treatment processes. • **Emergency Preparedness:** Establishing protocols for responding to disruptions, ensuring quick restoration of water services. • **Collaboration and Governance:** Coordinating efforts across local governments, utilities and communities to strengthen regional water management. The goal is to enhance the system's ability to adapt to unforeseen events and maintain safe drinking water for the population in all circumstances.
Wastewater Capacity Resiliency Plan	This is a multiagency collaborative plan (similar to the Drinking Water Resiliency Plan described above. The current collaborations will be between City of Eureka and HCSD. Future collaborations will likely include the Peninsula CSD, Manila CSD and the Humboldt Bay Harbor District. Multiple small wastewater systems become inundated by flooding (extreme wet weather), tidal (sea level rise) and storm (wind-driven sea surge) events and the plan is intended to identify long term infrastructure solutions that will allow these entities to collaborate and share capacity to avoid environmental and physical damage during and after flooding events.

14.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 251 and Table 252. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 251: Humboldt Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	No	Highest recorded temperature was only 87 F
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 252: Humboldt Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	High	Low	High	Medium
Drought	Medium	High	Low	High	Medium
Earthquake	High	High	High	High	High
Extreme Cold	Medium	High	Medium	High	High
Flooding	High	High	High	High	High
Landslide	High	High	High	High	High

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Tsunami	High	High	High	High	High
Wildfire	Medium	Medium	Medium	High	Medium
Wind	High	High	High	High	High
Winter Weather	Medium	High	High	High	High

Note: The process used to assign risk rankings is described in Volume 1.

14.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the HCSD. Other hazard events that broadly affected the entire planning area, including the HCSD, are listed in the risk assessments in Volume 1.

14.2.1.1. HISTORICAL EVENTS

The NCEI database does not always capture localized hazard data for water districts. To address this gap, the HCSD has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- **2021, 2022 and 2024:** Property damage and disruption of services.

EXTREME COLD

- No events have occurred for this hazard.

FLOODING

- **December, 2019:** Property damage and disruption of services.

LANDSLIDE

- No events have occurred for this hazard.

TSUNAMI

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- **October, 2019:** Widespread power outages due to red flag fire conditions driven by wind.

WINTER WEATHER

- No events have occurred for this hazard.

14.2.2. Jurisdiction-Specific Vulnerabilities

Table 253 provides information on a few key vulnerabilities for the jurisdiction.

Table 253: Humboldt Community Services District Vulnerabilities

Hazard	Vulnerabilities
Dam Failure	*Vulnerabilities:* Failure of the Matthews Dam at the Ruth Reservoir would severely affect the drinking water supply for the region, including the entire population served by the district. Vulnerable populations would face an immediate loss of access to potable water and fire suppression capabilities. *Impacts:* A dam failure could damage critical infrastructure such as water mains, pump stations and storage tanks. Road closures or utility disruptions may isolate neighborhoods, delay emergency services and impair water delivery. Those directly downstream of a dam failure would face health risks including injuries and/or loss of life.

Hazard	Vulnerabilities
Drought	*Vulnerabilities:* Prolonged drought can impact source water supply and delivery. The District sources water from the Freshwater/Mitchell Road Zone, Ridgewood Zone, and district owned wells in the Humboldt Hill Zone which rely on the Eureka Plain Groundwater Basin near the Elk River. These areas are key district resources. Critical infrastructure, including water systems, are vulnerable to disruption if water cannot be sourced. HCSD customers are vulnerable to limited access to water services in the event of mandatory water restrictions due to low water levels. *Impacts:* Drought could effect the groundwater supply and surface water the district relies on. Pumping costs could increase. Drought may reduce the availability of water for household use, sanitation and fire suppression. Infrastructure stress and the need for mutual aid may increase, disproportionately affecting residents without backup resources. People may experience service disruptions.
Earthquake	*Vulnerabilities:* Earthquakes have the potential to cause significant damage to critical infrastructure as shaking can compromise essential buildings, utilities and lifelines. Vulnerable populations may experience power loss and be left without clean drinking water and reliable communications. *Impacts:* Earthquakes could damage pipelines, shut down lift stations and interrupt water and sewer services. Loss of access to basic services, especially in mobile home parks or low-income areas, would pose serious public health risks.
Extreme Cold	*Vulnerabilities:* Prolonged freezing conditions may damage water and sewer critical infrastructure leading to pipe bursts and system malfunctions. Pipes at risk cross the district's entire service area, connecting the district's water supply to customers. Vulnerable populations are at heightened risk of exposures, hypothermia and isolation. *Impacts:* Extreme cold may freeze water pipes, disrupting service or damaging homes and infrastructure. Power outages may disable pumps or sensors, exacerbating risks to vulnerable customers who depend on reliable water access.

Hazard	Vulnerabilities
Flooding	*Vulnerabilities:* Inundation can damage water and sewer infrastructure while delaying response crews and restricting the ability to restore service or provide emergency assistance. Low-lying and flood prone areas are especially susceptible placing residents and businesses at risk of prolonged disruption. Vulnerable populations are likely to face long-term health, sanitation and communication challenges. *Impacts:* Flooding can cause overflows at lift stations, sewer backups, contamination of water supply and power outages. Emergency repair efforts may be delayed by inundated access roads, disproportionately affecting households with limited mobility or resources.
Landslide	*Vulnerabilities:* Landslides present localized but significant risks to the district. Steep terrain and unstable slopes including along the Mad River can lead to ground movement that damages water lines, sewer systems and buried utilities. They may block critical roadways limiting access for repair crews and emergency responders. Individuals with limited mobility and those lacking alternative routes for evacuation are at higher risk. Staff responding to an event are also at risk. *Impacts:* Landslides can damage buried water/sewer lines, cut off utility access and make it difficult for repair crews to reach affected areas. Loss of road access increases response times and complicates recovery in hillside neighborhoods. People may be injured or killed.
Tsunami	*Vulnerabilities:* Coastal flooding may impair transportation routes and supply chains the district depends upon for operations. Prolonged power outages and communication failures could limit service delivery, delay repairs and hinder coordination with emergency management partners. People including customers and staff in the tsunami inundation areas such as along Humboldt Bay and the Mad River are at risk. Disadvantaged and underserved populations may lack the resources or knowledge to evacuate in time. *Impacts:* A tsunami could damage pipelines, water tanks, sewer lift stations and other critical systems. Disruptions to these services could be long-lasting and affect public health, particularly in low-lying residential zones.

Hazard	Vulnerabilities
Wildfire	*Vulnerabilities:* Almost the entirety of the HCSD is in the moderate fire severity zone delineated by Cal Fire. This means that under extreme fire conditions most of HCSD's water infrastructure, including 12 water boosting pump stations located throughout the district, are vulnerable to fire damage. The district is also vulnerable to overburden if too much water is needed for firefighting purposes. There are 5 million gallons of water storage capacity in the HCSD, but that can be overwhelmed by the demands of firefighters. Most people in HCSD's service area are at moderate risk to wildfires. Under extreme fire conditions these people are at risk of loss of water service, injury, death, or damage to property from wildfires. This is especially true for people with low mobility who may not be able to evacuate. *Impacts:* Damage to the 12 pumping stations throughout HCSD would cause severe disruptions in water service for all of the districts customers. The pumping stations would need to be repaired as well which would put a large financial burden on the district and its customers. Without water service people in HCSD's service area would be at risk of dehydration and other public health impacts. In general, under extreme fire conditions people in the district could be forced to evacuate the area and potentially have their property damaged by wildfire.
Wind	*Vulnerabilities:* High winds may down power lines, resulting in outages that affect the district's water pumping, wastewater treatment and communication systems. These critical infrastructure systems are key for timely delivery of services. Blocked roads from downed trees and power poles can further delay repair crews and emergency responders. People are vulnerable to wind-related damages and disruptions across the district's service areas. *Impacts:* Downed power lines and blocked roads may isolate communities and hinder access to critical infrastructure. Vulnerable populations may be left without reliable access to water, sewer or emergency communication during prolonged outages. Populations with medical needs or limited mobility may be especially affected by service interruptions.

Hazard	Vulnerabilities
Winter Weather	*Vulnerabilities:* Pipes across the district are vulnerable to winter weather including cold, wind, and ice. Residents in hillside areas are at higher risk of road closures and isolation during icy conditions. Roads that the district requires to access pipes and address emergency repairs may be affected by winter weather. *Impacts:* Icy conditions may freeze pipes, causing breaks and service loss. Road closures caused by ice, downed trees or blocked access routes may delay emergency responders and repair crews extending the duration of service interruptions. People can experience disruption of services. Access to remote lift stations may be delayed by road hazards, prolonging outages and service restoration, particularly in underserved areas. Vulnerable populations are at greater risk of isolation, health impacts and loss of essential services during extended winter weather events.

14.2.2.1. DEVELOPMENT CHANGES

Table 254 summarizes development trends in the HCSD since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 254: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	The district has experienced about 0.2% annual residential growth year over year for the past decade.	A 300+ unit subdivision is in the approval stages with the county. The developer expects this to take 20 years to build out.	No change
Commercial	Minimal	Very little	No change
Industrial	None	None planned	No change

14.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies,

programs and resources. The HCSD performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

14.3.1. Planning and Regulatory Capabilities

Table 255 and Table 256 summarize the HCSD's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The Humboldt Community Services district is a special district without land use authority or its own building code enforcement. It relies on Humboldt County (2022 California Building Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 255: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	N/A	N/A	N/A
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	Yes	The CIP is used to plan and budget for capital projects. Most mitigation actions are implemented as capital projects. The district continuously uses the CIP to plan for the implementation of mitigation actions.	Last Update: 06/2024 Next Update: 06/2025
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	N/A	N/A	N/A
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 256: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	yes	Yes – County Enforced Building Codes	N/A
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

14.3.2. Administrative and Technical Capabilities

Table 257 and Table 258 summarize the HCSD's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 257: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Non-Vacant	Yes	Yes	Yes
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 258: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Hazard data regarding unplanned power outages has helped prioritize at which sites to install standby generators.	Hazard data regarding flooding and sea level rise is informing the design for a containment berm or wall for a critical lift station. Hazard data regarding fire suppression will be used to determine the size of water storage and water transmission mains to serve a new development.
GIS	Yes	Reviewing flood maps and identifying critical infrastructure that is vulnerable and identifying elevations and retreat scenarios.	Reviewing fault lines that intersect with district infrastructure and identifying mitigation projects that will reduce vulnerability and risk
Mutual Aid Agreements	Yes	Mutual aid is used to access operators and equipment during emergencies and recovery efforts.	We work with our partners to identify regional projects that will mitigate hazards and vulnerabilities.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Water and Wastewater Operations	Yes	The district's certified operators are continuously monitoring and inspecting the district's infrastructure to identify potential hazards and failures and developing improvements to process and structure.	These skilled operators are continuously assessing and inspecting the district's systems and infrastructure for vulnerabilities and failure points. Staff have the tools and skills to implement operational and physical mitigations.

14.3.3. Financial Capabilities

Table 259 summarizes the HCSD 's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the CSD is important to determine the kinds of projects that are feasible given their cost.

Table 259: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	Yes	Yes Retrofit of facilities for a wide range of hazard mitigation actions including seismic concerns.	Yes	Yes
General Funds	Yes	Yes Retrofit/improvement of facilities for a wide range of reasons.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Mitigation actions as identified in Table 262 and Table 263.	Yes	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Building Resilient Infrastructure and Communities (BRIC)	Yes, but have not been approved.	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Yes. Flood hardening. Seismic retrofitting. Standby generators. Monitoring, data logging and fault altering equipment. Seismic isolation valves. Increased water storage for drinking water and fire suppression. Hydrants. Inspection equipment, including CCTV for internal pipe inspections. Sea level rise adaptation.	Yes	Yes
Stormwater Utility Fee	No	NA	NA	NA

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes. Retrofit upgrade and implementation of facilities for a wide range of hazard mitigation actions including seismic concerns.	N/A	N/A
Impact Fees from New Development and Redevelopment	Yes	Yes. Flood hardening. Seismic retrofitting. Standby generators. Monitoring, data logging and fault altering equipment. Seismic isolation valves. Increased water storage for drinking water and fire suppression. Hydrants. Inspection equipment, including CCTV for internal pipe inspections. Sea level rise adaptation.	Yes	Yes
General Obligation or Special Purpose Bonds	Yes	Yes. Retrofit upgrade and implementation of facilities for a wide range of hazard mitigation actions including seismic concerns.	Yes	Yes
Federal-Funded Programs	Yes	Yes. Retrofit upgrade and implementation of facilities for a wide range of hazard mitigation actions including seismic concerns.	Yes	No
State-Funded Programs	Yes	Yes. Retrofit upgrade and implementation of facilities for a wide range of hazard mitigation actions including seismic concerns.	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

14.3.4. Education and Outreach Capabilities

Table 260 summarizes the HCSD's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 260: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	Yes	The district board meets in public session every second and fourth Tuesday of the month at 5 p.m. at the district office. The meetings include transactional business of the district plus public input and comment. Also, staff provides updates and reports of the district's activities, including hazard mitigation work and public education and outreach.

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	Yes	Yes	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	N/A
Social Media	No	N/A	N/A

14.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 261. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 261: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The district is working with agency partners to develop a regional drinking water resilience plan. Regionally, there are eight primary agencies that provide drinking water to about 100,000 people. Working with these eight agencies, we are developing plans to move water around the region from various sources and storage facilities to help ensure drinking, sanitation and fire suppression water is available in the case of an emergency.

Capability Type	Opportunity to Expand and/or Improve
Administrative and Technical	The district has been experiencing attrition associated with an aging workforce (retirements). Many of these folks are skilled and knowledgeable regarding district processes, infrastructure, projects, and past disasters (institutional knowledge). Finding and training qualified replacements has proven challenging, especially as the district tries to grow our technical and administrative capacity to keep pace with the growing demands from regulators.
Financial	The district has underutilized grant opportunities in the past, relying solely on rate payer funded projects. A grant writing program was established four years ago and has had moderate success. The learning curve for what is and is not fundable is steep. As the district learns and evolves the grant writing program, the success is expected to increase. Successful project implementation, networking with elected officials and partnering with regional agencies for synergistic projects are all activities that the district has been working to implement to grow the success of the grant writing program.
Education and Outreach	The district is working to improve hazard mitigation education and outreach by developing comprehensive, accessible communication strategies tailored to the needs of the local community. This involves creating informational materials, such as brochures and website tabs, that explain the risks associated with natural disasters like floods or droughts and the steps the district is taking to mitigate these hazards. Hosting community workshops, webinars and public meetings provides opportunities for residents to ask questions, learn about emergency preparedness and engage with experts. Additionally, partnering with local schools, businesses and organizations to distribute educational resources or conduct training will help ensure that hazard mitigation information reaches a wide audience. Incorporating real-time alerts, emergency response plans and preparedness tips into these initiatives further enhances public understanding and foster a culture of proactive risk management in the community.

14.4. National Flood Insurance Program

The HCSD does not participate in the NFIP because, as a special district, it does not have the authority to do so. However, a flood event might lead to the loss of potable water infrastructure, which will impact fire services, hydration and public health.

14.5. Mitigation Strategy

The HCSD has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 262, while new mitigation action items and those carried forward from the previous plan are in Table 263.

14.5.1. Previous Mitigation Actions

Table 262: Previous Mitigation Actions

Mitigation Action	Description	Status
HCSD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Ongoing, carry forward.
HCSD2	Enhance water supply system for fire prevention in areas rated high by CAL FIRE.	Ongoing
HCSD3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Ongoing
HCSD4	Engineering feasibility study of critical facilities for structural and non-structural mitigation.	Ongoing
HCSD5	Promote public awareness of the risk associated with natural hazards to district rate payers via public information means available to HCSD.	Ongoing
HCSD6	Additional water storage tank at Ridgewood for fire protection.	Continued (deferred) seeking funding
HCSD7	Install flood protection at the Hoover sewer lift station.	Ongoing, currently grant funded (HMGP) in design.
HCSD8	Replace Fields Landing force main with more flood and earthquake resistant material.	Continued (deferred) seeking funding
HCSD9	Upgrade water system for fire protection on Ivy League Streets in Humboldt Hill area.	Continued (deferred) seeking funding
HCSD10	Replace Mike Lane sewer main with more flood and earthquake resistant material.	Continued (deferred) seeking funding

Mitigation Action	Description	Status
HCSD11	Upgrade water system for fire protection on Hillcrest, Vista and Linda streets in Humboldt Hill area.	Continued (deferred) seeking funding

14.5.2. Updated Mitigation Actions

Table 263: 2025 Mitigation Actions[20]

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HCSD1	Support all countywide actions.	HCSD	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, HCSD general fund	Medium	Both	Long-term	Yes	All
HCSD2	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	HCSD	High	Earthquake, flooding, landslide, tsunami, wildfire	HMGP, PDM, FMA	High	Both	Long-term	Yes	All
HCSD4	Enhance water supply system for fire prevention in areas rated high by CAL FIRE.	HCSD	High	All hazards	Rate revenue, HMGP, PDM	High	Both	Long-term	Yes	All
HCSD5	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan	HCSD	Low	All hazards	Rate revenue, HCSD general fund	Low	Both	Short-term	Yes	All
HCSD6	Engineering feasibility study of critical facilities for structural and non-structural mitigation	HCSD	High	All hazards	HCSD general fund, HMGP, PDM, FMA	Medium	Existing	Long-term	Yes	All

[20] CDBG: Community Development Block Grant, FMA: Flood Mitigation Assistance, HCSD: Humboldt Community Services District, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HCSD7	Promote public awareness of the risk associated with natural hazards to HCSD rate payers via public information means available to HCSD.	HCSD	High	All hazards	HCSD, HMGP, PDM, HCSD general fund	Low	Both	Long-term	Yes	All
HCSD8	Additional water storage tank at Ridgewood for fire protection	HCSD	High	Wildfire, earthquake, landslide, severe weather	HMGP, PDM, HCSD general fund	High	New	Long-term	Yes	All
HCSD9	Install flood protection at the Hoover sewer lift station	HCSD	High	Flood, severe weather	HMGP, HCSD (This is a funded phased HMG project)	High	Existing	Mid-term	Yes	Water, Shelter, Health, Trans, Hazmat
HCSD10	Replace Fields Landing force main with more flood and earthquake resistant material	HCSD	High	Earthquake, flood, tsunami, severe weather	HMGP, PDM, HCSD general fund	High	Both	Long-term	Yes	Water, Shelter, Health, Trans, Hazmat
HCSD11	Upgrade water system for fire protection with earthquake resistant materials on Ivy League Streets in Humboldt Hill area	HCSD	High	Wildfire, earthquake	HMGP, PDM, HCSD general fund	High	Both	Long-term	Yes	Water, Health, Shelter
HCSD12	Replace Mike Lane and Quaker sewer system with more flood resistant design and earthquake resistant material.	HCSD	High	Earthquake, flood, severe weather	HMGP, PDM, HCSD general fund	High	Both	Long-term	Yes	Water, Shelter, Health, Transportation, Hazmat
HCSD13	Upgrade water system to improve fire protection on Hillcrest, Vista and Linda streets in Humboldt Hill area using earthquake resistant materials.	HCSD	High	Wildfire, earthquake	HMGP, PDM, HCSD general fund	High	Both	Long-term	Yes	Water, Health, Shelter

#	Action Description	Lead Agency	Priority Score	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
HCSD14	Install generators at critical facilities and infrastructure that lack adequate backup/standby power.	HCSD	High	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, HCSD general fund	Medium	Both	Long-term	Yes	All
HCSD15	Development of a regional wastewater capacity resiliency plan.	HCSD	High	Flood, earthquake, wildfire, severe weather, tsunami	HMGP, PDM, HCSD general fund	Medium	Both	Mid-term	Yes	All
HCSD16	Regional Wastewater Capacity Resiliency Infrastructure Project Implementation	HCSD	High	Flood, earthquake, wildfire, severe weather, tsunami	HMGP, PDM, HCSD general fund	High	Both	Long-term	Yes	All
HCSD17	Replace South Broadway force main with more flood and earthquake resistant material	HCSD	High	Earthquake, flood, tsunami, severe weather	HMGP, PDM, HCSD general fund	High	Both	Long-term	Yes	Water and Wastewater Systems, Food, Hydration, Shelter

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15. Manila Community Services District Annex

This section presents the jurisdictional annex for the Manila Community Services District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, Manila CSD's priorities have changed. Manila CSD has focused its priorities for this plan update on building resiliency around its new water storage system against seismic activity and tsunami events.

15.1. Planning Process

15.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Manila Community Services District, the stakeholders and the public. The Manila Community Services District was represented during the planning process by the following individual listed in Table 264.

Table 264: Manila Community Services District Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Christopher Drop	General Manager	Manila Community Services District	manilacsd1@sbcglobal.net

15.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 265. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 265: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Melony Higgins	STVFD Fire Chief	Southern Trinity County Volunteer Fire Department	Trvfdmel@gmail.com	1. Local and regional agencies involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture	Kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Caitlin Canale	District Manager	Ruth Lake CSD	Ruthlakecsd@yahoo.com	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

15.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. The public was encouraged to participate in the survey available via QR code link in English, Spanish and Hmong languages. The Manila Community Services District utilized posted the survey on Facebook.

The public survey received 10 responses from residents of Manila. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and community service

districts) should be doing to reduce damage and disruption from natural hazard events?" most respondents indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply and wastewater, improvement of public infrastructure against potential impacts from climate change, restoration of the natural environment to absorb impacts from natural hazards and opportunities for training for the public to better respond to natural disasters. One example of Manila CSD's efforts to incorporate public feedback into mitigation actions is the addition of mitigation action MCSD5 – Relocate and add new water lines and sewer lines, including under SR255 and at wastewater pump stations.

15.1.3.1.VULNERABLE POPULATION OUTREACH

Some Manila Community Services District residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Manila Community Services District may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level.

15.1.4. Plan Integration

15.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 266.

Table 266: Previous Plan Integration for the Manila Community Services District

Plan Name	Description
Capital Improvement Plan	The risk assessment from the prior hazard mitigation plan was used to inform the prior capital improvement plan and in the formulation of capital improvement projects.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 267 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 267: Future Types of Plan Integration for the Manila Community Services District

Type of Plan	Integration Method
New Capital Improvement Plan	The CSD is in the process of updating its capital improvement plan and will integrate the risk assessment and mitigation strategy findings from this plan update into its formulation of future capital improvement projects in the capital improvement plan.

15.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 268 and Table 269. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 268: Manila Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	Outside of inundation zone
Drought	No	Historically area not impacted by drought
Earthquake	Yes	
Extreme Temperatures	No	Historically stable weather
Flooding	No	Outside of inundation zone
Landslide	No	Not in landslide hazard area
Tsunami	Yes	
Wildfire	No	No historic wildfire hazard in area
Wind	Yes	
Winter Weather	No	Historically stable weather

Table 269: Manila Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Earthquake	High	High	High	High	High
Tsunami	High	High	High	High	High
Wind	High	Medium	Medium	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

15.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Manila Community Services District. Other hazard events that broadly affected the entire planning area, including the Manila Community Services District, are listed in the risk assessments in Volume 1.

15.2.1.1.HISTORICAL EVENTS

There have been no recorded storm events that have occurred in the Manila Community Services District from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for Environmental Information (NCEI). The NCEI database does not always capture localized hazard data. To address this gap, the Manila Community Services District has documented additional significant events, with their impacts detailed below.

EARTHQUAKE

- **Dec. 5, 2024:** No reported damage to facilities.

TSUNAMI

- No events have occurred for this hazard.

WIND

- No events have occurred for this hazard.

15.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 270 provides information on a few key vulnerabilities and impacts on the district.

Table 270: Manila Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* All structures in the Manila CSD are vulnerable to moderate damage from an earthquake including the Manila CSD offices, the lift station at Lupin Park, and piping under roads. These pieces of critical infrastructure could collapse themselves or pipes could be damaged under sinking roads. People in Manila CSD's service area are vulnerable to prolonged service disruptions due to earthquake events. This is true for all residents in the community. People that live in older homes in Manila are also at risk of their homes collapsing . *Impacts:* If the Manila CSD offices and life station at Lupin Park are damaged it could cause prolonged outages to the entire water system for Manila. If pipes break it would cause more concentrated disruptions for people living in that area. People in Manila may experience public health concerns due to prolonged service disruptions. They may also be forced to repair their property from any damage and could be injured depending on the intensity of the earthquake and stability of their home. Also, the Manila CSD may be impacted by extensive repair costs to restore critical facilities, potential loss of life of employees and loss of revenue from service disruptions.
Tsunami	*Vulnerabilities:* All Manila CSD facilities are at risk of tsunami-related flooding including the Manila CSD Wastewater Treatment Facility. The entire district, except for the peaks of several dunes in the area, is located in a tsunami hazard and evacuation area. Pipes, generators, pumps, and treatment facilities are vulnerable. Manila CSD employees are vulnerable to injury or fatality during a tsunami event. Manila CSD customers are vulnerable to prolonged service disruption. *Impacts:* Tsunami-related flooding can contaminate the water supply and inundate the wastewater treatment systems, causing damage to critical facilities and equipment. Costly repairs and prolonged service disruptions can negatively impact the Manila CSD's revenue. People may be injured or killed. Public health concerns could arise.
Wind	*Vulnerabilities:* Due to Manila CSD's location on the coast, employees conducting repair activities are vulnerable to injury or fatalities during strong wind events. In addition, Manila CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. Manila CSD critical facilities are vulnerable to strong wind damage.

Hazard	Vulnerabilities and Impacts
	Impacts: Severe wind events impact the Manila CSD's water distribution and wastewater treatment systems' ability to provide services to its customers in service areas affected by severe wind preventative measures. Severe wind damage can also impact critical facility operations, and flying debris can make roads inaccessible for potable water deliveries and to critical facilities, prolonging service disruptions.

15.2.2.1. DEVELOPMENT CHANGES

Table 271 summarizes development trends in the Manila Community Services District since the preparation of the previous hazard mitigation plan and expected future development trends.

Table 271: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	None	None	No change
Commercial	None	None	No change
Industrial	None	None	No change

15.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Manila Community Services District performed an assessment of its existing capabilities for implementing hazard mitigation actions. Manila CSD intends to use the assessment to identify and address gaps in capabilities, and it will support the update in the next LHMP. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

15.3.1. Planning and Regulatory Capabilities

Table 272 and Table 273 summarize the Manila Community Services District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Manila CSD operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022). In addition, Manila CSD regulates construction related to water systems from its own list of ordinances in its rules and regulations.

The following is an excerpt on Land Use and Zoning from the Manila Community Services District Municipal Services Review and Sphere of Influence Update.

> 2.4 Land Use and Zoning
>
> "Land uses within the District are currently subject to the Humboldt County General Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Under the Humboldt County General Plan, land uses within the District are primarily Natural Resource (NR) and Residential Low Density (RL)."[21]

Table 272: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	N/A	N/A	N/A
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	N/A	N/A	N/A
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A

[21] Humboldtlafco.org, 2023, "Manila Community Services District Municipal Services Review and Sphere of Influence Update," https://humboldtlafco.org/wp-content/uploads/Manila-CSD-MSR_Adopted-01-19-22_reduced.pdf .

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	N/A	N/A	N/A
Stormwater Management Plan	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 273: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

15.3.2. Administrative and Technical Capabilities

Table 274 and Table 275 summarize the Manila Community Services District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 274: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	No	Yes
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 275: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A

15.3.3. Financial Capabilities

Table 276 summarizes the Manila Community Services District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 276: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	No	N/A	N/A	N/A
General Funds	Yes	No	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Unknown	Unknown	Unknown
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

15.3.4. Education and Outreach Capabilities

Table 277 summarizes the Manila Community Services District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 277: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	Monthly Board Meetings
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	No	Facebook

15.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 278. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 278: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Our agency seeks to better coordinate and assist adjacent Peninsula CSD.
Administrative and Technical	We are minimally staffed with 2 of 3 employees living outside jurisdiction.
Financial	We could use grant writer to help identify and apply for funding.
Education and Outreach	The public has reacted to recent tsunami eval notices incorrectly.

15.4. National Flood Insurance Program

The Manila Community Services District is not required to participate in the National Flood Insurance Program (NFIP) because, as a special district, it does not have the authority to do so. However, a flood event might result in the loss of potable water infrastructure, which could impact fire services, hydration and public health.

15.5. Mitigation Strategy

The Manila Community Services District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 279, while new mitigation action items and those carried forward from the previous plan are in Table 280.

15.5.1. Previous Mitigation Actions

Table 279: Previous Mitigation Actions

Mitigation Action	Description	Status
MCSD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Deferred
MCSD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Deferred
MCSD3	Support countywide initiatives identified in Volume 1 of this hazard mitigation plan.	Deferred
MCSD4	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including the MCSD District office, wastewater pump station, water distribution pump station, and community center.	Completed
MCSD5	Seismic and tsunami retrofit the Manila Community Center.	Completed
MCSD6	Emergency Operations Center at the Manila Community Center or Wastewater Ponds	Deferred
MCSD7	Work with the county on the development of a regional debris management plan.	Deleted
MCSD8	Construct 150,000-gallon water tank, backup power, power generators, and reconfiguring distribution system to improve the district's ability to isolate areas.	Completed
MCSD9	Relocate and add new water lines and sewer lines, including under SR255 and at wastewater pump stations.	Deferred
MCSD10	Assess, replace and add storm drain infrastructure.	Deferred

Mitigation Action	Description	Status
MCSD11	Improve water and sewer data acquisition and alarm system.	Deferred
MCSD12	Update dune management plan.	Deferred

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15.5.2. Updated Mitigation Actions

Table 280: 2025 Mitigation Actions[22]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
MCSD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	High	MCSD	Earthquake, flooding, landslide, tsunami, wildfire	HMGP, PDM, FNMA	High	Short-term (1–2 years)	Both	Yes	Yes
MCSD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Medium	MCSD	All hazards	Staff time, general funds	Low	Short-term (1–2 years)	Both	No	Yes
MCSD3	Support countywide initiatives identified in Volume 1 of this hazard mitigation plan.	Medium	MCSD	All hazards	Staff time, general funds	Low	Short-term (1–2 years)	Both	No	Yes
MCSD4	Emergency operations center at the Manila Community Center or Wastewater Ponds.	High	MCSD	Earthquake, tsunami, severe weather, wildfire	Staff time, general funds	Medium	Long-term (5+ years)	Both	No	Yes
MCSD5	Relocate and add new water lines and sewer lines, including under SR255 and at wastewater pump stations.	High	MCSD	Earthquake, flooding, landslide, severe weather	HMGP, water rates	High	Short-term (1–2 years)	Both	Yes	Yes
MCSD6	Assess, replace, and add storm drain infrastructure.	High	MCSD	Severe weather	HMGP	High	Long-term (5+ years)	Both	Yes	Yes

[22] CWSRF: Clean Water State Revolving Fund, DWSRF: Drinking Water State Revolving Fund, FMA: Flood Mitigation Assistance, FNMA: Federal National Mortgage Association, HMGP: Hazard Mitigation Grant Program, MCSD: Manila Community Services District, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
MCSD7	Improve water and sewer data acquisition and alarm system.	Low	MCSD	Severe weather, landslide, floods	Water and sewer rates, CWSRF, DWSRF	High	Long-term (5+ years)	Both	No	Yes
MCSD8	Update dune management plan.	Low	MCSD	Severe weather, landslide, floods	Staff time, general funds	Medium	Long-term (5+ years)	Both	Yes	Yes

16. McKinleyville Community Services District Annex

This section presents the jurisdictional annex for the McKinleyville Community Services District (CSD). The jurisdiction's governing body passed a formal resolution to participate in this multijurisdictional hazard mitigation plan update. McKinleyville CSD did not identify any new priorities for this plan update.

16.1. Planning Process

16.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including McKinleyville CSD, the stakeholders, and the public. McKinleyville CSD was represented during the planning process by the individuals listed in Table 281.

Table 281: McKinleyville Community Services District Points of Contact

Name	Job Title	Jurisdiction/ Agency	Preferred Contact Info (Email and/or Phone)
Patrick Kaspari	General Manager	McKinleyville Community Services District	pkaspari@mckinleyvillecsd.com
Joseph Blaine	Board Secretary	McKinleyville Community Services District	jblaine@mckinleyvillecsd.com
James Henry	Operations Director	McKinleyville Community Services District	Jhenry@mckinleyvillecsd.com
Samantha Howard	Finance Director	McKinleyville Community Services District	Showard@mckinleyvillecsd.com
Kirsten Messmer	Park & Recreation Director	McKinleyville Community Services District	Kirsten@mckinleyvillecsd.com

16.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations, and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 282. Stakeholders were invited to the stakeholder meetings through emails, calendar invites, and phone calls. In addition, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 282: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Type of Stakeholder
Michiko Mares	General Manager	Humboldt Bay Municipal Water District	gm@hbmwd.com	1.Local and regional agencies involved in hazard mitigation activities
T. K. Williams	General Manager	Humboldt Community Services District	Twilliams@humboldtcsd.org	1.Local and regional agencies involved in hazard mitigation activities
Tina Bartlett	Regional Manager	California Department of Fish and Wildlife	AskRegion1@wildlife.ca.gov	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County Office of Emergency Services	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia, and other private organizations
Simon Knopf		American Red Cross – Northern	simon.knopf@redcross.org	5. Representatives of nonprofit organizations,

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Type of Stakeholder
		California Coastal Region		including community-based organizations

16.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. Figure 24 illustrates how the public was encouraged to participate in the survey available via QR code link in English, Spanish, and Hmong languages. McKinleyville CSD posted on their website, pinned a post to social media, and posted a flyer in various locations throughout town.

The public survey received 72 responses from people who identified themselves as residents of McKinleyville. When asked the question "What types of projects do you believe the county and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?" most of the respondents indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply, and wastewater; improvement of public infrastructure against potential impacts from climate change; and opportunities for training for the public to better respond to natural disasters. Public feedback has been incorporated into the risk assessment and mitigation strategy sections. One example of how McKinleyville CSD's mitigation actions support the public's requests is the addition of mitigation action MKCSD1 (See Table 298), a mitigation project to purchase generators and transfer switches for critical facilities, including the CSD office, Pierson Park facilities, and Kelly Lift Station, and upgrade other sewer lift stations.

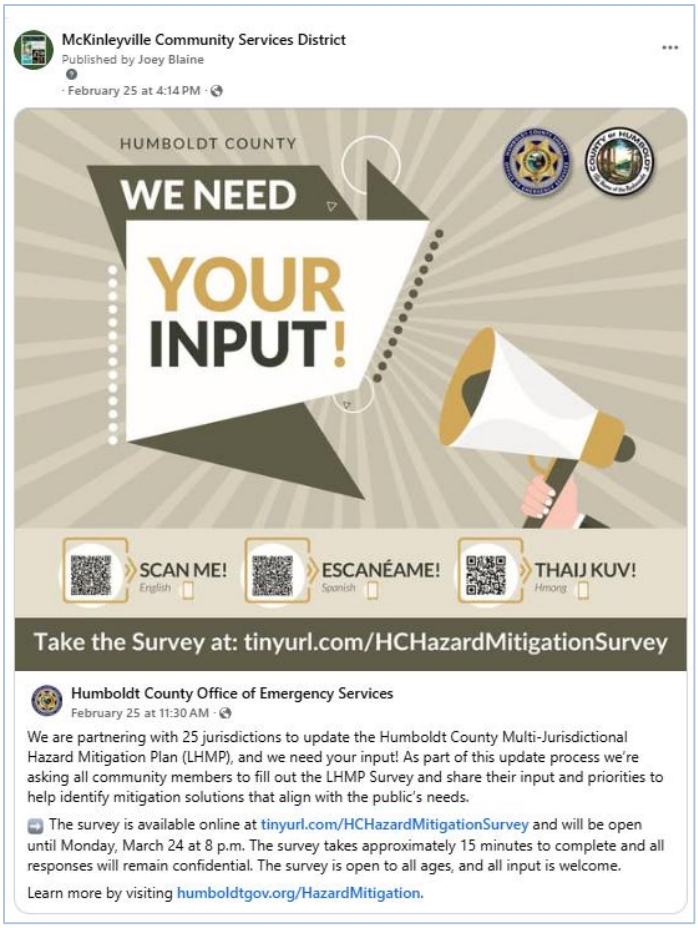

Figure 24: Public Outreach Methods

16.1.3.1.VULNERABLE POPULATION OUTREACH

Some McKinleyville CSD residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in McKinleyville CSD may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the district residents face, this planning update developed a multilingual public survey in English, Spanish, and Hmong languages that collectively identified ways to support, enhance, and broaden capacity and resilience at the individual and social network levels. Figure 25 displays how the district advertised the survey specifically to vulnerable populations. Outreach methods included resources such as posting flyers on front doors and in high traffic areas to reach populations that may not have access to the internet.

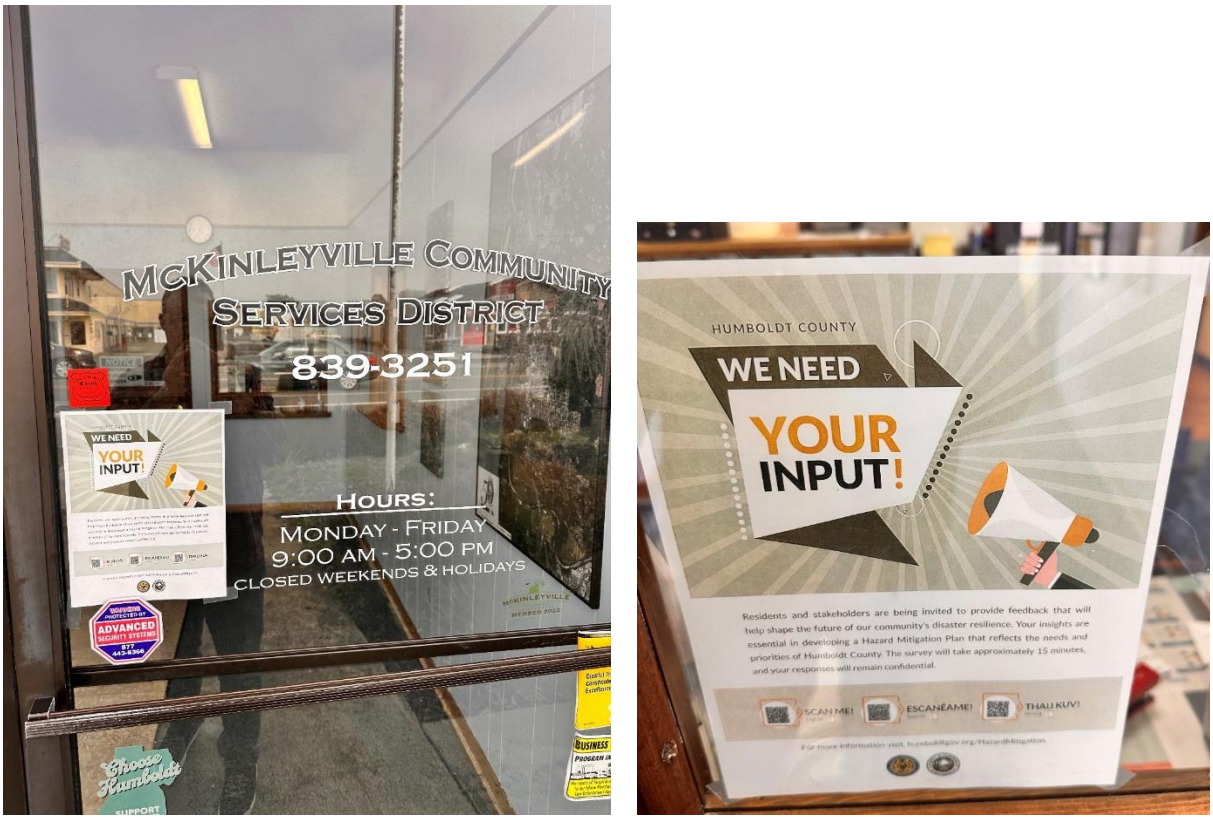

Figure 25: Public Outreach to Vulnerable Populations

16.1.4. Plan Integration

16.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require a constant and vigilant review of existing plans and programs for coordination and

multi-objective opportunities that promote a safe, sustainable community. The existing planning mechanisms into which this plan has been integrated are listed in Table 283.

Table 283: Previous Plan Integration for the McKinleyville Community Services District

Plan Name	Description
Capital Improvement Plan	The district includes all of our hazard mitigation projects from the hazard mitigation plan in our capital improvement plan and budgets for them in our applicable annual budgets.
Emergency Operations and Recovery Plan	Our emergency operations and recovery plan also details proposed projects from the hazard mitigation plan.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 284 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 284: Future Types of Plan Integration for the McKinleyville Community Services District

Type of Plan	Integration Method
Capital Improvement Plan (CIP)	The CIP is updated yearly to budget for major capital projects, including proposed hazard mitigation projects. The CIP looks out 10 plus years and budgets for the initial planning and design phases of projects, as well as the final design and construction of hazard mitigation and other capital projects. The projects reflected in the Hazard Mitigation Plan update are currently included in the district's current CIP, and new projects will be added as they are identified and developed.
District Emergency Operations Plan	Proposed and completed mitigation projects are reflected in the Emergency Operations Plan, including the operation of emergency generators and the coordination of emergency water delivery to and support from the surrounding cities and CSDs, the County OES, the Sheriff, and Fire Agencies.

16.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 285 and Table 286. For further information about these hazards, including their extent, please refer to Volume 1 of this HMP.

Table 285: McKinleyville Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures (Extreme Heat and Extreme Cold)	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 286: McKinleyville Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	High	Low	High	Low
Drought	Medium	High	Low	Medium	Medium
Earthquake	High	High	High	High	High
Extreme Heat	High	Medium	Medium	Medium	Medium
Extreme Cold	Low	Medium	Low	Medium	Low
Flooding	Medium	High	High	Medium	High
Landslide	Medium	Medium	Medium	Medium	Medium
Tsunami	Medium	Medium	Low	High	Medium
Wildfire	Medium	High	High	High	High
Wind	High	High	High	High	High
Winter Weather	High	High	High	High	High

Note: The process used to assign risk rankings is described in Volume 1.

16.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damage were recorded in McKinleyville CSD. Other hazard events that broadly affected the entire planning area, including McKinleyville CSD, are listed in the risk assessments in Volume 1.

16.2.1.1. HISTORICAL EVENTS

Table 287 presents a summary of the storm events that occurred in McKinleyville CSD from Nov. 1, 2019 to Dec. 31, 2024, according to the National Centers for Environmental Information (NCEI).

Table 287: NCEI Storm Event Database for the McKinleyville Community Services District, 2019–2024

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
McKinleyville	12/01/2022	Hail	0	0	$2,500.00	$0
McKinleyville	01/13/2024	Flood	0	0	$0.00	$0

The NCEI database does not always capture localized hazard data. To address this gap, McKinleyville CSD has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **January–March 2022:** Limited water availability impacted the water system's lifeline.

EARTHQUAKE

- **December 5, 2024:** A 7.0 magnitude earthquake caused broken water and sewer mains, impacting the water system's lifeline.
- **December 20, 2022:** Aftershocks from the December 5 event caused broken water and sewer mains, impacting the water system's lifeline.

EXTREME TEMPERATURES

- **December 2024–January 2025:** Extreme temperatures resulted in power outages, impacting the operation of water systems.

- **January–March 2024:** Extreme temperatures resulted in power outages, impacting the operation of water systems.
- **November 2023:** Extreme temperatures resulted in power outages, impacting the operation of water systems.
- **February–March 2023:** Extreme temperatures resulted in power outages, impacting the operation of water systems.

FLOODING

- **Jan. 13, 2024:** An atmospheric river sank south and stalled over Humboldt, Del Norte, and western Trinity counties, bringing widespread rains between 3 and 7 inches to the region. Rain fell over a short period of 8–10 hours, resulting in the highest flows on the Mad River and Redwood Creek since the 1970s. Widespread creek flooding occurred in Del Norte and Humboldt counties, with multiple homes damaged or destroyed. Many roadways were unpassable. Agricultural lands were inundated with water. The Mad River stream gauge at Arcata exceeded the flood stage and reached the second highest stage ever recorded. Extensive flooding occurred in the Mad River Bottoms on both sides of the river. North Bank Road, Mad River Road, Silva Road, and Fischer Road all were flooded (see Figure 26).

Figure 26: McKinleyville Flooding Impacts

LANDSLIDE

- **January–March 2024:** Landslides caused broken water and sewer mains, impacting the water system's lifeline.
- **Jan. 6, 2023:** Landslides caused broken water and sewer mains, impacting the water system's lifeline.
- **Jan. 14, 2021:** Landslides caused broken water and sewer mains, impacting the water system's lifeline.
- **Feb. 25, 2019:** Landslides caused broken water and sewer mains, impacting the water system's lifeline.

TSUNAMI

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- **November–December 2024:** Severe winds caused power outages and downed trees on multiple roadways. The damage included broken water and sewer mains, impacting the water system's lifeline (see Figure 27).

Figure 27: McKinleyville Wind Impacts

WINTER WEATHER

- **January 13, 2024:** Power outages due to severe winter weather impacted the operation of water systems.
- **December 2022–February 2023:** Power outages due to severe winter weather impacted the operation of water systems.
- **November–December 2021:** Power outages due to severe winter weather impacted the operation of water systems.
- **January–February 2019:** Power outages due to severe winter weather impacted the operation of water systems.

16.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 288 provides information on a few key vulnerabilities and impacts on the district.

Table 288: McKinleyville Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities
Dam Failure	*Vulnerabilities:* The town of McKinleyville has several watershed areas, including the north bank of the Mad River, Mill Creek, Patrick Creek and Little River. Flooding from the R.W. Matthews Dam could affect operations. *Impacts*: Dam failure could cause loss of life of CSD employees, disrupt the CSD water supply, reduce revenue, and damage critical CSD infrastructure. Disruptions to services could impact the local population.
Drought	*Vulnerabilities:* All critical systems in the CSD service area that rely on groundwater sources for operation are vulnerable to drought. Also, CSD customers who rely on available local water supplies for hydration may become vulnerable to health and hygiene risks. *Impacts*: Water systems may be disrupted in the case of prolonged drought. In addition, a decline in water supply levels can impact the CSD's ability to supply water to its customers. Drought events impact the water supply by reducing the water levels that could impact the response to wildfire incidents caused by prolonged drought events, and increase water demand. Plants in parks may die.
Earthquake	*Vulnerabilities:* All critical CSD facilities are vulnerable to facility and equipment damage from failing structures. In particular, the Fischer Life Station, district operations office, and maintenance buildings are vulnerable to earthquakes. In addition, any underground water lines would be vulnerable to earthquake damage. People dependent on services may also be vulnerable to damage or disruptions.

Hazard	Vulnerabilities
	Impacts: Earthquake events can damage or destroy the water supply and wastewater treatment systems, affecting the district's ability to provide critical services to MCSD customers. MCSD may be impacted by extensive repair costs to restore critical facilities like water systems, the Law Enforcement Facility, and community assets that MCSD owns, such as the McKinleyville Library. Additional impacts include the potential loss of life of employees and the loss of revenue from service disruptions.
Extreme Temperatures	*Vulnerabilities:* MCSD critical infrastructure that lacks weatherproofing is vulnerable to frozen pipes and water mains bursting, which could lead to prolonged service disruption. Excessive heat can lead to increased demand for MCSD utility services. MCSD customers are vulnerable to service disruptions from extreme heat and extreme cold events. *Impacts*: Extreme temperatures can stress the local electrical grid, and extreme heat can increase the demand for water. The MCSD may be impacted by a loss of revenue during prolonged service disruptions.
Flooding	*Vulnerabilities:* Critical MCSD infrastructure is vulnerable to flooding events that could cause prolonged utility service disruptions when equipment fails or is inundated with flood waters. MCSD employees are vulnerable to fatalities and loss of life during flood events. *Impacts*: Flood events can contaminate the water supply, damage critical facilities and equipment, and reduce MCSD revenue during prolonged service disruptions that restrict water and wastewater services to MCSD customers.
Landslide	*Vulnerabilities:* Vulnerable areas on the west side of town may experience landslides. MCSD customers may be vulnerable to prolonged service disruption in impacted service areas. *Impacts*: Landslide events can impact MCSD's water distribution and wastewater treatment systems. MCSD employee service delivery activities would be impacted by inaccessible roads. Extensive and expensive repair costs can impact MCSD financially if service disruptions are prolonged.
Tsunami	*Vulnerabilities:* MCSD is vulnerable to coastal flooding and flooding along the Mad River that could damage critical infrastructure, including oxidation ponds involved in the wastewater management process, and disrupt utility services. MCSD customers are vulnerable to prolonged service disruptions during equipment repair and service restoration efforts. *Impacts*: Tsunami events can impact the water supply and wastewater treatment systems, damage critical facilities and equipment, and result in loss of revenue during prolonged service disruptions for CSD customers in impacted service areas.

Hazard	Vulnerabilities
Wildfire	*Vulnerabilities:* McKinleyville is bordered to the west by the moderate-risk Fire Hazard Severity Zone. MCSD assets, particularly those without backup power like the Pierson Park facilities, Kelly Lift Station, Azalea Hall, and Activity Center, community parks, trails, and forests, such as the McKinleyville Community Forest, are vulnerable. Fuel hazards near residential neighborhoods pose a threat. The MCSD water supply is also vulnerable to increased demand during wildfire events. MCSD customers in service areas are vulnerable to water service disruption due to prolonged power outages during planned public safety power shutoffs. *Impacts*: Wildfire events can cause extensive damage to critical MCSD infrastructure and community assets. Public Safety Power Shutoffs or other outages can disrupt services and restrict the use of facilities. People can be injured or killed.
Wind	*Vulnerabilities:* MCSD customers may be impacted by prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. MCSD water systems facilities, parks, and forests are vulnerable to strong wind events. MCSD employees conducting repair activities can experience injuries and fatalities during strong wind events. *Impacts*: Severe winds can impact critical facility operations, and flying debris can block road access to critical facilities, prolonging service disruptions. Power outages caused by severe wind can impact the district's ability to provide services. Severe wind can down trees and increase debris in MCSD's parks.
Winter Weather	*Vulnerabilities:* CSD customers with no weatherization to their heating resources are vulnerable to extreme winter weather events, as well as increased heating costs. *Impacts*: Prolonged power outages caused by winter weather can impact the water supply and wastewater treatment systems. Winter weather can also damage critical facilities and restrict road access to critical MCSD facilities. Disruptions to the water supply can cause public health concerns. Falling tree limbs can injure people.

16.2.2.1. DEVELOPMENT CHANGES

Table 289 summarizes development trends in McKinleyville CSD since the preparation of the previous hazard mitigation plan and expected future development trends.

Table 289: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	New subdivisions	Continued development	Increased
Commercial	Limited development	Development will increase	Increased
Industrial	Limited development	Limited development	Increased

16.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs, and resources. McKinleyville CSD performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated using a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

16.3.1. Planning and Regulatory Capabilities

Table 290 and Table 291 summarize McKinleyville CSD's planning and regulatory capabilities, including plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Land use in the district is subject to the Humboldt County General Plan, McKinleyville Community Plan, McKinleyville Area Local Coastal Plan (for coastal portions), and Zoning Regulations (Humboldt County Code Title III, Division 1). The McKinleyville Community Plan (adopted in 2002 and amended in 2017) includes the developed McKinleyville area, the surrounding watersheds, and Dows Prairie. McKinleyville CSD operates under existing 2022 California Building Codes and Humboldt County building codes 331-11 and Title 24 Building codes (2019 and 2022). In addition, McKinleyville CSD regulates construction related to water systems from its own list of ordinances in its rules and regulations.[23]

[23] McKinleyville Community Service District, "Rules and Regulations", https://www.mckinleyvillecsd.ca.gov/files/077f1c034/20210807+Rules+and+Regulations.pdf.

Table 290: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	Yes	The recovery plan outlines rolls and responsibilities for recovery tasks, which can be duplicated for mitigation actions as applicable.	Last Update: 05/2022 Next Update: 05/2027
Capital Improvement Plan	Yes	All planned mitigation actions and projects are included in the CIP and are budgeted for.	Last Update: 02/2025 Next Update: 02/2026
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	Yes	The EOP lists roles and responsibilities that can be adapted to implementation of mitigation actions.	Last Update: 05/2022 Next Update: 05/2028
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 291: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes – 2022 California Building Code	Yes – by the County	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	Yes	Yes – by the County	Last Update: 05/2017 Next Update: Unknown
Floodplain Ordinance	Yes	Yes – by the County	Last Update: 09/2016 Next Update: 09/2026
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	Yes	Yes – by the County	Last Update: 05/2018 Next Update: 05/2026
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	Last Update: 02/2025 Next Update: 09/2025
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

16.3.2. Administrative and Technical Capabilities

Table 292 and Table 293 summarize McKinleyville CSD's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 292: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Non-Vacant	No	Yes	Yes

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Non-Vacant	Yes	No	No
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 293: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Obtaining and implementing hazard mitigation grant projects	Obtaining and implementing hazard mitigation grant projects
GIS	Yes	In the implementation of mitigation projects assessment, permitting and construction.	Same
Mutual Aid Agreements	Yes	Obtaining and implementing hazard mitigation grant projects	Obtaining and implementing hazard mitigation grant projects
Water & Wastewater Operations	Yes	Obtaining and implementing hazard mitigation grant projects	Obtaining and implementing hazard mitigation grant projects

16.3.3. Financial Capabilities

Table 294 summarizes McKinleyville CSD's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible, given their cost.

Table 294: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
General Funds	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	Yes	Obtaining and implementing hazard mitigation grant projects	Yes	No
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	No	No	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
Impact Fees from New Development and Redevelopment	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
General Obligation or Special Purpose Bonds	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	Yes	Yes. Obtaining and implementing hazard mitigation grant projects	Yes	Yes
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

16.3.4. Education and Outreach Capabilities

Table 295 summarizes McKinleyville CSD's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 295: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Public Meetings/Events	Yes	Yes	Board and Planning meetings
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities	Yes	No	McKinleyville Family Resource Center
Social Media	Yes	Yes	Facebook, Instagram, District website

16.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate, or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 296. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 296: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The district has acquired a 600-acre community forest and are attempting to prepare wildfire and emergency response plans and regulations. The technical capabilities and capacity or funding to fully develop these documents.
Administrative and Technical	The district does not have the capacity to fund the technical and administrative resources necessary to implement all our planned and future mitigation measures.
Financial	The district is always stretched financially to be able to fund our necessary mitigation projects and also stretched with available district staff to chase and fund necessary grant programs.

Capability Type	Opportunity to Expand and/or Improve
Education and Outreach	The district does not have the capacity or resource materials to efficiently incorporation educational and outreach materials into our operations.

16.4. National Flood Insurance Program

McKinleyville CSD is not required to participate in the NFIP program because, as a special district, it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure, which will impact fire services, hydration, and public health. Flood events create vulnerabilities to the water supply due to contamination and may also damage property. Flood events can also cause overflowing of the sanitary sewer system, resulting in impacts on human health and the environment due to untreated wastewater.

16.5. Mitigation Strategy

McKinleyville CSD has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 297, while new mitigation action items and those carried forward from the previous plan are in Table 298.

16.5.1. Previous Mitigation Actions

Table 297: Previous Mitigation Actions

Mitigation Action	Description	Status
MKCSD1	Where appropriate, support retrofitting, purchase or relocation of structures in hazard areas, prioritizing those that have experienced repetitive losses and/or are in high- or medium-risk hazard areas.	Deferred
MKCSD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Continuing to actively participate
MKCSD3	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including the district office and Azalea Hall.	Deferred. We are upgrading the district office and waiting for the final load sizing to size the generator.
MKCSD4	Support countywide initiatives identified in Volume 1 of this hazard mitigation plan.	Continue to support

Mitigation Action	Description	Status
MKCSD5	Work with county on the development of a regional debris management plan.	Continue to support
MKCSD6	Construct redundant waterline to mitigate for the potential loss of the watermain from HBWMD where it travels under the Mad River.	Deferred. Submitted Hazard Mitigation Grant (HMG) and have been going back and forth with Cal OES and FEMA. Waiting for final Phase 1 authorization.
MKCSD7	Construct 5-million-gallon water storage reservoir to supplement existing potable water storage.	Currently being constructed. Should be done by 8/2025.
MKCSD8	Replace three sewer main crossings under Highway 101.	Completed Phase 1 of HMG. Phase 2 authorization obtained 1/2025. Construction should be completed by 12/2026.
MKCSD9	Purchase Green Diamond land east of the district to establish community forest.	Completed
MKCSD10	Assess and replace the sewer force mains from all of the District Sewer Lift Stations.	Ongoing. Two are actively in design; the remaining 3 will be completed and rolled over to the new HMP Annex.
MKCSD11	Replace redwood water tanks at McCluski Hill.	Phase 1 of HMG completed. Waiting for Phase 2 HMG authorization.
MKCSD12	Harden the water and sewer SCADA system and provide additional redundancy.	Deferred. Work is ongoing, and vulnerabilities are being identified. Will roll over.
MKCSD13	Develop a local well for an alternative to the water supply that is currently vulnerable to damage from multiple hazard events, particularly where the existing water supply main runs under the Mad River.	Deleted

16.5.2. Updated Mitigation Actions

Table 298: 2025 Mitigation Actions[24]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
MKCSD1	Purchase generators and transfer switches for critical facilities including district office, Pierson Park facilities and Kelly Lift Station and upgrades to other sewer lift stations.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$1,500,000	Medium-term	Both	Yes	All
MKCSD2	Construct redundant waterline to mitigate for the potential loss of the watermain from HBWMD where it travels under the Mad River.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, general funds	$5,000,000	Short-term	Both	Yes	Water Systems
MKCSD3	Replace three sewer main crossings under Highway 101.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, general funds	$8,000,000	Short-term	Both	Yes	Water Systems
MKCSD4	Develop emergency access routes throughout the district's community forest.	High	McKinleyville Community Services District	Drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$2,000,000	Long-term	Both	Yes	Safety and Security

[24] BRIC: Building Resilient Infrastructure and Communities, CDBG: Community Development Block Grant, FMA: Flood Mitigation Assistance, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
MKCSD5	Assess and replace the sewer force mains from all of the district sewer lift stations.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$5,000,000	Long-term	Both	Yes	Water Systems
MKCSD6	Replace redwood water tanks at McCluski Hill.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, general funds	$5,000,000	Short-term	Both	Yes	Water Systems
MKCSD7	Upgrade the water and sewer SCADA system and provide additional redundancy.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$1,000,000	Medium-term	Both	Yes	Water Systems
MKCSD8	Seismically retrofit the district's operations office and maintenance buildings.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$4,000,000	Medium-term	Both	Yes	All
MKCSD9	Implement wildfire protection throughout the district's community forest and other open space zones.	High	McKinleyville Community Services District	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$3,000,000	Long-term	Both	Yes	Safety and Security

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
MKCSD10	Perform Fischer Lift Station Seismic upgrade.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$4,000,000	Short-term	Both	Yes	
MKCSD11	Perform Pierson Park Facilities seismic upgrade including library, law enforcement facility, Azalea Hall and activity center.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$8,000,000	Long-term	Both	Yes	All
MKCSD12	Install backup microgrid or solar array at Azalea Hall and Activity Center.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$2,000,000	Long-term	Both	Yes	Energy
MKCSD13	Develop a regional water supply resiliency plan.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$1,000,000	Short-term	Both	Yes	Water Systems
MKCSD14	Implement regional water supply resiliency infrastructure project.	High	McKinleyville Community Services District	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$10,000,000	Long-term	Both	Yes	Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
MKCSD15	Continue to support countywide initiatives identified in this plan.	High	McKinleyville Community Services District	Earthquake, floods, dam failure, drought, extreme temperatures, landslides, tsunami, wildfire, wind, winter weather	HMGP, district funds	$100,000	Short-term and ongoing	Both	Yes	All

17. Peninsula Community Services District and Samoa Peninsula Fire District Annex

This section presents the jurisdictional annex for the Peninsula Community Services District and Samoa Peninsula Fire District. This combined jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. A local meteorologist with the National Weather Service office stated that extreme heat impacts have shifted priorities for the Peninsula Community Services District and Samoa Peninsula Fire District, citing observed patterns of temperature deviation from seasonal norms — particularly higher temperature variation between coastal areas and inland valleys. The districts have taken these findings into consideration as part of the changes in their mitigation priorities for this plan update.

17.1. Planning Process

17.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Peninsula Community Services District and Samoa Peninsula Fire District, the stakeholders and the public. The Peninsula Community Services District and Samoa Peninsula Fire District were represented during the planning process by the following individuals listed in Table 299.

Table 299: Peninsula Community Services District and Samoa Peninsula Fire District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Dale Unea	Operations Manager/Fire Chief	Peninsula Community Services District and Samoa Peninsula Fire District	dunea@peninsulacsd.org
Troy Nicolini	Board of Directors	Peninsula Community Services District	troy.nicolini@gmail.com

17.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 300. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 300: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Philip Simi	Emergency Operations Manager	Trinity County OES	Oes@trinitycounty.org	1. Local and regional agencies involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture	Kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
Troy Smith	School District Board	Peninsula Union School District	(707)443-2731	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

17.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 28 illustrates how the public was encouraged to participate in the survey available via QR code link in English, Spanish and Hmong languages. The Peninsula Community Services District and Samoa Peninsula Fire District utilized a variety of communications channels that are free and easily accessible sharing the survey through email to the Redwood Community Action Committee, Samoa Peninsula Fire Board, and the Peninsula community newsletter.

Gmail

Dale Unea <samoavfd@gmail.com>

255 corridor plan, Manila Moves meeting, survey due March 24, Tsunami Prepardness Workshop- March 29, 11am

Carol Vander Meer <cvandermeer@rcaa.org> Sat, Mar 22, 2025 at 8:56 AM

Greetings,
Several items:

1. **A Manila Moves (a subcommittee of PCC) meeting is scheduled for Tuesday, April 8, 5:30-6:30 pm, at the Manila Family Resource Center** (at the community Center) to discuss the Draft 255 corridor management plan. RSVP appreciated.
2. The Humboldt County Sheriff's office put out a **Hazard Mitigation Plan Survey** , and will remain open until 8:00 p.m. on Monday, March 24. It takes approximately 15 minutes to complete, and all responses are confidential. Please complete the survey to ensure that voices from the peninsula are heard as they update their Humboldt County Multi Jurisdiction Hazard Mitigation Plan.
3. The **Tsunami Perepardness Workshop is March 29, 11-2** (see attached flyer). Free go-bag starter kit to the first 30 penisula residents. Light refreshments will be served. Please help spread the word. Set-up starts at 10:15 if you want to help.
4. **NEXT PCC meeting: Monday, April 14, 5:30-7pm, Humboldt Coastal Nature Center.** Updates on the Humbolt Municipal Water District's plans to upgrade the waterline and plans for developing a small portion of the Great Redwood Trail in Samoa.

Carol

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3_29_Tsunami workshop.png
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Figure 28: Public Outreach Methods

The public survey received responses from six respondents who identified themselves as residents of Samoa Peninsula. When asked, “What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?”, most respondents indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply, and wastewater; improvement of public infrastructure against potential impacts from climate change; restoration of the natural environment to absorb impacts from natural hazards; and opportunities for training for the public to better respond to natural disasters. One example of Peninsula CSD and Samoa Peninsula Fire District efforts to incorporate public feedback into

mitigation actions is mitigation action SFPD8: Increase public awareness of hazards to support a community education and visitor program on the dangers of tsunamis and other hazards and appropriate response actions.

17.1.3.1.VULNERABLE POPULATION OUTREACH

Some Peninsula Community Services District and Samoa Peninsula Fire District residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Peninsula Community Services District and Samoa Peninsula Fire District may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the districts residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Figure 29 displays how the districts advertised the survey specifically to vulnerable populations. Some of outreach methods included resources such as putting the survey at the Fairhaven Fire Station to advertise to individuals who may not have access to the internet.

Figure 29: Public Outreach to Vulnerable Populations

17.1.4. Plan Integration

17.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 301.

Table 301: Previous Plan Integration for the Peninsula Community Services District and Samoa Peninsula Fire District

Plan Name	Description
None	No plan integration was implemented for the previous plan due to a lack of staff to accomplish tasks related to plan integration.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 302 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 302: Future Types of Plan Integration for the Peninsula Community Services District and Samoa Peninsula Fire District

Type of Plan	Integration Method
Open Space Plan	The open space plan is currently in development, with the aim of implementing rules and regulations to ensure the safety of the community and visitors. The plan has been in progress since August, 2024 and is presently under review by the jurisdiction's attorney.
Residential and Commercial Development Plan	Identify vulnerabilities to ensure consistency.
Wastewater Treatment Plan	Align mitigation actions to make sure vulnerabilities are addressed.

17.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 303 and Table 304. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 303: Peninsula Community Services District and Samoa Peninsula Fire District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)		If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No		No rivers go through district
Drought	No		North coast weather, so no impact in the fire district
Earthquake	Yes		N/A
Extreme Temperatures (Extreme Heat and Extreme Cold)	No		No historical vulnerability to extreme heat or extreme cold temperature hazards.
Flooding	Yes		N/A
Landslide	No		Not that type of hills in the district
Tsunami	Yes		N/A
Wildfire	Yes		N/A
Wind	Yes		N/A
Winter Weather	Yes		N/A

Table 304: Peninsula Community Services District and Samoa Peninsula Fire District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Earthquake	High	High	High	High	High
Flooding	Medium	Medium	Medium	Medium	Medium
Tsunami	High	High	High	High	High
Wildfire	Medium	Medium	Medium	Medium	Medium
Wind	High	High	High	High	High
Winter Weather	Low	Low	Low	Low	Low

Note: The process used to assign risk rankings is described in Volume 1.

17.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Peninsula Community Services District and Samoa Peninsula Fire District. Other hazard events that broadly affected the entire planning area, including the Peninsula Community Services District and Samoa Peninsula Fire District, are listed in the risk assessments in Volume 1.

17.2.1.1. HISTORICAL EVENTS

There have been no recorded storm events that have occurred in the Peninsula Community Services District and Samoa Peninsula Fire District from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for Environmental Information (NCEI). The NCEI database does not always capture localized hazard data. To address this gap, the Peninsula Community Services District and Samoa Peninsula Fire District has documented additional significant events, with their impacts detailed below.

EARTHQUAKE

- **Dec. 5, 2024:** No earthquake impact damage to districts.
- **December, 2023:** No earthquake impact damage to districts.

FLOODING

- No events have occurred for this hazard.

TSUNAMI

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- No events have occurred for this hazard.

WINTER WEATHER

- No events have occurred for this hazard.

17.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 305 provides information on a few key vulnerabilities and impacts on the district.

Table 305: Peninsula Community Services District and Samoa Peninsula Fire District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* All CSD and SPFD structures are vulnerable to major damage from the faults off the coast of Humboldt County. CSD and FPD critical facilities occupying unreinforced structures are vulnerable to facility and equipment damage from failing structures. CSD underground infrastructure is vulnerable to earthquake damage. CSD employees and SPFD first responders are vulnerable to injury or fatalities during earthquake events. SPFD first responders may be vulnerable to delays, putting lives and property at risk due to inaccessible roads during earthquake events. CSD customers, including the towns of Fairhaven, Samoa Peninsula, and Samoa, are vulnerable to prolonged service disruptions. *Impacts:* Earthquake events can damage not only water tanks that store the water supply but also the CSD wastewater treatment system's ability to provide critical services to its CSD customers, including the towns of Fairhaven, Samoa Peninsula, and Samoa. Also, the CSD may be impacted by extensive repair costs to restore critical facilities, potential loss of life among employees, and loss of revenue from service disruptions.
Flooding	*Vulnerabilities:* CSD's critical infrastructure located in or near Special Flood Hazard Areas AE or VE flood zones is vulnerable to flooding events. CSD employees face life-threatening risks during flood response efforts. Road closures and hazardous conditions caused by flooding can delay SPFD first responders in reaching affected areas, and this can put lives and property at risk. *Impacts:* Flood events can impact the water supply with possible contamination, damage critical infrastructure (channels, culverts, or storm sewers) and equipment, and lead to CSD loss of revenue during prolonged service disruption.
Tsunami	*Vulnerabilities:* The entire district is vulnerable to tsunamis including people and critical infrastructure. All CSD facilities located in the tsunami zone including the Samoa Peninsula Fire Station are vulnerable to catastrophic flooding that could damage critical infrastructure and disrupt utility services. CSD customers, the towns of Fairhaven, Samoa Peninsula, and Samoa in the tsunami zone, are vulnerable to prolonged service disruptions during equipment repair and service restoration efforts. *Impacts:* Tsunami events can contaminate the water supply, damage water tanks, and flood wastewater treatment systems. These impacts

Hazard	Vulnerabilities and Impacts
	can damage critical facilities and equipment and result in revenue loss for CSD during extended service outages.
Wildfire	*Vulnerabilities:* CSD customers in the towns of Fairhaven, Samoa Peninsula, and Samoa in the moderate fire hazard severity zones are vulnerable to water service disruption from prolonged power outages during planned Public Safety Power Shutoffs. Also, the CSD water supply is vulnerable to increased demand during wildfire events. Although no CSD critical facilities are located in the wildfire high risk zone, people and facilities could be vulnerable if a fire were to occur. *Impacts:* Wildfire events could impact the CSD through extensive damage to critical infrastructure and loss of revenue from prolonged service disruptions. Firefighting efforts increase demand on the local water system, and this affects water supply levels. SPFD first responders are vulnerable to injury and loss of life during wildfire events.
Wind	*Vulnerabilities:* CSD employees conducting repair activities can be vulnerable to injury or fatalities during strong wind events. SPFD first responders are vulnerable to injury or fatalities while conducting emergency response activities. In addition, CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned Public Safety Power Shutoffs during high wind/wildfire prevention events. CSD critical facilities are vulnerable to strong wind damage during events. *Impacts:* Severe wind events impact the CSD's water distribution systems and wastewater treatment systems ability to provide services to customers in affected service areas. Severe wind damage can also impact critical facility operations, and flying debris can make roads inaccessible for potable water delivery or access to critical facilities, prolonging service disruptions.
Winter Weather	*Vulnerabilities:* CSD's critical infrastructure and facilities lacking weatherization treatment are vulnerable to extreme winter weather events. Unreinforced roofs on CSD critical facilities are vulnerable to collapse from snow piles during blizzards and heavy snow. CSD customers are vulnerable to delayed water delivery when roads are inaccessible. SPFD first responders may be vulnerable to delays, putting lives and property at risk due to inaccessible roads during winter weather events. *Impacts:* Winter weather events can disrupt delivery of potable water, impair wastewater treatment systems due to prolonged power

Hazard	Vulnerabilities and Impacts
	outages, damage critical facilities, and block roads needed for water delivery and access to essential CSD infrastructure.

17.2.2.1. DEVELOPMENT CHANGES

Table 306 summarizes development trends in the Peninsula Community Services District and Samoa Peninsula Fire District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 306: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	80 units of affordable housing and redoing housing in Old Town	None	Increased
Commercial	None	Visitor center, campground, updates to the Milwaukee	Increased
Industrial	None	Wind farm, fish farm	Increased

17.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs, and resources. The Peninsula Community Services District and Samoa Peninsula Fire District performed an assessment of their existing capabilities for implementing hazard mitigation actions. The PCSD and SPFD intend to use the assessment to identify and address gaps in capabilities and will support the update in the next LHMP. The capability assessment is evaluated upon a multifaceted approach that includes the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

17.3.1. Planning and Regulatory Capabilities

Table 307 and Table 308 summarize the Peninsula Community Services District and Samoa Peninsula Fire District's planning and regulatory capabilities, including plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Land uses in the district is currently subject to the Humboldt County General Plan, Peninsula CSD and Samoa Peninsula FD Community Plan, and Zoning Regulations (Humboldt County Code Title III, Division 1). Peninsula CSD and Samoa Peninsula FD operate under the 2022 California Building Codes, Humboldt County building code 331-11, and Title 24 Building codes (2019 and 2022).

Table 307: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes. Assembly Plan: Yes	Develop rules and regulations to service the community.	Last Update: 03/2021 Next Update: 03/2026
Recovery Plan	Yes	Use the information from the prior plan. Nothing has significantly changed.	Last Update: 03/2021 Next Update: 03/2026
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	Yes	Use the information from the prior plan. Nothing has significantly changed.	Last Update: 12/2023 Next Update: 12/2028
Stormwater Management Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 308: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Acquisition of Land for Open Space and Public Recreation Use	No	CSD/Fire District (FD) does not have a current regulation or ordinance, but it is in development. The beachfront property is privately owned or owned by the harbor district (public entity) and the jurisdiction does not have to follow county regulation/ordinance.	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

17.3.2. Administrative and Technical Capabilities

Table 309 and Table 310 summarize the Peninsula Community Services District and Samoa Peninsula Fire District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 309: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 310: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	High-risk areas are mapped to plan alternative evacuation routes. Flood areas have been mapped.	High-risk areas are mapped to plan alternative evacuation routes. Flood areas have been mapped.
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Fire protection (see Arcata FD).	High-risk areas are mapped to plan alternative evacuation routes. Flood areas have been mapped.
Civil Engineer – GHD (Private company)	Yes	High-risk areas are mapped to plan alternative evacuation routes. Flood areas have been mapped.	High-risk areas are mapped to plan alternative evacuation routes. Flood areas have been mapped.

17.3.3. Financial Capabilities

Table 311 summarizes the Peninsula Community Services District and Samoa Peninsula Fire District's financial capabilities, which refer to the resources to fund mitigation actions.

Discussing the funding and financial capabilities of the districts is important to determine the kinds of projects that are feasible given their cost.

Table 311: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	No	No	No
General Funds	Yes	No	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	No	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	No	Yes	Yes
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	Yes	USDA – Rural Development: $20,000 wastewater for the peninsula	N/A	N/A
State-Funded Programs	Yes	Programs: Water quality – part of the wastewater grant Activities: Water quality	No	No
Private Sector or Nonprofit Programs	Yes	No	Yes	Yes

17.3.4. Education and Outreach Capabilities

Table 312 summarizes the Peninsula Community Services District and Samoa Peninsula Fire District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 312: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A
Public Meetings/Events	Yes	Yes	Monthly board meetings and tsunami preparedness and evacuation training
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	Yes	No	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	CSD and FIRE, peninsula community collaborative
Social Media	Yes	Yes	Facebook, Instagram

17.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 313. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 313: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Open space ordinance is in development. A significant challenge in creating plans and regulations for our small community is the presence of numerous government, nonprofit and for-profit organizations. Coordinating these entities can complicate the development of effective plans and ordinances within a reasonable timeframe. Additionally, the evolving land use presents further complexities. What was once primarily a mill town is now transitioning to affordable housing, windmills and light industrial areas. The industrial area, being coastal property, also has a substantial environmental impact.
Administrative and Technical	The community relies heavily on county-provided services. The fire department consists of one full-time staff member, supported by five board members and ten volunteers. Both the community services district and the fire department currently have limited capabilities, but they hope that future development funding will enhance these capabilities. The staff members have various other duties and responsibilities, such as managing wastewater and serving as the fire chief.
Financial	While additional staff would be beneficial, the jurisdiction faces funding constraints. As a result, the focus remains on day-to-day duties, making it challenging to develop and effectively implement other plans.
Education and Outreach	Being able to conduct outreach more frequently is essential. The small community is home to a very diverse population and various entities. High turnover among representatives, such as Coast Guard commanders, can complicate collaboration. Similarly, the residents in affordable housing experience high turnover, making education and outreach challenging. Socioeconomic differences further complicate effective communication with the diverse population. Additionally, residents often lack the time or energy to attend meetings, participate in training or respond to outreach campaigns.

17.4. National Flood Insurance Program

The Peninsula Community Services District and Samoa Peninsula Fire District are not required to participate in the NFIP program because, as special districts, they do not have authority to do

so. However, all structures and systems for the district are vulnerable to flooding impact. The New Navy Base Road has flooded during winter weather storms and during King tide/high tide.

17.5. Mitigation Strategy

The Peninsula Community Services District and Samoa Peninsula Fire District have adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 314, while new mitigation action items and those carried forward from the previous plan are in Table 315.

17.5.1. Previous Mitigation Actions

Table 314: Previous Mitigation Actions

Mitigation Action	Description	Status
SFPD1	Work toward Tsunami Ready Tier 1 and Tier 2.	Deferred, lack of staff
SFPD2	Purchase generators for Fairhaven Fire Station to provide adequate backup power for station operations but also to provide power to the co-located tsunami siren.	Completed
SFPD3	Build a tsunami evacuation structure at Fairhaven Fire Station to provide vertical evacuation for residents and visitors during a near-source tsunami event.	Deferred, lack of funding
SFPD4	Upgrade tsunami siren to meet modern standards.	Deleted, working on educating public on tsunami preparedness
SFPD5	Study vulnerability of roads that provide access to the Samoa Peninsula to both tsunami inundation and sea level rise.	Deferred to the County of Humboldt as lead agency
SFPD6	Study adaptation strategies for sea level rise, such as retreat, that might be appropriate for Fairhaven and other parts of the peninsula.	Deferred, lack of funding
SFPD7	Retrofit Fairhaven Fire Station for earthquake safety.	Deferred, lack of funding
SFPD8	Conduct fire prevention activities and education for the community.	Deferred to continue

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17.5.2. Updated Mitigation Actions

Table 315: 2025 Mitigation Actions[25]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
SFPD1	Implement Tsunami Ready Tier 1 and Tier 2 Program.	High	PCSD	Tsunami	General fund	$100,000-$500,000	Short-term	Both	Yes	Safety and Security
SFPD2	Build a tsunami evacuation structure at Fairhaven Fire Station and a location in Samoa to provide vertical evacuation for residents and visitors during a near-source tsunami event.	Medium	PCSD	Tsunami	HMGP, PDM, FMA	Over $500,000	Long-term	Both	Yes	Safety and Security
SFPD3	Study vulnerability of roads that provide access to the Samoa Peninsula to tsunami inundation, sea level rise, flooding and wildfire.	High	County of Humboldt, PCSD	Tsunami, flooding, wildfire	Staff time, HMGP, PDM, FMA, general fund	$100,000-$500,000	Medium-term	Both	Yes	Transportation
SFPD4	Study adaptation strategies for sea level rise, such as retreat, that might be appropriate for Fairhaven and other parts of the peninsula.	High	PCSD, County of Humboldt	Tsunami, earthquake, flooding, wildfire	HMGP, PDM, FMA, staff time	$100,000-$500,000	Long-term	Both	Yes	Safety and Security
SFPD5	Retrofit Fairhaven Fire Station for earthquake safety.	High	PCSD	Earthquake	Staff time, HMGP, PDM, FMA	Over $500,000	Medium-term	Both	Yes	Safety and Security
SFPD6	Conduct fire prevention activities and education for the community.	High	PCSD	Wildfire	HMGP, PDM, staff time	Under $100,000	Short-term	Both	Yes	Safety and Security

[25] FMA: Flood Mitigation Assistance, HMGP: Hazard Mitigation Grant Program, PCSD: Peninsula Community Services District, PDM: Pre-Disaster Mitigation, PG&E: Pacific Gas and Electric

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
SFPD7	Protect power lines: 1. Set pruning standards for utilities around power lines. 2. Bury overhead power lines. 3. Implement a designed-failure mode in power line design for quicker restorations. 4. Install redundancies and loop feeds.	High	PCSD	Wind, winter weather, wildfire	Staff time, HMGP, PDM, FMA, PG&E	Over $500,000	Medium-term	New	Yes	Energy
SFPD8	Increase public awareness of hazards: Support a community education and visitor program on the dangers of tsunamis and other hazards and what they should do.	High	PCSD	Earthquake, extreme temperatures, flooding, tsunami, wind, winter weather	Staff time	$100,000-$500,000	Short-term	Both	Yes	All Lifelines
SFPD9	Continue to Support Countywide Initiatives Identified in this Plan	High	PCSD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, tsunami, wildfire, wind, winter weather	HMGP, district funds	$100,000	Both	Short-term and ongoing	Yes	All Lifelines

18. Redway Community Services District Annex

This section presents the jurisdictional annex for Redway Community Services District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. The Redway Community Services District did not identify any new priorities for this plan update.

18.1. Planning Process

18.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including Redway Community Services District, the stakeholders and the public. Redway Community Services District was represented during the planning process by the following individual listed in Table 316.

Table 316: Redway Community Services District Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Cody Cox	General Manager/Operations Manager	Redway Community Services District, Southern Humboldt County	cody@redwaycsd.org

18.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 317. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 317: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	1. Local and regional agencies involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture	Kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Caitlin Canale	District Manager	Ruth Lake CSD	Ruthlakecsd@yahoo.com	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

18.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 30 illustrates how the public was encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages. Redway Community Services District utilized a variety of communications channels that are free and easily accessible, such as their website and office bulletin board.

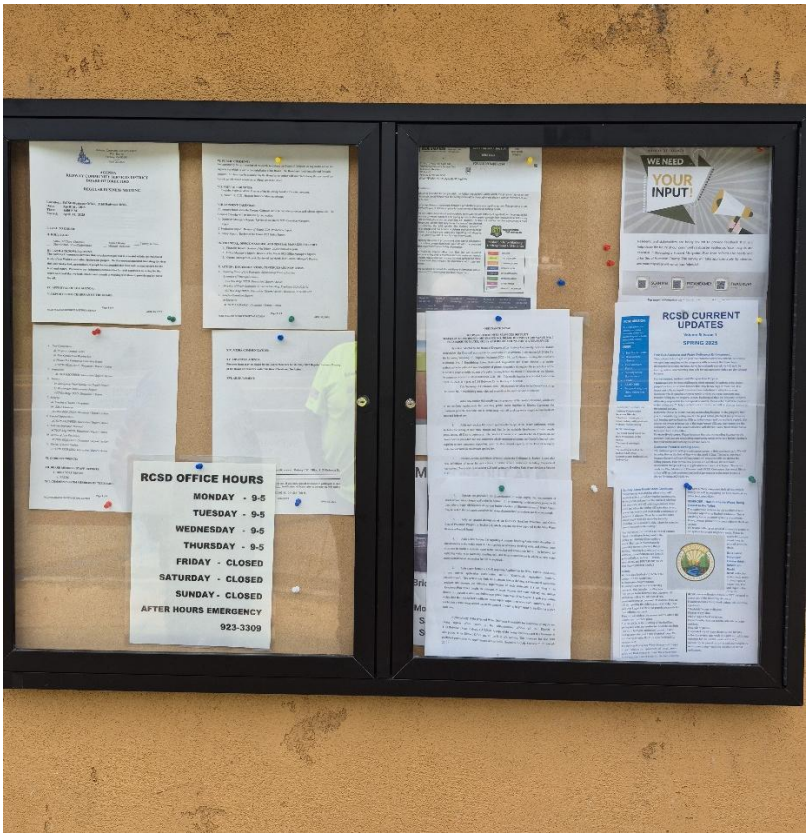

Figure 30: Public Outreach Methods

The public survey received four responses from residents of Redway. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?" most respondents indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply, and wastewater, improvements to public infrastructure against potential impacts from climate change, restoration of the natural environment to absorb the impacts of natural hazards and opportunities for training for the public to better respond to natural disasters. One example of Redway CSD's efforts to incorporate public feedback into mitigation actions is the addition of mitigation action RCSD3 – Retrofit of existing delta generator to a portable mount for redundant power if needed at existing lift station sites.

18.1.3.1.VULNERABLE POPULATION OUTREACH

Some Redway Community Services District customers may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved customers in Redway Community Services District may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the district customers face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. The district

advertised the survey specifically to vulnerable populations. Some of outreach methods included resources such as their website and the office bulletin board.

18.1.4. Plan Integration

18.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 318.

Table 318: Previous Plan Integration for Redway Community Services District

Plan Name	Description
Capital Improvement Plan	The previous HMP risk assessment was used to identify risks from identified hazards to water and wastewater treatment facilities infrastructure. This led to the development of several focused capital improvement projects. One example is the West Coast Pipeline Improvement Project.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 319 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 319: Future Types of Plan Integration for Redway Community Services District

Type of Plan	Integration Method
Capital Improvement Plan	The Redway CSD will use the plan update to inform the CIP update on new vulnerabilities to its wastewater infrastructure and to develop projects to reduce the impact of those hazards.

18.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in

Table 320 and Table 321. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 320: Redway Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	Not located in the Tsunami inundation zone
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 321: Redway Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	Low	Low	Low	Low
Drought	High	High	High	Medium	High
Earthquake	High	High	High	High	High
Extreme Cold	High	High	Low	Medium	High
Extreme Heat	High	High	Low	Medium	High
Flooding	High	High	High	High	High
Landslide	High	Medium	Medium	Medium	High
Wildfire	High	High	High	High	High

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Wind	High	Medium	Medium	Low	High
Winter Weather	Medium	High	Low	Medium	Medium

Note: The process used to assign risk rankings is described in Volume 1.

18.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in Redway Community Services District. Other hazard events that broadly affected the entire planning area, including Redway Community Services District, are listed in the risk assessments in Volume 1.

18.2.1.1.HISTORICAL EVENTS

There have been no recorded storm events that have occurred in Redway Community Services District from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for Environmental Information (NCEI). However, the NCEI database does not always capture localized hazard data. To address this gap, Redway Community Services District has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **2022:** Damage to some instrumentation and controls, increased power consumption due to low river flow, and a decrease in gallons per minute (GPM) to storage.

EARTHQUAKE

- **Dec. 5, 2024:** Damage to volunteer fire departments in control room for our submersibles.
- **Dec. 20, 2022:** Damage to volunteer fire departments in control room for our submersibles.

EXTREME HEAT

- **2019–2024:** Extreme heat put a strain on equipment with longer run times, creating high temperatures on instrumentation and controls.

EXTREME COLD

- No events have occurred for this hazard.

FLOODING

- **2019–2024:** High river levels and high turbidity resulted in longer run times on equipment.

LANDSLIDE

- No events have occurred for this hazard.

WILDFIRE

- **2019–2024:** Increased potable water usage for wildland firefighting. Base camp setup at Eel River Camp #31 increased water demand.

WIND

- **February–March, 2019:** Power outages caused by high wind events extended generator runtimes. A major thunderstorm hit the area in late February and early March, 2019, left severe damage to the wastewater plant access road as well as to the wastewater plant generator. Due to the power outages, the generator had to work overtime and would not have continued to function without constant human surveillance and intervention.

WINTER WEATHER

- **2019–2024:** There was a need for winterizing when temperatures went down to 20 F.

18.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 322 provides information on a few key vulnerabilities and impacts on the district.

Table 322: Redway Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* Redway CSD is located in a large bend of the South Fork Eel River watershed and may be vulnerable to flood events from dam failure of the Eel River Dams. CSD infrastructure is vulnerable to flooding in the Eel River watershed. CSD underground infrastructure and roads are vulnerable to flooding. *Impacts:* Dam failure could result in loss of life among CSD employees, disruption of the CSD water supply, loss of revenue, and damage to critical CSD infrastructure.

Hazard	Vulnerabilities and Impacts
Drought	*Vulnerabilities:* Redway CSD sources of water consist of an infiltration gallery located on the banks of the South Fork of the Eel River and an unnamed spring. Redway CSD regularly experiences late summer drought conditions even in "normal" water supply years. The CSD relies on adequate river flow levels in the South Fork of the Eel River. All CSD water and wastewater systems, as well as its critical infrastructure, are vulnerable to drought conditions in the summer months. Also, CSD customers that rely on CSD for available local water supplies for hydration are vulnerable to health and hygiene risks. *Impacts:* Drought events impact the water supply by reducing the water levels, which could impact firefighting efforts during prolonged drought events. In addition, a decrease in water supply levels can impact the CSD's ability to supply water to its customers. Any increase in water usage during drought conditions could lead to water restrictions on CSD customers' water usage. Prolonged drought can lead to CSD loss of revenue.
Earthquake	*Vulnerabilities:* All of Humboldt County, including Redway CSD service areas located in or alongside the coastline, are vulnerable to seismic hazards.[26] Much of the Redway CSD treatment and distribution system is more than 30 years old. All unreinforced structures in the CSD are vulnerable to earthquake damage. CSD critical facilities occupying unreinforced structures are vulnerable to facility and equipment damage from failing structures as a result of earthquake or liquefaction. All CSD underground infrastructure is vulnerable to earthquakes. *Impacts:* Earthquake events impact the water supply and wastewater treatment systems' ability to provide critical services to 536 CSD customers. Also, the CSD may be impacted by extensive repair costs to restore critical facilities, potential loss of life of employees, and loss of revenue from service disruptions.
Extreme Cold	*Vulnerabilities:* CSD's critical infrastructures that lack proper weatherproofing are vulnerable to extreme cold. The CSD customers are vulnerable to service disruptions from extreme cold events. Employees of the CSD working outdoors for prolonged periods are vulnerable to extreme cold related illnesses.

[26] Humboldt State University, 2017, "Seismically Hazardous Zones of Humboldt County," https://gis.humboldt.edu/projects/GSP270_Samples/Seismically%20Hazardous%20Zones%20of%20Humboldt%20County.pdf

Hazard	Vulnerabilities and Impacts
	Impacts: Extreme cold can freeze underground infrastructure and facility equipment, resulting in frozen pipes and burst water mains, which may lead to costly repairs and prolonged service disruptions. Extreme cold can increase demand on CSD water services and cause icy roadways , making them inaccessible for water service delivery. Extreme cold can strain the local electrical grid, leading to water service disruptions and reduced water supply levels due to increased customer demand. Prolonged outages may also result in revenue loss for the CSD.
Extreme Heat	*Vulnerabilities:* CSD's critical infrastructures that lack proper weatherproofing are vulnerable to extreme heat. The CSD customers are vulnerable to service disruptions from extreme heat and extreme cold events. Employees of the CSD working outdoors for prolonged periods are vulnerable to extreme heat related illnesses. *Impacts:* Extreme heat can increase demand on CSD water services and cause roadways to warp, making them inaccessible for water service delivery. Extreme heat can strain the local electrical grid, leading to water service disruptions and reduced water supply levels due to increased customer demand. Prolonged outages may also result in revenue loss for the CSD.
Flooding	*Vulnerabilities:* Redway CSD is located in a large bend of the South Fork Eel River watershed and may be vulnerable to flood events. CSD's critical infrastructure located in or near the SFHA Zone A is vulnerable to flooding. Much of the Redway CSD treatment and distribution system is more than 30 years old and vulnerable to flooding events. CSD employees are vulnerable to fatalities and loss of life during flooding response efforts. *Impacts:* Flood events can contaminate the water supply, inundate critical infrastructure such as culverts and storm sewers, damage equipment, and result in revenue loss due to prolonged service disruptions.
Landslide	*Vulnerabilities:* In landslide susceptibility areas of the Redway and Garberville areas, all daily CSD operations are vulnerable. to damage to critical facility infrastructure located near the historic active debris slides on the Eel River near Orchard Lane. CSD customers may be vulnerable to prolonged service disruption in impacted service areas. *Impacts:* Landslide events can impact by causing damage to the CSD's water distribution system and wastewater treatment systems. Extensive and expensive repair costs can impact the CSD financially and result in a loss of revenue during prolonged service disruptions.

Hazard	Vulnerabilities and Impacts
	Landslides can make roadways inaccessible, causing water service delivery delays to customers.
Wildfire	*Vulnerabilities:* CSD customers located in or near wildfire risk zones are vulnerable to water service disruption from prolonged power outages during planned power safety shutoffs. Also, the CSD water supply is vulnerable to increased demand during wildfire events. CSD critical facilities located in or near the wildfire risk zones are also vulnerable to wildfire damage. *Impacts:* Wildfire events can impact the CSD with extensive damage to critical infrastructure and loss of revenue from prolonged service disruptions. Firefighting efforts make an increase demand on the local water system impacting the water supply levels.
Wind	*Vulnerabilities:* CSD employees conducting repair activities are vulnerable to injury or fatalities from downed trees and power lines during strong wind events. In addition, CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. CSD critical facilities are vulnerable to strong wind damage during events. *Impacts:* Severe wind events impact the CSD's water distribution and wastewater treatment systems' ability to provide services to its customers in service areas affected by severe wind preventative measures. Severe wind damage can also impact critical facility operations as flying debris can make roads inaccessible during the delivery of potable water and to critical facilities, prolonging service disruptions.
Winter Weather	*Vulnerabilities:* Much of the Redway CSD treatment and distribution system is more than 30 years old. CSD critical infrastructure and facilities lacking proper weatherization treatment are vulnerable to extreme winter weather events. Unreinforced roofs on CSD critical facilities are vulnerable to collapse from snow piles during blizzards and heavy snow. CSD customers are vulnerable to delayed water delivery during winter events when roadways are inaccessible. *Impacts:* Winter weather events impact the water delivery system and wastewater treatment systems from prolonged power outages, and can cause critical facility damage and loss of road access to CSD critical facilities.

18.2.2.1. DEVELOPMENT CHANGES

Table 323 summarizes development trends in Redway Community Services District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 323: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Minor residential development. One modular added to system in the past several years, along with two accessory dwelling units.	N/A	No change
Commercial	Minor commercial	N/A	No change
Industrial	N/A	N/A	No change

18.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. Redway Community Services District performed an assessment of its existing capabilities for implementing hazard mitigation actions. Redway CSD intends to use the assessment to identify and address gaps in capabilities and will support the update in the next LHMP. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

18.3.1. Planning and Regulatory Capabilities

Table 324 and Table 325 summarize Redway Community Services District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Land uses in the district are currently subject to the Humboldt County

General Plan, Redway CSD Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Redway CSD operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 324: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes. Assembly Plan: Yes	By following the current emergency preparedness plan for Redway CSD, with Regular board/public involvement	Last Update: 09/2024 Next Update: 09/2026
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	Yes	This program allows management to adjust designs and strategies to accommodate hazard mitigation planning as information becomes available and understanding evolves.	Last Update: 09/2024 Next Update: 09/2026
Climate Change Adaptation Plan	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Keep documentation up to date. Keep all district personnel trained and up due date	Last Update: 01/2020 Next Update: 09/2026
Stormwater Management Plan	N/A	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 325: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	Yes	Yes	Last Update: 05/2018 Next Update: 05/2026
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

18.3.2. Administrative and Technical Capabilities

Table 326 and Table 327 summarize Redway Community Services District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 326: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Non-Vacant	Yes	Yes	Yes
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Non-Vacant	Yes	Yes	Yes
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Non-Vacant	Yes	No	Yes
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Non-Vacant	Yes	Yes	Yes

Table 327: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	This information has helped with mitigating ingress and egress issues to district treatment facilities.	Continual updates seasonally, and data entry during storm events or other natural disasters and how it affected our district/community.
GIS	Yes	Faster response times for operators, pinpointing and locating problem areas for the future, data entry to the system itself.	Continual utilization throughout the year, and keeping our system updated.
Mutual Aid Agreements	No	N/A	N/A

18.3.3. Financial Capabilities

Table 328 summarizes Redway Community Services District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 328: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Yes. Road rehabilitation to critical infrastructure.	Yes	Yes
General Funds	No	N/A	N/A	N/A
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Yes. General operations.	Yes	No
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes. Operations.	Yes	No
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

18.3.4. Education and Outreach Capabilities

Table 329 summarizes Redway Community Services District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 329: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	No	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Public Meetings/Events	Yes	No	Board meeting third Wednesday of each month, along with committee meeting, special meetings as needed, such as hosting seminars at the local district office.
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	Continual updates to the website and social media pages.	N/A

18.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 330. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 330: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Some opportunities to expand or improve our capabilities would be to establish a wildfire protection plan, which would include a fuels reduction plan around facilities.
Administrative and Technical	Our capabilities in floodplain management is a must. It is severely lacking here in Redway at a county level, and in our own hazard mitigation plan, action needs to be taken.
Financial	Utilize the other hazard mitigation grant programs.
Education and Outreach	Education and outreach program needs attention in our hazard mitigation plan. It is lacking in natural disaster awareness, excluding drought, which is up to date.

18.4. National Flood Insurance Program

Redway Community Services District is not required to participate in the NFIP program, because as a special district it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure which will impact fire services, hydration and public health. Vulnerable infrastructure to flood includes instrumentation and controls, creating high turbidities, decreased flows to storage and distribution.

18.5. Mitigation Strategy

Redway Community Services District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 331, while new mitigation action items and those carried forward from the previous plan are in Table 332.

18.5.1. Previous Mitigation Actions

Table 331: Previous Mitigation Actions

Mitigation Action	Description	Status
RCSD1	Where appropriate, support retrofitting, purchasing or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Deferred. The district has applied for technical assistance and for structure maintenance and reinforcement of the riverbank near the Infiltration Gallery. Status: Pending.
RCSD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Deferred. Education and outreach are ongoing efforts, which include disaster preparedness. The district has purchased a sewer combo truck, as well as CCTV equipment for planned maintenance and inspection for inflow and infiltration location and repair in our sanitary sewer system.
RCSD3	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including a portable trailer-mounted backup generator that can be moved to any of the critical infrastructure locations in case of standby power failure.	Deferred. We are working on the wastewater infrastructure improvement's planning project grant and are currently at 90% design. The generator at the plant is scheduled for replacement with this grant, and the existing generator will become our portable delta power generator for our lift stations. The sunset date is pending.
RCSD4	Engage in Storm Ready Community Certification program.	Deferred. Storm ready certification is incomplete. Also, in Redway CSD #4, fuel load reduction at the wastewater treatment plant is also pending. This will be an ongoing effort.
RCSD5	Engage in community disaster preparedness outreach, including the support for a Firewise Community Certification. Enhance stormwater management.	Deferred. Disaster preparedness is an ongoing effort. We are seeking funding and are in contact with Local Agency Formation Commission (LAFCO) regarding culvert maintenance responsibility, especially since we have the capability now because of the acquisition of our new combo truck and CCTV equipment.

Mitigation Action	Description	Status
RCSD6	Develop alternate source(s) and additional storage for potable water.	Deferred. We are currently working in the Redway Emergency Water Storage and Supply Grant through the Department of Water Resources and replacing a 250,000-gallon water storage tank in the district. It sunsets in June, 2026. We have drilled a new well and are in the process of getting the new well online to supplement with an alternate source, “groundwater,” and will be conducting more exploratory well drilling in the future on Redway CSD-owned land by 2027.

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18.5.2. Updated Mitigation Actions

Table 332: 2025 Mitigation Actions[27]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RCSD1	Request technical assistance and grant work for existing vulnerable facilities in the district. Install hardening/riprap near infiltration gallery at water plant.	High	Redway CSD	Earthquake, landslide, flooding, winter weather, wildfire	SWRCB, HMGP	$250,000	Medium-term	Both	Yes	Food, Hydration and Shelter
RCSD2	Planned maintenance, education and outreach; jet and clean sanitary sewer; and identify inflow and infiltration.	High	Redway CSD	Earthquake, landslide, flooding, winter weather, wildfire	SWRCB, HMGP	$500,000	Long-term	Existing	Yes	Water Systems
RCSD3	Retrofit of existing delta generator to a portable mount for redundant power if needed at existing lift station sites.	High	Redway CSD	Dam failure, drought, earthquake, extreme temperatures, landslide, flooding, winter weather, wildfire, wind,	HMGP	$10,000	Short-term	Existing	Yes	Energy
RCSD4	Reduce potential wildfire fuel loads near wastewater plant.	High	Redway CSD	Wildfire	HMGP, FMAG	Staff time	Short-term	Existing	Yes	Water Systems
RCSD5	Disaster preparedness outreach by obtaining Firewise Certification	High	Firewise/Redway CSD	Wildfire	Staff	Staff time	Short-term	Existing	Yes	Safety and Security

[27] DWR: Department of Water Resources, FMA: Flood Mitigation Assistance, FMAG: Fire Management Assistance Grant, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation, SWRCB: California State Water Resources Control Board

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RCSD6	Add more potable water storage within district boundary; add alternate source.	High	Redway CSD	Drought, extreme temperatures	SWRCB, DWR	Over $500,000	Long-term	New	Yes	Water Systems
RCSD7	Continue to support countywide initiatives identified in this plan.	High	Redway CSD	Earthquake, floods, dam failure, drought, extreme temperatures, landslide, wildfire, wind, winter weather	HMGP	$100,000	Short-term and ongoing	Both	Yes	All

19. City of Rio Dell Annex

This section presents the jurisdictional annex for the City of Rio Dell. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Priorities for this plan update included the emphasis on community lifelines and effective mitigation actions. Since the last plan update, Rio Dell experienced a 6.4 magnitude earthquake that severely damaged homes and public infrastructure. Despite the significant losses, no FEMA disaster declaration was declared. This earthquake demonstrates the need to develop local capabilities, including interagency coordination, support recovery, and implement local mitigation measures to reduce risk from future events. These priorities are reflected in the actions selected during this plan update.

19.1. Planning Process

19.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by the planning consultant IEM, with input from the participating jurisdictions, including the City of Rio Dell, the stakeholders and the public. The City of Rio Dell was represented during the planning process by the following individuals listed in Table 333.

Table 333: City of Rio Dell Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Kyle Knopp	City Manager	City of Rio Dell	knoppk@cityofriodell.ca.gov

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 334. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 334: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Type of Stakeholder
Shane Wilson	Fire Chief	Rio Dell FPD	shawil22@aol.com	1.Local and regional agencies involved in hazard mitigation activities
Kevin Caldwell	Community Developme nt Director	City of Rio Dell	Caldwellk@cityofriodell.ca.gov	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
–	–	Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	American Red Cross	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

19.1.2. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. Figure 31 illustrates how the public was encouraged to participate in the survey. The City of Rio Dell utilized the city hall to share public notices.

Figure 31: Public Outreach Methods

Public feedback was incorporated into the risk assessment as appropriate as well as the list of mitigation action ideas which the City reviewed at the Mitigation Action Workshop for inclusion in the updated list of mitigation actions for this plan update. In particular, residents of Rio Dell were concerned about the vulnerability of senior and disabled community members as well as the older housing stock. In terms of infrastructure, they felt that the community's infrastructure was not very well prepared for the impacts of climate change. They recommended conducting additional public education and awareness activities, which is reflected in the area-wide actions Rio Dell selected to include in this update.

19.1.2.1.VULNERABLE POPULATION OUTREACH

Some Rio Dell residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Rio Dell may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Figure 32 displays how the city advertised the survey specifically to vulnerable populations. Some of outreach methods included resources such city calls and kiosks located around the City of Rio Dell.

Figure 32: Public Outreach to Vulnerable Populations

19.1.3. Plan Integration

19.1.3.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 335.

Table 335: Previous Plan Integration for the City of Rio Dell

Plan Name	Description
Safety Element of the General Plan	The City of Rio Dell recently updated the General Plan. This plan directly referenced the last mitigation plan's summary of the hazards the city faced and incorporated mitigation actions from the last hazard mitigation plan, including all the high-priority actions.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant’s process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 336 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 336: Future Types of Plan Integration for the City of Rio Dell

Type of Plan	Integration Method
Climate Action Plan (Regional)	This plan will align with the priorities identified in the updated hazard mitigation plan.

19.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 337 and Table 338. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 337: City of Rio Dell Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	Outside of tsunami zone
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 338: City of Rio Dell Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Medium	Low	Low	Low	Low
Drought	High	High	High	High	High
Earthquake	High	High	High	High	High

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Extreme Cold	Medium	Low	Low	Low	Low
Extreme Heat	Low	Low	Low	Low	Low
Flooding	High	Low	Low	High	Medium
Landslide	High	Low	Low	Low	Medium
Wildfire	Medium	High	High	High	High
Wind	High	High	High	Low	High
Winter Weather	Medium	Low	Low	Low	Low

Note: The process used to assign risk rankings is described in Volume 1.

19.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Rio Dell. Other hazard events that broadly affected the entire planning area, including the City of Rio Dell, are listed in the risk assessments in Volume 1.

19.2.1.1. HISTORICAL EVENTS

Table 339 presents a summary of the storm events that have occurred in the City of Rio Dell from Nov. 1, 2019 to Dec. 31, 2024, from the National Centers for Environmental Information (NCEI). Rio Dell has experienced a relatively calm weather pattern in recent times, with one recorded storm event directly affecting it. However, the broader southern Humboldt region has faced several storm events, as documented by the NCEI. While Rio Dell itself may have avoided the brunt of these storms, neighboring areas have seen varying impacts, ranging from high winds to winter weather.

Table 339: NCEI Storm Event Database for the City of Rio Dell (2019-2024)

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Rio Dell	02/19/2024	Thunderstorm wind	0	0	$0	$0

The NCEI database does not always capture localized hazard data. To address this gap, the City of Rio Dell has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred related to this hazard. However, Scott Dam is 60 miles upriver and Scotia dam is 0.5 mile upriver; therefore, preparedness is key if one of the dams fails.

DROUGHT

- **2020:** The Water Shortage Contingency Plan was activated. There was an arbitrary state curtailment of water rights to the minimum necessary for public health. A near failure of the water infiltration gallery led to the redevelopment of the backup well site using Integrated Regional Water Management Planning grant dollars and USDA funding. There was no help from FEMA.

EARTHQUAKE

- **Dec. 6, 2024:** There was minor damage to roads.
- **Dec. 20, 2022:** A 6.4-magnitude earthquake and its aftershocks struck the town and caused over 300 structures to be initially deemed unsafe for occupation. Repairs needed by the community exceeded the $500,000 allocated, and $50,000 was spent on administrative costs at that time. The water system failed for a week, and 94 domiciles were red-tagged. Damage occurred to roads, wastewater, and water public infrastructure. Despite $35 million in damage, there was no FEMA declaration.

EXTREME TEMPERATURES

- Extreme cold occurs annually and leave the unhoused population exposed to freezing temperatures.
- Extreme heat has not been a significant concern in the city, but may occur in the future.

FLOODING

- **Nov. 20, 2024:** The area experienced slip-outs, sanitary sewer overflows, evacuations at the RV park, and trail flooding.
- **Mar. 13, 2023:** The City of Rio Dell issued a flood warning in the morning and said that portions of State Route 211 between Fernbridge and Ferndale (see Figure 33), as well as much of the Eel River Valley — including areas northwest of Loleta and the western portion of Cannibal Island Road — could go underwater.

Figure 33: Ferndale Bottoms Flooding

LANDSLIDE

- **2017:** There was residential damage, roadway damage, and damage to water and sewer infrastructure. A slip-out on Monument Road was a declared disaster at the federal level; however, FEMA was extremely difficult to work with and put a cap on the amount they would fund for the project.

WILDFIRE

- **April 16, 2020:** A sun blackout occurred with minimal direct impact to Rio Dell. However, resources were exhausted to assist with mutual aid.

WIND

- **Feb. 19, 2024**: The area experienced downed trees, power outages, and blocked roads.

WINTER WEATHER

- Annual winter weather caused slip-outs, power outages, and water disruptions.

19.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 340 provides information on a few key vulnerabilities and impacts for the jurisdiction.

Table 340: City of Rio Dell Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* The Eel River flows alongside Rio Dell to the north, south, and east. The city is vulnerable to failure of dams along this river, including the HHPD Scotia Log Pond Dam and Scott Dam. *Impacts:* For the most part, the dam failure inundation area within the city is limited to the channel of the river. River channelization could change the local ecosystem. Impacts to critical infrastructure and populations would be limited, particularly to people near or on the river at the time of the event. Since the city pumps in water from the Eel River, infiltration gallery and backup wells could be impacted.
Drought	*Vulnerabilities:* Low water supply and/or restrictive water conservation measures could limit the city's potable water and firefighting ability. The entire population is vulnerable to low water supply. *Impacts*: The city's main source of water is the Eel River. There could be disruptions to water production in severe situations. Services to populations, including vulnerable populations such as the elderly, could be disrupted.
Earthquake	*Vulnerabilities:* The entire population, structures, and critical infrastructure are vulnerable to an earthquake. The FEMA threshold issue for federal declaration poses an existential risk. Due to the county's high threshold, a significant earthquake in Rio Dell may not reach the threshold for a major disaster declaration, leaving the city and its population vulnerable to the economic impacts of recovery. *Impacts*: Depending on the location and magnitude of the earthquake, structures and infrastructure could be damaged or destroyed and people could be killed, injured, or displaced. In the event of the Cascadia Subduction Zone Fault magnitude 9.3 model earthquake, Rio Dell is projected to experience building losses between $249,846,072 and 442,427,572.
Extreme Cold	*Vulnerabilities:* The unhoused population is vulnerable to extreme cold. Critical infrastructure such as the city's water system could be disrupted. Other structures/infrastructures are unlikely to be at risk. *Impacts*: Populations exposed to extreme cold could experience cold-related injuries or death in extreme situations. Water disruptions could occur. Other structures/infrastructures are unlikely to be impacted.

Hazard	Vulnerabilities and Impacts
Extreme Heat	*Vulnerabilities*: The entire community is at-risk of extreme heat. Structures and infrastructure are unlikely to be directly impacted, but the population—especially the unhoused—could be. Additional vulnerable populations include people who work outdoors, seniors, and people with preexisting medical conditions. *Impacts*: Extreme heat can cause injury and death. Vulnerable populations are more likely to experience the negative impacts of extreme heat. Extreme heat is unlikely to impact critical infrastructure in Rio Dell.
Flooding	*Vulnerabilities:* The entire community, including people, property, and infrastructure, is at risk of flooding. Most of the high-risk and moderate-risk flood zones on the FEMA FIRM map for Rio Dell are contained near the Eel River, particularly on the west side of the community. Populations and infrastructure in this area may be more vulnerable. The city's water is also sourced from the Eel River, which is at risk of flooding. *Impacts*: Loss of electricity, contamination of water supply, loss of property, structure and infrastructure damage, displacement of residents, increase in mosquitoes, debris and emergency response delays.
Landslide	*Vulnerabilities:* The west side of the city is in or surrounded by moderate landslide susceptibility areas. The east side is next to the river, which may also have a moderate risk of experiencing landslides. Populations and infrastructure in these vulnerable areas are more vulnerable to landslides. *Impacts*: Injury or death to vulnerable residents, increased risk to emergency personnel, displaced residents, and loss of vegetation, leading to erosion.
Wildfire	*Vulnerabilities:* Population, structures, and infrastructure particularly in the WUI are at increased risk of wildfire. Rio Dell is noticing an increased risk due to expansion in the WUI. Populations and critical facilities located west of Wildwood Ave are projected to be particularly vulnerable. In the mapped local responsibility area, the Rio Dell Volunteer Fire Department would be at moderate risk. Transportation routes on both sides of the community—especially Highway 101—are located in a high risk zone. People evacuating are also vulnerable to wildfire. The entire population is vulnerable to wildfire smoke and poor air quality. *Impacts*: Structures and infrastructure can be damaged or destroyed. People could be injured or killed. The most vulnerable members of the population, including seniors, people with disabilities, low-income individuals, people without consistent access to transportation, and the unhoused population may disproportionately experience these impacts.

Hazard	Vulnerabilities and Impacts
Wind	*Vulnerabilities:* The entire community is located in Wind Zone I which could experience high winds up to 130 mph. All people, property, and infrastructure are vulnerable to wind. Transportation routes are vulnerable to disruption due to downed trees and power lines. Infrastructure and facilities that do not have backup power supplies are vulnerable. *Impacts*: Downed trees, power outages, blocked roads, safety concerns due to transportation disruption, and competition for limited backup fuel resources.
Winter Weather	*Vulnerabilities:* The unhoused population is vulnerable. According to the City of Rio Dell 2019-2027 Housing Element, two-thirds of housing units were built more than 30 years ago and may need additional repairs. Vulnerable populations, such as the elderly or about 20% of the city's population with a disability, may need assistance or shelter. Critical infrastructure such as the city's water system could be disrupted. Trees, power lines, and roads are vulnerable. *Impacts*: Populations exposed to the weather could experience injuries or death in extreme situations. Slips-outs and slides may increase on roadways. Water disruptions could occur. Downed trees, power outages, and transportation disruptions are also a concern.

19.2.2.1. DEVELOPMENT CHANGES

Table 341 summarizes the development trends in the City of Rio Dell that have emerged since the preparation of the previous hazard mitigation plan, as well as the expected future development trends.

Table 341: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	25-unit permanent supportive housing	2-3 new developments per year	Slight increase
Commercial	None	New CAL FIRE Regional Headquarters	No change
Industrial	Northwestern Avenue near flood zone	1-2 per year possible	Slight increase

19.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Rio Dell performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach, including:

- Planning and Regulatory capabilities
- Administrative and Technical capabilities
- Financial capabilities
- Education and Outreach capabilities

19.3.1. Planning and Regulatory Capabilities

Table 342 and Table 343 summarize the City of Rio Dell's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 342: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes Assembly Plan: Yes	When evaluating new discretionary development.	Last Update: 03/2025 Next Update: 03/2027
Recovery Plan	Yes	The city's Emergency Handbook and the Local Hazard Mitigation Plan (LHMP) include procedures for restoring essential services.	Last Update: 01/2023 Next Update: 01/2026
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	Yes	When evaluating new discretionary development.	Last Update: 08/2025 Next Update: 08/2025

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	Acquiring grants for infrastructure.	N/A
Land Use Plan	Yes	Add new potential requirements/ mitigation measures related to risks identified in the HMP.	Last Update: 03/2025 Next Update: 12/2027
Local Emergency Operations Plan	Yes	The EOP is a component of the LHMP.	Last Update: 12/2003 Next Update: 12/2026
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 343: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 01/2023 Next Update: 01/2026

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Flood Insurance Rate Maps	Yes	Yes	Last Update: 07/2017 Next Update: Unknown
Floodplain Ordinance	Yes	Yes	Last Update: 07/2018 Next Update: As needed per FIRM
Subdivision Ordinance	Yes	Yes	Last Update: 07/2014 Next Update: As needed
Zoning Ordinance	Yes	Yes	Last Update: 02/2025 Next Update: As needed
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A

19.3.2. Administrative and Technical Capabilities

Table 344 and Table 345 summarize the City of Rio Dell's administrative and technical capabilities, including the staff members and their respective skills and the tools available to support mitigation actions.

Table 344: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Non-Vacant	Yes	Yes	Yes
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	Yes	Yes
Community Planner	Non-Vacant	No	Yes	No

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Emergency Manager	Non-Vacant	No	Yes	No
Floodplain Administrator	Non-Vacant	Yes	Yes	Yes
Geographic Information System (GIS) Coordinator	Non-Vacant, part-time	No	No	No
Planning Commission	Non-Vacant	Yes	No	No
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 345: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Soils, geologic, and hydraulic reports and flood elevation certificates are required when appropriate.	By implementing the recommendations in the reports.
GIS	Yes	Public Works was utilized to identify infrastructure.	Hazard identification, risk and vulnerability assessments.
Mutual Aid Agreements	Yes	The Police Department has a Memorandum of Agreement (MOA) with the County Sheriff and collaborates with the cities of Fortuna and Ferndale on mutual aid as needed.	Emergency shelter opportunities.

19.3.3. Financial Capabilities

Table 346 summarizes the City of Rio Dell's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 346: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	Yes	Backup water wells	Yes	Yes
General Funds	Yes	Upgrade water wells	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Seismic upgrades to the cross-river connection to the backup wells	Yes	No
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	Yes	No
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	Yes	ADA access, owner-occupied rehabilitation	Yes	Yes
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Property, Sales, Income or Special Purpose Taxes	Yes	No	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes, water and wastewater systems	Yes	Yes
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	Yes	Emergency Community Water Assistance Grant (USDA)	N/A	N/A
State-Funded Programs	Yes	State Water Resources Control Board, Clean California	Yes	No
Private Sector or Nonprofit Programs	Yes	Long-term recovery group, disaster case management, unmet needs funding for when the federal government did not show up for the December 2022 earthquake	Yes	Yes

19.3.4. Education and Outreach Capabilities

Table 347 summarizes the City of Rio Dell's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 347: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week and School Programs)	Yes	Yes	N/A
Public Meetings/Events	No	N/A	N/A
Emergency Management Listserv	Yes	No	Mass alerting system to share information with residents
Local News	Yes	Yes	None
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for, or Interact with Underserved and Vulnerable Communities	Yes	No	Rio Dell Community Assistance Center (Providence)
Social Media	No	N/A	N/A
Every Door Direct Mailers	Yes	No	N/A

19.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 348. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 348: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The city would like to develop a City Economic Development Strategy (CEDS) and now, with the latest local responsibility area (LRA) maps from CAL FIRE, a new Community Wildfire Protection Plan.
Administrative and Technical	Additional training is always needed. The city lacks funding for a dedicated and consistent GIS effort.
Financial	Rio Dell is a severely economically disadvantaged community. Most grants require a local match, and the city is often unable to afford one, let alone a dedicated grant writer.
Education and Outreach	Education and outreach are currently available on an as-needed basis. The city is always open to additional education and outreach, but funding and capacity are limited.

19.4. National Flood Insurance Program

The City of Rio Dell has been a participant in the NFIP since 1982. Details of NFIP policies within the City of Rio Dell are provided in Table 349. Additional NFIP information is in Table 350 through Table 352. Continued compliance with NFIP standards is expected for the City of Rio Dell.

Table 349: City of Rio Dell NFIP Details

Community Name	Community Number	Total Premium + FPF[28]	Total Policy Count	Total Coverage	Total Losses
Rio Dell, City of	060064	$0	0	$0	5

Table 350: Floodplain Management

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Community Development Director. Secondary.

[28] FPF: Federal Policy Fee

Question	Response
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Through permit process and inspections.
When was the community's most recent Community Assistance Visit (CAV)?	07/2021
Were any violations noted on the community's most recent CAV?	No
Is there an upcoming CAV? If no, is one needed?	Upcoming CAV: No Is one needed: No
When was the most recent floodplain management ordinance adopted?	07/2015
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Yes, flood-resistant materials are required.
Who is responsible for permitting?	Planning and Building Department
How does the community issue development permits in the special flood hazard area?	Through the building permit process. It must be a foot above BFE. FEC is required for any proposed development in the floodplain. A surveyor is required to determine the BFE. A letter is then issued to confirm the findings.
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes Describe: No trends
How many repetitive loss (RL) structures does the community have?	None

Question	Response
How many severe repetitive loss (SRL) structures does the community have?	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Building division coordinates with the county assessor.
How does the substantial damage/substantial improvement process work in your community?	Building division coordinates with the county assessor. If more than 50% of the value is improved, then they need to comply with all new floodplain regulations.
Is there sufficient staff and training to make substantial damage/improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	We have utilized Every Door Direct Mailer (EDDM), newsletters, and our LED (light-emitting diode) messaging system. Rio Dell uses a mass alerting system to share information when needed. Local media is also utilized to share requirements after an event.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward?	Work with FEMA/NFIP to identify and implement necessary changes. Continue to follow floodplain ordinance and pursue ongoing training and education.

Table 351: Floodplain Mapping

Question	Response
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision.	The city or members of the public have not requested any map changes.

Question	Response
When did the latest Flood Insurance Rate Map (FIRM) become effective?	05/2017
When was the latest FIRM adopted?	2017
Is the FIRM and Flood Insurance Study (FIS) report in an accessible location? How would the public get access to their flood map information?	Yes Request to review
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes

Table 352: Flood Insurance and Outreach

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	As needed, based on inquiry
How does the community engage with insurance agents on flood insurance?	As needed, based on inquiry
Does the community (or state) have flood hazard disclosure laws?	Yes
How familiar is the public with their flood insurance options?	Not sure
How many properties have flood insurance in the community?	0
Are there any areas where flood insurance is lacking?	Unknown

19.5. Mitigation Strategy

The City of Rio Dell has adopted the same goals and prioritization process as those adopted by Humboldt County, which is described in Volume 1 of this plan. Previous mitigation actions and

their statuses are in Table 353, while new mitigation action items and those carried forward from the previous plan are in Table 354.

19.5.1. Previous Mitigation Actions

Table 353: Previous Mitigation Actions

Mitigation Action	Description	Status
RIO1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	This has been deferred until time and resources are appropriate and available.
RIO2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the city's Safety Element.	This has been deferred until time and resources are appropriate and available.
RIO3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	This has been deferred until time and resources are appropriate and available.
RIO4	Continue to maintain good standing and compliance under the NFIP through the implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.	Completed. However, we do not have a certified floodplain manager.
RIO5	Identify and pursue strategies to increase adaptive capacity to climate change, including, but not limited to the following: The participation, preparation and adoption of a Regional Climate Action Plan.	Carry forward: In active process.

Mitigation Action	Description	Status
RIO6	Purchase generators for critical facilities and infrastructure that lack adequate backup power, including the City's Fire and School facilities. The City hopes to install an emergency generator for City Hall, Police Department, Fire District and School District in the near future pending the availability of funds through LHMP.	Completed. New power backup systems were installed at City Hall, Corporation Yard and Wastewater Lift stations. In addition, a mobile backup generator was installed for the water system. No FEMA assistance was ever provided to accomplish these tasks. The status of the Fire District and School District is unknown.
RIO7	Plan to upgrade Radio equipment and towers to Interoperable Digital P25 infrastructure for the City Hall and Fire District.	Completed
RIO8	Retrofit/installation of undersized culverts and drainages to prevent flooding and erosion/ landslide damage.	This has been deferred until time and resources are appropriate and available.
RIO9	Installation of fire sprinklers at City Hall and Fire Station.	This has been deferred until time and resources are appropriate and available.
RIO10	Perform public education and outreach.	Completed. Newsletters have provided disaster-related educational outreach.
RIO11	Establish Joint Public Safety Dispatch and EOC.	This has been deferred until time and resources are appropriate and available.

19.5.2. Updated Mitigation Actions

Table 354: 2025 Mitigation Actions[29]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RIO1	Identify the location, acquire the site and construct a fuel storage facility for the Corporation Yard backup generator, as well as for public safety and allied agencies.	High	City of Rio Dell	Earthquake, winter weather, wind, wildfire, landslide	HMGP, BRIC, PDM, CDBG, enterprise funds, general fund	$500,000	Medium-term	New	Yes	Yes
RIO2	Identify the location, acquire the site and construct a multipurpose community center with the capacity for sheltering, aid distribution, supplies and serving as an assistance center when needed.	High	City of Rio Dell	Dam failure, drought, earthquake, extreme temperatures (extreme cold, extreme heat), flooding, landslide, wildfire wind, winter weather	HMGP, BRIC, PDM, CDBG, enterprise funds, general fund	$7,000,000	Long-term	New	Yes	Yes
RIO3	Carry out a citywide stormwater evaluation study and develop a master plan to identify vulnerabilities and maintenance needs.	High	City of Rio Dell	Dam failure, flooding, landslide, winter weather	HMGP, BRIC, PDM, CDBG, general fund	$500,000	Long-term	Both	Yes	Yes

[29] BRIC: Building Resilience Infrastructure and Communities, CDBG: Community Development Block Grant, FMA: Flood Mitigation Assistance, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation, STIP: State Transportation Improvement Program, SWRCB: State Water Resources Control Board

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RIO4	Update the emergency operations plan.	High	City of Rio Dell	Dam failure, drought, earthquake, extreme temperatures (extreme cold), flooding, landslide, wildfire wind, winter weather	HMGP, BRIC, PDM, general fund	$20,000	Short-term	Existing	Yes	Yes
RIO5	Support the development of a Firewise Community program, and implement defensible space requirements, including education and outreach.	High	City of Rio Dell	Drought, earthquake, extreme temperatures (extreme heat), wildfire	General fund	$20,000	Medium-term	New	Yes	Yes
RIO6	Expand the infiltration gallery to reduce risk from low flow and landslides.	High	City of Rio Dell	Drought, flooding, landslide	SWRCB, HMGP, water fund	$3,000,000	Long-term	Existing	Yes	Yes
RIO7	Improve the wastewater collection system mains, laterals and manholes.	High	City of Rio Dell	Flooding, winter weather	HMGP, SWRCB, enterprise fund	$5,000,000	Long-term	Existing	Yes	Yes
RIO8	Install fire sprinklers at City Hall.	Low	City of Rio Dell	Earthquake, wildfire	CDBG, general and enterprise funds	$180,000	Long-term	Existing	No	Yes
RIO9	Implement slip-out and slide protections on Monument Road.	Medium	City of Rio Dell	Earthquake, flooding, landslide, wildfire, winter weather	HMGP, BRIC, PDM, CDBG, road funds, general fund	$3,000,000	Long-term	Existing	Yes	Yes

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RIO10	Continue to support countywide initiatives identified in this plan.	High	City of Rio Dell	Earthquake, floods, dam failure, drought, extreme temperatures (extreme cold, extreme heat), landslide, wildfire, wind, winter weather	HMGP, BRIC, district funds	$100,000	Short-term and ongoing	Both	Yes	All
RIO11	Establish a joint public safety dispatch and EOC.	High	City of Rio Dell	Earthquake, floods, dam failure, drought, extreme temperatures (extreme cold), landslide, wildfire, wind, winter weather	HMGP, PDM, BRIC	$3,000,000	5+ years	New	Yes	Safety and Security
RIO12	Retrofit and install undersized culverts and drainage systems to prevent flooding and erosion/landslide damage.	Medium	City of Rio Dell	Landslide, flooding, wind, winter weather	HMGP, PDM, FMA	$1,000,000	5+ years	Existing	Yes	Transportation
RIO13	Identify and pursue strategies to increase adaptive capacity to climate change, including but not limited to, participating in, preparing and adopting a Regional Climate Action Plan.	Medium	City of Rio Dell	All	Staff time and general funds	$15,000	3-5 years	Both	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RIO14	Where appropriate, support the retrofitting and the purchase or relocation of structures in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	High	City of Rio Dell	Earthquake, flooding, landslide, wildfire	HMGP, PDM, FMA	$2,000,000	3-5 years	Existing	Yes	All
RIO15	Integrate the hazard mitigation plan into other plans, ordinances and programs — including the City's Safety Element — that dictate land use decisions in the community.	Low	City of Rio Dell	Dam failure, drought, earthquake, flooding, landslide, wildfire	Staff time, general funds	$10,000	1-3 years	Both	No	All
RIO16	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Low	City of Rio Dell	All hazards	Staff time, general funds	$2,000	1-3 years	Both	Yes	All
RIO17	Hire GIS personnel to assist in hazard identification and vulnerability assessments.	High	City of Rio Dell	All hazards	Staff time, general funds	$50,000	1-3 years	Both	Yes	All
RIO18	Make physical improvements to the Avenues (Specifically first and Second Avenue) neighborhood to ensure emergency vehicles can access it.	High	City of Rio Dell	All hazards	HMGP, BRIC, city road funds, STIP, CDBG	$1,500,000	3-5 years	Both	Yes	Safety and Security
RIO19	Evaluate the placement of fire hydrants against the new CAL FIRE Fire Hazard Zone Severity Mapping process for identifying priority areas for placing or replacing fire hydrants.	Medium	City of Rio Dell	Earthquake, wildfire	HMGP, BRIC, CDBG	$500,000	3-5 years	Both	Yes	Safety and Security

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RIO20	Develop a second access route to Dinsmore Plateau via Rio Vista Lane.	Medium	City of Rio Dell	Earthquake, landslide, wildfire, wind, winter weather	HMGP, BRIC, CDBG	$500,000	3-5 years	New	Yes	Transportation

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20. Rio Dell Fire Protection District Annex

This section presents the jurisdictional annex for the Rio Dell Fire Protection District. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. New priorities have been established since the 2014 plan update to include improving rural fire response by replacing out dated apparatus and equipment.

20.1. Planning Process

20.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Rio Dell Fire Protection District, the stakeholders and the public. The Rio Dell Fire Protection District was represented during the planning process by the following individual listed in Table 355.

Table 355: Rio Dell Fire Protection District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Shane Wilson	Fire Chief	Rio Dell Fire Protection District	shawil22@aol.com; o: 707-764-3329; c: 707-764-3937; 707-496-7215
Ryan Heussler	Assistant Fire Chief	Rio Dell Fire Protection District	ryan@rhconstructionco.com O: 707-764-3329 C: 707-834-5358
Nate McKnight	Assistant Chief	Rio Dell Fire Protection District	nmcknight882@gmail.com O: 707-764-3329 C: 707-599-7791
Linda Barsanti	District Secretary	Rio Dell Fire Protection District	lbarsrdfire@gmail.com o: 707-764-3329 c: 707-845-5195

20.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 356. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. In addition, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 356: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Kyle Knopp	Rio Dell City Manager	City of Rio Dell	knoppk@cityofriodell.ca.gov	1. Local and regional agencies involved in hazard mitigation activities
Steve Coppini	Public Works Director	Scotia CSD	(707) 496-9694 (707) 764-3030 infoscotiacsd@gmail.com	2. Agencies that have the authority to regulate development
Michelle Bushnell	District 2 Supervisor	Humboldt County	(707) 223-3977	3. Neighboring communities, including special districts
Rex Bohn	District 1 Supervisor	Humboldt County	(707) 498-2228	Neighboring communities, including special districts
–	–	Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
				community-based organizations

20.1.3. Public Outreach

Continued public involvement was imperative for the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 34 illustrates how the public was encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages. The Rio Dell Fire Protection District utilized Facebook, which is free and easily accessible.

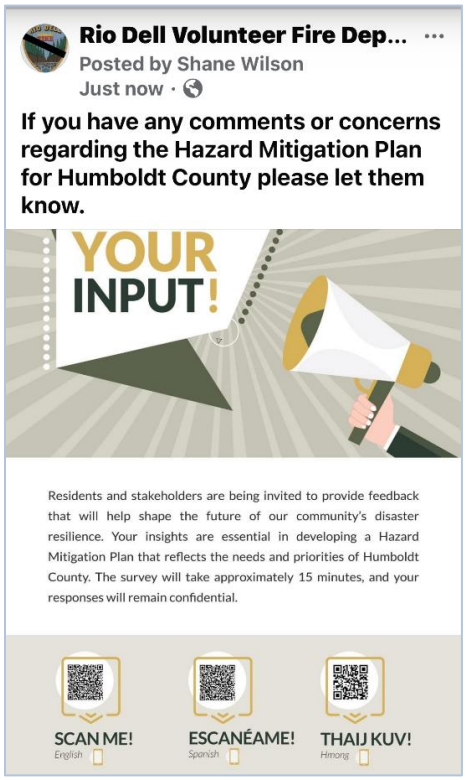

Figure 34: Public Outreach Methods

Community input was vital in shaping the updated mitigation strategy for Rio Dell Fire Protection District. The resulting strategies are a balance between technical risk analysis and the communities expressed needs.

20.1.3.1.VULNERABLE POPULATION OUTREACH

Some district residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in the Rio Dell Protection District might have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that district residents face, this planning update developed a bilingual public survey to identify ways to support, enhance and broaden capacity and resilience at the individual and social network levels. Outreach methods included resources, such as social media and website newsflashes since these are used more frequently by underserved populations such as seniors.

20.1.4. Plan Integration

20.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration. The successful implementation of this plan will require constant and vigilant reviews of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Due to the district having budget constraints, the previous plan was not integrated into any documents.

Table 357: Previous Plan Integration for the Rio Dell Fire Protection District

Plan	Description
None	

The plan must also identify local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 358 displays how each community will integrate the hazard mitigation plan into other planning mechanisms. Due to current staffing size, the district does not anticipate leading any plan updates within the next 5 years that have the potential to implement the hazard mitigation plan. If new opportunities present themselves, the district will reevaluate.

Table 358: Future Types of Plan Integration for the Rio Dell Fire Protection District

Type of Plan	Integration Method
Capital Improvement Plan	We will attempt to utilize the 2024 Hazard Risk information to pursue a Shaded Fuel Brake Project in the Larabee Community similar to the recently completed project in Shively.

20.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 359 and

Table 360. For further information about these hazards, including their extent, please refer to Volume 1 of this HMP.

Table 359: Rio Dell Fire Protection District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	At 150–200 feet in elevation and not in the tsunami zone.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 360: Rio Dell Fire Protection District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	Low	Low	Low	Low
Drought	Medium	High	High	High	High
Earthquake	High	High	High	High	High
Extreme Cold	Medium	High	Medium	Medium	High
Extreme Heat	Medium	High	Medium	Medium	High

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Flooding	High	Low	Low	Low	Medium
Landslide	High	High	Medium	High	High
Wildfire	High	High	High	High	High
Wind	High	High	Medium	Medium	High
Winter Weather	High	High	Medium	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

20.2.1. Historical Events and Impacts

This section lists past occurrences of natural hazards for which specific impacts and damage were recorded in the Rio Dell Fire Protection District. Other hazard events that affected the broader planning area, including the Rio Dell Fire Protection District, are listed in the risk assessments in Volume 1.

20.2.1.1.HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) has recorded no storm event in the Rio Dell Fire Protection District from Nov. 1, 2019 to Dec. 31, 2024. However, the NCEI database does not always capture localized hazard data. Rio Dell Fire Protection District has documented additional significant events to address this gap, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **2013–2018:** Low use; the city could not draw water from the river, the supply in hydrants was a concern, the tanks were not full and were kept at 50% at best. If there was a fire, the district had to conserve water. The drought impacted fire services and water systems.

EARTHQUAKE

- **2021–2022:** Ferndale earthquake event – mainly effected Rio Dell, including housing foundations and red tag infrastructure. There were 100 breaks in water/gas lines and there were failures of the water system and power grid. There were issues in distributing food and water to the public. The emergency shelter was red tagged, three or four structure fires involved electricity failure or gas failure, and one death was reported (related to medical

response, not directly to the earthquake). The Rio Dell Fire Protection District had to do its own dispatching, and the fire department building had significant damage. Damage to Blue Slide Road and Fernbridge Drive created significant traffic issues (increases in traffic).

- **2024**: Earthquake event – significant in size but did not produce significant damage.

EXTREME TEMPERATURES

- No events have occurred for this hazard.

FLOODING

- No events have occurred for this hazard specifically impacting Rio Dell Fire Protection District.

LANDSLIDE

- **Annually:** Monument Road – on border of county and city jurisdictions. Long process and still not prepared, restricted to one line and potential to take out road access. Shively Road – Active landslides can isolate the Larabee and Shively communities, which had access using 4x4 vehicles on a timber road on the Humboldt Redwood Company property. Red Crest and Pepperwood used Highway 254 as an alternate to Highway 101. Landslides cause increased response times between mileposts 42 and 44.
- **Biannually:** Blue Slide Road has two active slides in the Howe Creek area. Infrastructure damage to the road limits evacuation routes during other hazard events, such as the earthquake in 2022.

WILDFIRE

- No events have occurred for this hazard.

WIND

- No events have occurred for this hazard.

WINTER WEATHER

- **January, 2023-March, 2023:** Pre-positioned staff and response team during intense rain and cold events.

20.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 361 lists the key vulnerabilities and impacts for the jurisdiction.

Table 361: Rio Dell Fire Protection District Vulnerabilities and Impacts

Hazard	Vulnerabilities
Dam Failure	*Vulnerabilities:* The district is located near the lower Eel River and within reach of several upstream impoundments. While there are no major high-risk dams in the immediate vicinity, localized dam or levee breaches could send fast-moving floodwaters downstream. Low-lying areas near the river and older utility corridors are particularly vulnerable. Populations living near flood-prone areas and emergency personnel responding to incidents would be at greatest risk. *Impacts:* A dam failure could result in flooded neighborhoods, washed-out roads, and damaged infrastructure. Emergency response could be delayed if stations or critical roads become inaccessible. Water and electrical systems may also experience temporary outages or long-term service interruptions.
Drought	*Vulnerabilities:* Prolonged droughts could affect the district's water supply, both for residential use and for firefighting. With much of the region dependent on surface water, reductions in flow can impact hydrant availability. First responders working outdoors in high temperatures face increased exposure to heat-related health concerns. *Impacts:* Drought can reduce the district's ability to respond to fires, particularly during fire season. Health issues such as dehydration or exhaustion may rise among field personnel. Drought conditions can also elevate the risk of wildfires and strain community resources.
Earthquake	*Vulnerabilities:* Limited evacuation routes could make it difficult to provide proper healthcare if a major event takes place, leaving individuals vulnerable. Rio Dell lies in a known seismic region near the Cascadia Subduction Zone. Older buildings, non-retrofitted infrastructure and hillside roads are particularly at risk. Earthquakes may also trigger secondary hazards, such as slope failure or pipeline ruptures. *Impacts:* A major quake could damage fire stations, public buildings and utilities, leading to delays in emergency response. Roads may be blocked by debris or landslides, isolating parts of the city. Injuries from collapsing structures or delayed medical response are possible.

Hazard	Vulnerabilities
Extreme Cold	*Vulnerabilities:* Individuals without access to housing are vulnerable. The region occasionally experiences cold snaps, particularly in elevated or exposed locations. Homes with limited insulation, older plumbing and electric-only heating systems are most at risk. Emergency crews may be exposed while responding during cold weather. *Impacts:* Extreme cold may cause frozen pipes, burst lines or water supply failures. Hypothermia and frostbite are concerns for vulnerable residents and outdoor responders. Damaged infrastructure could affect firefighting capabilities during an event.
Extreme Heat	*Vulnerabilities:* Though the coastal climate offers some protection, extreme heat days have become more common. Seniors, outdoor workers and medically vulnerable individuals face the greatest risk. Long shifts in heat increase exposure for emergency responders. *Impacts:* Heatwaves may increase call volume related to heat illness or respiratory stress. Wildfire risk also rises during prolonged heat and drought. Fire suppression efforts may become more difficult, and utility demand could outpace supply.
Flooding	*Vulnerabilities:* The red crest area often floods (Shively Flat, Larabee and Stafford area). Rio Dell is adjacent to the Eel River and has several areas that are historically prone to flooding. Heavy rainfall, poor drainage and levee overtopping can all contribute to localized flood risks. Fire stations, access routes and older homes in floodplains are at risk. *Impacts:* Floodwaters may damage infrastructure, contaminate water systems and interrupt emergency services. Roads may become impassable, leaving some neighborhoods isolated. Responders working in flood zones are at risk of injury or equipment failure.
Landslide	*Vulnerabilities:* Blue Slide Road is prone to landslides. Steep slopes surrounding Rio Dell and along Highway 101 present moderate landslide risk, particularly after storms or seismic activity. Roads and hillside properties are most at risk. *Impacts:* Slope failure may block emergency routes, damage homes and cut off access to essential services. Emergency personnel may face hazardous conditions while attempting rescue or response in unstable terrain.

Hazard	Vulnerabilities
Wildfire	*Vulnerabilities:* The entire southern area is surrounded by wildland. This region could be a concern to vulnerable populations and critical infrastructure if a fire were to occur. Rio Dell Fire recently established a shaded fuel break around Shively to prevent wildfires. *Impacts:* Wildfires can destroy homes, close roads and impact communication systems. Power outages and poor air quality may affect both residents and first responders. Fire crews face high exposure and personal danger during suppression efforts.
Wind	*Vulnerabilities:* High winds can down trees, damage above-ground utilities and affect mobile homes and older buildings, along with vulnerable populations. Electrical infrastructure is especially vulnerable, and roads may be blocked by fallen debris. *Impacts:* Windstorms can lead to widespread outages, structural damage and blocked emergency routes. Responders may be delayed or placed in dangerous situations during wind-driven events, especially in rural or elevated parts of the district.
Winter Weather	*Vulnerabilities:* People who have to travel to work when there may be a road closure due to slippery conditions on Blue Slide Road. Homes and infrastructure not built for cold conditions may suffer. *Impacts:* Hazardous driving conditions may reduce emergency response time and increase the risk of accidents. Ice buildup can bring down trees or lines leading to outages. Field personnel face exposure to the elements during prolonged response operations.

20.2.2.1. DEVELOPMENT CHANGES

Table 362 summarizes development trends in the Rio Dell Fire Protection District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 362: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	• Multi-family improvements with Danco projects to provide housing for the troubled, addicted, and other vulnerable populations • Three quadplex apartments – general housing • Undeveloped properties become single-family homes • Scotia – No longer a privately owned town; increased fire department response because of the change in property ownership	None	Increased
Commercial	No significant developments	None	No Change
Industrial	Development on North West Avenue in the marijuana cultivation industry; other development in Redcrest, Holmes, Pepperwood and Larabee	CAL FIRE is developing a new headquarters for the Humboldt-Del Norte Uni inside the Rio Dell city limits.	Increased – Daily population with possibility of emergency response, higher traffic volumes, hazmat issues, significant issues with life safety and the environment. Damage from the marijuana cultivation industry, Fire Department-created pre-fire damage reviews and strategies.

20.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Rio Dell Fire Protection District performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

20.3.1. Planning and Regulatory Capabilities

Table 363 and Table 364 list the Rio Dell Fire Protection District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Rio Dell Fire Protection district is a special district without land use authority or its own building code enforcement. It relies on the City of Rio Dell and Humboldt County (2022 California Building Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 363: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 364: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 6/2023 Next Update: 6/2025
Flood Insurance Rate Maps	No	N/A	N/A
Floodplain Ordinance	No	N/A	N/A
Subdivision Ordinance	No	N/A	N/A
Zoning Ordinance	No	N/A	N/A
Natural Hazard-Specific Ordinance	No	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Prohibition of Building in At-Risk Areas	No	N/A	N/A

20.3.2. Administrative and Technical Capabilities

Table 365 and Table 366 summarize the Rio Dell Fire Protection District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 365: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Voluntary Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 366: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	There is a mutual aid agreement with all fire agencies in the county and a water tender auto aid agreement with five agencies in the Eel River Valley for rural areas.	Fire water supply is critical to mitigate wildfires and structure fires in rural areas with no fire hydrant systems.

20.3.3. Financial Capabilities

Table 367 summarizes the Rio Dell Fire Protection District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible, given their cost.

Table 367: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	No	N/A	N/A	N/A
General Funds	Yes	None	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	None	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	N/A
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs CAL FIRE Department of Forestry	Yes	Firewise; Shaded Shively Fuel Break	Yes	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

20.3.4. Education and Outreach Capabilities

Table 368 summarizes the Rio Dell Fire Protection District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 368: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	No	N/A	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	We hold monthly district board meetings that are open to the public.
Emergency Management Listserv	No	N/A	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	No	N/A	N/A

20.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 369. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 369: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The District can participate in the upcoming Humboldt County Community Wildfire Protection plan update. Revising this plan will help ensure it includes the latest risk assessment data and actions.
Administrative and Technical	The staff are all volunteers. Additional volunteers could expand capabilities.
Financial	The staff is all volunteers. Additional support in applying for grants like the Hazard Mitigation Grant Program, such as through a state or federal direct technical assistance program could help expand this capability.
Education and Outreach	As possible, the district could participate in the operational area-wide hazard mitigation public-information strategy implementation. As the district is all volunteers, coordinating with other agencies within the planning area could help ensure outreach implementation.

20.4. National Flood Insurance Program

The Rio Dell Fire Protection District is not required to participate in the NFIP program because, as a special district, it does not have authority to do so. However, a flood event might lead to the loss of potable water infrastructure, which would impact fire services, hydration and public health.

20.5. Mitigation Strategy

The Rio Dell Fire Protection District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 370, while new mitigation action items and those carried forward from the 2014 plan are in Table 371.

20.5.1. Previous Mitigation Actions

Table 370: Previous Mitigation Actions

Mitigation Action	Description	Status
RDFPD1	Develop a post disaster action plan	Completed.

Mitigation Action	Description	Status
RDFD2	Initiate public outreach and education efforts, including an active Firewise program.	Ongoing – Continued Efforts.
RDFD3	Clear fuels on land that can trigger or maintain wildfires.	Completed – Shiveley Shaded Fuel Break Project of 110 acres was completed in 2024 via a California Climate Investments Wildfire Prevention Grants Program.
RDFD4	Establish and maintain mutual aid agreements between fire service agencies.	Completed – Ongoing, MA Agreements are being maintained.
RDFD5	Identify and create emergency vehicle access in high hazard areas.	Completed – The district has gained access to high hazard private timberlands via agreements with land owner Humboldt Redwood Company.
RDFD6	Install fire suppression sprinkler system throughout fire station at 50 West Center St.	Not Completed – No funding source (delete).
RDFD7	Support countywide initiatives identified in Volume 1 of this plan	Completed – No longer a priority

20.5.2. Updated Mitigation Actions

Table 371: 2025 Mitigation Actions[30]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RDFPD1	Install generators and transfer switches for all critical assets.	High	RDFPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	General funds	$50,000	Short-term	Both	Yes	Energy
RDFPD2	Install a fuel tank for diesel and gas to support emergency initiatives.	High	RDFPD	Earthquake, winter weather, wind, wildfire, landslide	General funds	$30,000	Short-term	Both	Yes	Energy
RDFPD3	Upgrade the staging area and shelter building at Rio Dell Fire (Maintain Station).	High	RDFPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, general funds	$1,500,000	Long-term	Existing	Yes	Food, Hydration and Shelter
RDFPD4	Retrofit Rio Dell Elementary School.	High	School Board	Earthquake	HMGP, PDM, general funds	$500,000	Long-term	Existing	Yes	All
RDFPD5	Increase communications redundancy during emergencies.	High	RDFPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, general funds	$150,000	Short-term	Both	Yes	Communications

[30] ADA: Americans with Disabilities Act, BRIC: Building Resilient Infrastructure and Communities, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation, RDFPD: Rio Dell Fire Protection District

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
RDFPD6	Install ADA-accessible bathrooms in Scotia Station.	High	RDFPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, general funds	$150,000	Long-term	Both	Yes	Food, Hydration and Shelter
RDFPD7	Adopt area-wide mitigation actions.	High	RDFPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, general funds	$100,000	Long-term	Both	Yes	All
RDFPD8	Procure preparedness weather radios.	High	RDFPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, general funds	$10,000	3–5 years	Both	Yes	All

21. Shelter Cove Resort Improvement District No. 1 Annex

This section presents the jurisdictional annex for the Shelter Cove Resort Improvement District (RID) No. 1. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, Shelter Cove has received millions in grant funding to reduce wildfire hazards in the community, including high-limbing the trees along every road in Shelter Cove and between Shelter Cove and Redway, including around Whale Gulch and Whitethorn, for evacuation route contingencies. Every home, lot and bordering greenbelt in Shelter Cove is also receiving wildfire hazard mitigation treatment, ongoing for another couple of years. In addition, the recent 7.0 earthquake and tsunami on December 5, 2024, made the replacement of four of the RID's original potable water storage tanks a major priority, as three of these four tanks suffered damage in the earthquake, one so severe that another earthquake of similar magnitude will almost assuredly destroy it. Based on these concerns, the Shelter Cove Resort Improvement District No. 1 has identified new priorities for this plan update.

21.1. Planning Process

21.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Shelter Cove Resort Improvement District No. 1, the stakeholders and the public. The Shelter Cove Resort Improvement District No. 1 was represented during the planning process by the following individuals listed inTable 372.

Table 372: Shelter Cove Resort Improvement District No. 1 Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Nick Pape	Fire Chief/ Emergency Manager	Shelter Cove Fire Department/ Southern Humboldt Fire Chiefs Association	nick@sheltercove-ca.gov
Chris Christianson	General Manager	Resort Improvement District No. 1	gm@sheltercove-ca.gov

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Frank Wilson	Water/Wastewater Superintendent	Resort Improvement District No. 1	frank@sheltercove-ca.gov
Jon Aronson	Power Distribution Superintendent	Resort Improvement District No. 1	jon@sheltercove-ca.gov

21.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized inTable 373. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 373: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Derrick Misner	Chief	CAL FIRE	Derrick.Misner@fire.ca.gov	1. Local and regional agencies involved in hazard mitigation activities
Nick Pape	Fire Chief/ Emergency Manager	Shelter Cove Fire Department/ Southern Humboldt Fire Chiefs Association	nick@sheltercove-ca.gov	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Tracey LeBeau	Administrator and Chief Executive Officer	Western Area Power Authority	(916) 353-4416	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross – Northern CA Coastal Region	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

21.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. Figure 35 illustrates how the public was encouraged to participate in the survey available via QR code link in English, Spanish and Hmong languages. The Shelter Cove Resort Improvement District No. 1 utilized a variety of communications channels that are free and easily accessible, such as Facebook and Instagram.

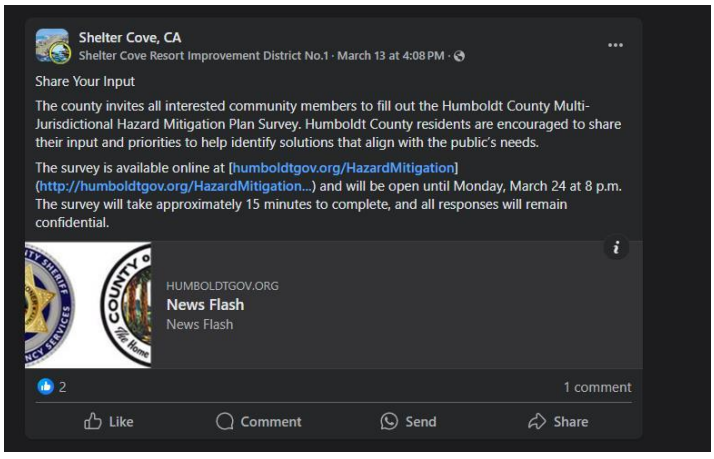

Figure 35: Public Outreach Methods

Public feedback was incorporated into the risk assessment as appropriate as well as the list of mitigation action ideas the Improvement District reviewed at the Mitigation Action Workshop

for inclusion in the updated list of mitigation actions for this plan update. In terms of hazards, residents were concerned most with vulnerability to earthquakes and wildfire. They were concerned about the vulnerability of infrastructure to these hazards in particular. They recommended mitigation actions that improve emergency services in the district. These suggestions were integrated into the district's chosen mitigation actions.

Some Shelter Cove Resort Improvement District No. 1 residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Shelter Cove Resort Improvement District No. 1 may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the district residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level.

21.1.4. Plan Integration

21.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed inTable 374.

Table 374: Previous Plan Integration for the Shelter Cove Resort Improvement District No. 1

Plan Name	Description
Shelter Cove Emergency Operations Plan	The Shelter Cove Emergency Operations Plan ensures consistency with current policy guidance and describes the interrelationship with other levels of government, including the identification and prioritization of hazards as outlined in the prior hazard mitigation plan.
Shelter Cove Firewise Plan	This plan serves as a living document that will be updated annually as the district strives to promote community education, awareness and safety. Aspects of the hazard mitigation plan are also aspects of the Shelter Cove Emergency Operations Plan and Shelter Cove Firewise Plan, including the identification and prioritization of hazards and responses to those hazards.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 375displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 375: Future Types of Plan Integration for the Shelter Cove Resort Improvement District No. 1

Type of Plan	Integration Method
Utility Conservation Plan	Ensure that both plans align regarding water and electricity conservation.
Wildfire Mitigation Plan	Ensure that both plans have the same initiatives regarding wildfire.

21.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 376and Table 377For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 376: Shelter Cove Resort Improvement District No. 1 Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	Yes	N/A
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 377: Shelter Cove Resort Improvement District No. 1 Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	Low	Low	No impact	Low
Drought	Med	High	Low	Medium	High
Earthquake	High	High	High	High	High
Extreme Heat	High	Low	Low	Low	Low
Extreme Cold	High	Medium	Low	Low	Low
Flooding	Low	Medium	Medium	High	High
Landslide	High	High	Medium	High	High
Tsunami	Med	Low	Medium	Medium	Medium
Wildfire	High	High	High	High	High
Wind	High	High	High	High	High
Winter Weather	High	Medium	Low	High	High

Note: The process used to assign risk rankings is described in Volume 1.

21.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Shelter Cove Resort Improvement District No. 1. Other hazard events that broadly affected the entire planning area, including the Shelter Cove Resort Improvement District No. 1, are listed in the risk assessments in Volume 1.

21.2.1.1.HISTORICAL EVENTS

There have been no storm events that have occurred in the Shelter Cove Resort Improvement District No. 1 from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for Environmental Information (NCEI). However, the NCEI database does not always capture localized hazard data. To address this gap, the Shelter Cove Resort Improvement District No. 1 has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- **2020–2022:** Water treatment plant supply limited and increased wildfire activity.

EARTHQUAKE

- **Dec. 5, 2024:** A magnitude 7.0 earthquake struck near Shelter Cove, causing significant shaking. The Shelter Cove General Store experienced extensive damage, with items knocked off shelves. Three of the community's 1960s-era water tanks partially ruptured at their base, but repairs were completed by 5:30 p.m. the same day. Additional water main breaks occurred, all of which were promptly addressed by repair crews.

EXTREME HEAT AND COLD

- No events have occurred for this hazard.

FLOODING

- **Jan. 7, 2024:** The Shelter Cove Resort Improvement District No. 1 infrastructure experienced clogged culverts and flooded roads, and the wastewater treatment plant was unable to maintain adequate process capacity levels.

LANDSLIDE

- No events have occurred for this hazard.

TSUNAMI

- **Dec. 5, 2024:** Triple Junction 7.0 tsunami warning causing the Fire Department to set off the sirens and open the evacuation shelter.

WILDFIRE

- **August–November, 2020:** August Complex Fire-Public safety power shutoff events, with extended power shutoffs. Business interruption. Food spoilage.

WIND

- **Jan. 4, 2023:** Wind event hit Shelter Cove in the middle of the day causing widespread moderate damage to homes and infrastructure gusts of 94 mph recorded. Crushed one man in a car in a Bureau of Land Management campsite. He survived but had major injuries.

WINTER WEATHER

- **Feb. 24, 2023:** Heavy low snow across the region shut down roads, broke tree branches, and trapped people in rural communities for several days.

- **Jan. 26, 2021:** Low snow and cold temperatures trapped 15 vehicles on Shelter Cove Road.
- **Feb. 10, 2019:** Low snow closed Shelter Cove Road for one day.

21.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 378provides information on a few key vulnerabilities and impacts for the jurisdiction.

Table 378: Shelter Cove Resort Improvement District No. 1 Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* The water supply system along Telegraph Creek is maintained by a dam and is vulnerable to dam failure. The people served by Shelter Creek ID would not be directly vulnerable to the impacts of dam failure, but are vulnerable to the lack of water supply it would cause. *Impacts:* If the dam at Telegraph Creek failed, the water supply could be seriously affected. Water production would be at inadequate levels until the dam was repaired.
Drought	*Vulnerabilities:* Low water supply and/or restrictive water conservation measures could limit Shelter Cove's potable water infrastructure and firefighting ability. The entire population is vulnerable to low water supply. *Impacts:* The water treatment plant could face low water restrictions and challenges to functioning due to lack of sufficient water. Natural drought can dry out vegetation leading to increased wildfire threat. The district could impose water restrictions for the community, impacting quality of life for residents.

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* The entire population, structures, and critical infrastructure in Shelter Cove's service are vulnerable to an earthquake. The water system, roads, and fire station are particularly vulnerable. *Impacts:* In all four of the HAZUS earthquake scenarios run for this hazard mitigation plan, Shelter Cove suffered hundreds of thousands to tens of millions of dollars in damage, depending on the scenario. The impacts from these earthquakes are wide ranging. People could suffer severe injuries exacerbated by limited access to medical facilities. Historic buildings not seismically retrofitted could be seriously damaged. Critical infrastructure, like the Shelter Cove Volunteer Fire Department and the Shelter Cove Airport, could stop functioning. Roadways/highways could be damaged, including Shelter Cove Road – the primary route in and out of Shelter Cove, limiting the effectiveness of emergency response. Power outages could cause loss of food resources and interruptions to communications and the economy. Fires and/or gas leaks could cause risk to people's life, safety and property.
Extreme Cold	*Vulnerabilities:* Critical infrastructure such as the water system could be disrupted by below below-freezing temperatures. The elderly without central heat are most vulnerable. *Impacts:* Structural damage, including frozen and damaged pipes, could impact Shelter Cove's water system. The elderly could be impacted by extreme cold if they do not have adequate heating in their residence.
Extreme Heat	*Vulnerabilities:* The entire community is at-risk of extreme heat. Structures and infrastructure is unlikely to be directly impacted, but the population — especially the elderly — could be. Additional vulnerable populations include people who work outdoors and people with preexisting medical conditions. *Impacts:* Extreme heat can have a variety of impact on the residents served by Shelter Cove RID, including potential death or injury to vulnerable populations. The elderly without air-conditioning could be seriously impacted.

Hazard	Vulnerabilities and Impacts
Flooding	*Vulnerabilities:* The wastewater treatment plant is vulnerable to the impacts of flooding during severe rain events. The homes and facilities close to the shore are vulnerable to flooding during large storms. *Impacts:* Culverts and roads have been flooded during recent rain events isolating residents along Humboldt Creek and Telegraph Creek. The wastewater treatment plant has been unable to maintain adequate process capacity levels due to flooding.
Landslide	*Vulnerabilities:* The steep northside of Shelter Cove and coastal areas of town north and south of the airport are most vulnerable to landslides in the district. The roads, including Machi Road in the south and Humboldt Loop in the north, along with residents along these roads, are vulnerable. *Impacts:* Impacts include impassable and damaged roadways, isolating residents, causing business interruptions through limited supply chain, and impeding emergency access. Large sediment deposits into streams and on beaches impact natural resources and the water treatment plant. Dangerous conditions for people in residences and vehicles. A potential impact exists on Shelter Cove Road.
Tsunami	*Vulnerabilities:* Shelter Cove ID is vulnerable to tsunamis, particularly those homes, people, and critical infrastructure close to the coast. These include tourists on the beaches, high value homes close to the coastal areas and the airport. *Impacts:* Injury and potential death are risks to those on the beaches, like Black Sands Beach, if residents do not receive warning. Homes and hotels on the coast could be inundated and damaged. Lower Pacific Dr would be impassible, impacting travel along the coast. The airport could be inundated and damaged.
Wildfire	*Vulnerabilities:* All of Shelter Cove and the surrounding area is in a high or very high fire severity zone, according to CAL FIRE. All residents and critical infrastructure is vulnerable to some extent. The steep narrow slopes of the north section of Shelter Cove is the most vulnerable to a fast moving fire. Transportation infrastructure is particularly vulnerable with only a couple roads providing access to the remote area. *Impacts:* Air quality may be impacted. Residents in the wildland-urban interface, which makes up most the district, are at higher risk. Wildfires causing transportation impacts on Shelter Cove Road and Kings Peak Road, two of the primary transportation routes to the district.

Hazard	Vulnerabilities and Impacts
Wind	*Vulnerabilities:* Power lines, roads and overpopulation of hazardous trees that are susceptible to wind events. These factors make both people and infrastructure vulnerable to high winds. Strong winds can come both from the west over the Pacific and from the northeast inland. *Impacts:* High wind could down power lines, resulting in power outages. Downed trees could also threaten structures and block roadways, causing transportation issues and hindering emergency response. These downed power lines and trees could strike people and property, threatening life and safety.
Winter Weather	*Vulnerabilities:* Roads, infrastructure, and homes are not built for snow. Local public safety and utility staff are ill equipped to deal with winter weather. Low-income residents (15% of the population) and elderly residents (33% of the population) are particularly at risk as they may not be able to afford heating during a storm and have more difficulty with mobility. *Impacts:* Winter weather can bring hail and heavy rain and snow storms, affecting roadways and transportation and increasing the potential for auto accidents. Homes that are not built for snow could see damage during a severe winter storm. Downed trees can damage transportation infrastructure and critical facilities.

21.2.2.1.DEVELOPMENT CHANGES

Table 379summarizes development trends in the Shelter Cove Resort Improvement District No. 1 since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 379: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Two to 10 homes a year on 20-year average	Hopefully around a five to ten home increase with one or two multifamily residential structures	Increased: The new demographic of people moving from urban areas seems to be more dependent on public services.

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Commercial	A few different commercial projects including a new brewery, coffee shop and bakery. The Short-Term Rental market has really expanded in Shelter Cove. Lost Coast Trail and the King Range Conservation Area have increased its visitors per year due to an increased interest in the eco-tourism culture in California.	Limited, but more short-term rentals are expected.	Increased: Due to more tourism expected.
Industrial	Water Tank Replacement Program	The water treatment plant is due for an upgrade. There is a large push for community solar and battery storage. More water tank replacements needed.	No change, but there is a potential for increased vulnerability in the future.

21.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Shelter Cove Resort Improvement District No. 1 performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities

- Financial Capabilities
- Education and Outreach Capabilities

21.3.1. Planning and Regulatory Capabilities

Table 380and Table 381summarize the Shelter Cove Resort Improvement District No. 1's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. The Shelter Cove Resort Improvement District works with the County Division of Environmental Health on Hazardous Materials Business Plans, Above Ground Petroleum Storage Tank Reports, Spill Prevention Control and Countermeasure Plans, and California Accidental Release Program Reports.

Land uses in the district are currently subject to the Humboldt County General Plan, the District's Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). The district operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 380: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	The CIP can have a section that focuses on mitigating possible effects from natural disasters, rather than just general infrastructure repair or replacement. For example, the CIP can have details on replacing specific equipment in the tsunami hazard zone (sewer lift station, etc.) or specific earthquake retrofit actions for our older, steel water tanks, etc.	Last Updated: 2016 Next Update: 2026
Climate Change Adaptation Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Community Wildfire Protection Plan	Yes	The plan can have sections that focus on critical infrastructure in the district, such as water tanks, treatment facilities, etc. The plan could have strategies in place to mitigate the threat of wildfire specific to those locations. The plan could also stage firefighting equipment and measures throughout the district to attack a wildfire, such as remote location, fire-specific water tanks, and portable generator hookups at remote groundwater well sites. The plan will also entail disconnecting electrical power during critical fire-weather events.	Last Update: 07/2019
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Debris Management Plan	No	N/A	N/A

Table 381: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 2022 California Building Codes, Humboldt County Development Ordinance
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	Yes	Yes	County Flood Damage Prevention Code
Subdivision Ordinance	Yes	Yes	County Subdivision Regulations
Zoning Ordinance	Yes	Yes	County Planning Regulations
Natural Hazard Specific Ordinance	Yes	Yes	County Flood Damage Prevention Code, County Code Title III, Div. 3, Chapter 6: Geologic Hazards
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	County Code Title II, Division 2, Chapter 4: Improvements and Dedications
Prohibition of Building in At-Risk Areas	Yes	Yes	County Flood Damage Prevention Code

21.3.2. Administrative and Technical Capabilities

Table 382and Table 383summarize the Shelter Cove Resort Improvement District No. 1's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 382: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Non-Vacant	No	Yes	Yes
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Non-Vacant	Yes	Yes	Yes
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	Yes
Active Organizations Active in Disaster	Non-Vacant	Yes	Yes	Yes

Table 383: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
GIS	Yes	GIS has been used by the Fire Department to map out all structures in Shelter Cove for wildfire-protection purposes.	The district needs to better map and utilize the GIS system for water, wastewater and electric utilities.
Mutual Aid Agreements	Yes	Mutual aid with other fire departments nearby, such as CAL FIRE and multiple volunteer fire departments.	Develop response plans for specific disaster scenarios.

21.3.3. Financial Capabilities

Table 384 summarizes the Shelter Cove Resort Improvement District No. 1's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 384: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Yes. Wildfire resilience and protection.	Yes	Yes
General Funds	Yes	Yes. Wildfire resilience and protection.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	Yes. Wildfire resilience and protection.	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes. Water tank replacements for earthquake retrofitting and upgrading; wildfire resilience and protection through electric fuse replacement projects, etc.	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Impact Fees from New Development and Redevelopment	Yes	Capacity charges for new connections, for example, provide necessary funds to replace critical infrastructure, which keep the water, wastewater, and electrical systems functioning during emergencies.	Yes	Yes
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	Yes	USDA Community Wildfire Defense Grant (CWDG). Activities: Wildfire protection and resilience; hazardous fuels reduction	Yes	Yes
State-Funded Programs	Yes	Programs: Grants through CAL FIRE, Cal OES, USDA. Activities: Wildfire protection and resilience; hazardous fuels reduction.	Yes	Yes
Private Sector or Nonprofit Programs	Yes	Donations from the public to the Fire Department and CERT assist financial requirements. Local civic organizations help to maintain greenbelt areas from fire threats and for ingress/ egress.	Yes	Yes

21.3.4. Education and Outreach Capabilities

Table 385summarizes the Shelter Cove Resort Improvement District No. 1's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 385: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A
Public Meetings/Events	Yes	Yes	Monthly District Board meetings
Emergency Management Listserv	No	N/A	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	Yes	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	Yes	Resort Improvement District and Shelter Cove Fire Department Facebook pages

21.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included inTable 386. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 386: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Need to plan for infrastructure replacement of equipment located in high and very high wildfire threat zones, tsunami zones and update outdated equipment for earthquakes.
Administrative and Technical	Need to improve the GIS program to include all public utility infrastructure. Inexperienced, newer staff need education and awareness for grant, loan, and bond opportunities. Institutional knowledge has retired.
Financial	Need to reassess connection fees, utility rates, and property taxes for potential additional revenue. This potential additional revenue could fund hazard mitigation measures. Need to pursue grants and/ or loans. May need to partner with local nonprofits or neighboring communities.
Education and Outreach	Yes, this includes expanding or improving opportunities for public education and community outreach to enhance awareness, preparedness, and engagement in local mitigation efforts—for both residents and the many tourists and visitors who frequent the area.

21.4. National Flood Insurance Program

The Shelter Cove Resort Improvement District No. 1 is not required to participate in the NFIP program, because as a special district it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure which will impact fire services, hydration, and public health. Vulnerable infrastructure to flood includes roads, physical buildings and utilities.

21.5. Mitigation Strategy

The Shelter Cove Resort Improvement District No. 1 has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation strategies

and their statuses are inTable 387, while new mitigation action items and those carried forward from the previous plan are inTable 388.

21.5.1. Previous Mitigation Actions

Table 387: Previous Mitigation Actions

Mitigation Action	Description	Status
SRID-1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas. Pumphouse Retrofits to create resistance to wildfire – Install metal roofs, cement block construction.	Deferred, ongoing
SRID-2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Ongoing
SRID-3	Purchase fixed emergency generators for critical facilities and infrastructure that lack adequate backup power, including Water Plant, lift stations, and three well sites. This includes automatic switch gear.	Deferred, pending funding
SRID-4	Power Line Vegetation Management	Ongoing; annual maintenance
SRID-5	Underground cross-country water mains: Upper Pacific to Spring Road, Shelter Cove Road to Wes Tank, Jun Well to Puma Dr span, Jeff Tank, Seafoam/Redwood to create resistance to wildfire	Deferred/ongoing; pending funding; Shelter Cove Rd to Wes Tank completed
SRID-6	Utility Pole Distribution replacement with fire resistant metal poles	Deferred/ongoing; pending funding
SRID-7	Convert 4.5 miles of Intertie Power Line to underground electric $600,000 per mile	Deferred; pending funding
SRID-8	Build six extra water storage tanks at Joe, Larry, Ted, Lee, Phil and June PRV sites.	Deferred; pending funding

Mitigation Action	Description	Status
SRID-9	Water tank replacement – To upgrade to current seismic standards. Four tanks: John Tank, Dick Tank, Wes Tank and Omar Tank.	Deferred/ongoing; actively seeking funding
SRID-10	Priority road, culvert and drainage mitigation projects for ingress and egress on primary and secondary evacuation roadways in the district (note: Critical District infrastructure—water and sewer lines—is located below county-maintained roads in the district).	Ongoing; actively coordinating with Humboldt County Public Works Department
SRID-11	Erosion control at the wastewater treatment plant	Deferred; pending funding
SRID-12	Improve drainage at the south end of the airport. Water flows over airstrip in storm events.	Deferred; pending funding
SRID-13	Maintain priority evacuation routes and roadways in case evacuation is needed and to increase fire break corridor.	Completed with CAL FIRE grant
SRID-14	Action SRID14 – Relocate maintenance building currently located in floodplain.	Deferred; pending funding
SRID-15	Action SRID15 – Purchase portable emergency generators for sewer lift stations, evacuation, and shelter locations.	Completed

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21.5.2. Updated Mitigation Actions

Table 388: 2025 Mitigation Actions[31]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
SRID1	Support all countywide actions	High	Resort Improvement District (RID) #1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	Under $100,000	Long-term	Both	Yes	All
SRID2	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas. Pumphouse Retrofits to create resistance to wildfire – Install metal roofs, cement block construction.	High	RID#1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$100,000-$500,000	Long-term	Existing	Yes	All
SRID3	Purchase fixed emergency generators for critical facilities and infrastructure that lack adequate backup power, including Water Plant, lift stations, and three well sites. This includes automatic switch gear.	High	RID#1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$100,000-$500,000	Short-term	New	Yes	Energy

[31] BRIC: Building Resilient Infrastructure and Communities, CDBG: Community Development Block Grant, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
SRID4	Implement Power Line Vegetation Management Project	Low	RID#1	Wildfire	HMGP, PDM, CDBG, general funds	Under $100,000	Short-term	Existing	Yes	Energy
SRID5	Implement project to underground cross-country water mains: Upper Pacific to Spring Road, Shelter Cove Road to Wes Tank, Jun Well to Puma Dr span, Jeff Tank, Seafoam/Redwood to create resistance to wildfire	Medium	RID#1	Wildfire	HMGP, PDM, CDBG, general funds	$100,000-$500,000	Medium-term	Existing	Yes	Water Systems
SRID6	Utility Pole Distribution replacement with fire resistant metal poles	High	RID#1	Wildfire	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Both	Yes	Energy
SRID7	Convert 4.5 miles of Intertie Power Line to underground electric $600,000 per mile	Medium	RID#1	Wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Both	Yes	Energy
SRID8	Build six extra water storage tanks at Joe, Larry, Ted, Lee, Phil and June pressure relief valve (PRV) sites.	High	RID#1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	Over $500,000	Medium-term	New	Yes	Water Systems
SRID9	Water tank replacement – To upgrade to current seismic standards. Four tanks: John Tank, Dick Tank Wes Tank and Omar Tank.	High	RID#1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	Over $500,000	Medium-term	Existing	Yes	Water Systems

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
SRID10	Create Priority road, culvert and drainage mitigation projects for ingress and egress on primary and secondary evacuations roadways in the district (note: Critical District infrastructure—water and sewer lines—is located below County-maintained roads in the district).	Medium	RID#1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Existing	Yes	Water Systems
SRID11	Implement erosion control at the wastewater treatment plant	Low	RID#1	Flooding, landslide, winter weather	HMGP, PDM, CDBG, general funds	$100,000-$500,000	Short-term	Existing	Yes	Water Systems
SRID12	Improve drainage at the south end of the airport. Water flows over airstrip in storm events	Low	RID#1	Flooding, landslide, winter weather	HMGP, PDM, CDBG, general funds	$100,000-$500,000	Medium-term	Existing	Yes	Water Systems
SRID13	Maintain priority evacuation routes and roadways in case evacuation is needed and to increase fire break corridor	High	RID#1	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, tsunami, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Existing	Yes	Safety and Security
SRID14	Reline 21 miles of Sewer Line to increase resiliency to earthquakes preventing sewage leaks.	High	RID#1	Earthquake	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Existing	Yes	Water Systems
SRID15	Install Seismic shutoff valves on all water tanks	High	RID#1	Earthquake	HMGP, PDM, CDBG, general funds	$100,00-$500,000	Short-term	Existing	Yes	Water Systems
SRID16	Seismic upgrades on all district buildings.	High	RID#1	Earthquakes	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Existing	Yes	All

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
SRID17	Reline 44 miles of concrete asbestos drinking waterlines to increase resiliency to wildfire and earthquakes	High	RID#1	Earthquake, wildfire	HMGP, PDM, CDBG, general funds	Over $500,000	Long-term	Existing	Yes	Water Systems

22. Southern Humboldt Community Healthcare District Annex

This section presents the jurisdictional annex for the Southern Humboldt Community Healthcare District (CHD). The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. There have been no changes in priorities since the previous plan update. Southern Humboldt CHD continues to construct a new hospital in Garberville. This construction continues to include mitigation actions to ensure protection against hazards.

22.1. Planning Process

22.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Southern Humboldt CHD, the stakeholders and the public. Table 389shows the individuals who represented the Southern Humboldt CHD during the planning process.

Table 389: Southern Humboldt Community Healthcare District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Chris Valk	Special Projects Coordinator	Southern Humboldt Community Healthcare District	cvalk@shchd.org
Kent Scown	Director of Operations	Southern Humboldt Community Healthcare District	kscown@shchd.org

22.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized inTable 390. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and

share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 390: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Amy Terrones	Community Resource Director	Family Resource Center	aterrones@shchd.org (707) 923-1147	1. Local and regional agencies involved in hazard mitigation activities
Chelsea Brown	Outreach Manager and Foundation Director	Family Resource Center	cbrown@shchd.org	1. Local and regional agencies involved in hazard mitigation activities
Michelle Bushnell	District 2 Supervisor	Humboldt County	(707) 223-3977	2. Agencies that have the authority to regulate development
-	-	Mendocino County	mendooes@gmail.com	3. Neighboring communities, including special districts
Sara Dronkers	CEO	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross – Northern CA Coastal Region	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

22.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder

involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 36 illustrates how the public was encouraged to participate in the survey available via a QR code link and administered in English, Spanish and Hmong languages. The Southern Humboldt Community Healthcare District used a variety of communications channels that are free and easily accessible, such as Facebook.

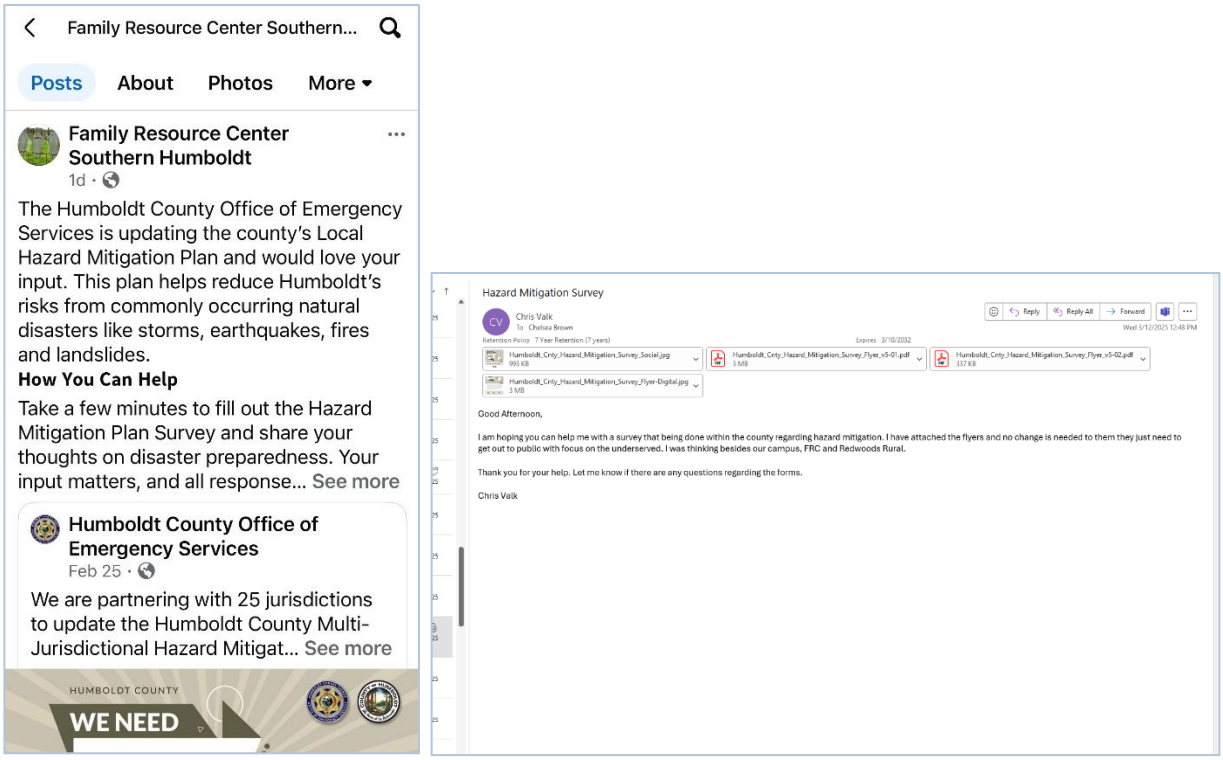

Figure 36: Public Outreach Methods

Public feedback was incorporated into the CHD's risk assessment, as appropriate, and in the list of ideas which the CHD reviewed at the Mitigation Action Workshop for inclusion in the list of mitigation actions for this plan update. In particular, residents of Garberville, where most of the CHD facilities are located, were concerned about the vulnerability of emergency services, including emergency medical care. These concerns were integrated into the Southern Humboldt CHD's chosen mitigation actions.

22.1.3.1. VULNERABLE POPULATION OUTREACH

Some Southern Humboldt CHD residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Southern Humboldt CHD may have less access to information and resources they need to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the Southern Humboldt CHD residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Southern Humboldt

CHD advertised the survey specifically to vulnerable populations on Facebook and shared with the Family Resource Center to put the flyer at their locations around the community, see Figure 36.

22.1.4. Plan Integration

22.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Table 391lists the existing planning mechanisms into which this plan has been integrated.

Table 391: Previous Plan Integration for the Southern Humboldt Community Healthcare District

Plan Name	Description
Construction Planning for New Hospital	Over the past 5 years as the SHCHD planned the development of the new hospital building, the district incorporated hazard data and mitigation ideas from the previous hazard mitigation plan.

In addition, the plan must identify the local planning mechanisms into which the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 392shows how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 392: Future Types of Plan Integration for the Southern Humboldt Community Healthcare District

Type of Plan	Integration Method
Capital Improvement Plan, Facility Maintenance Plan	SHCHD is in the midst of building a new hospital. As that process continues, SHCHD will incorporate the HMP into the capital improvement plan as it regards the new hospital complex, making sure mitigation measures are included in its construction. SHCHD will also consult the hazard mitigation plan when developing the facility maintenance plan for the new hospital.

22.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as shown in Table 393andTable 394. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 393: Southern Humboldt Community Healthcare District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	No	SHCHD is not downriver from any dams.
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Cold	Yes	N/A
Extreme Heat	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	SHCHD is far from a tsunami zone.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 394: Southern Humboldt Community Healthcare District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	Medium	High	High	High	Medium
Earthquake	High	High	High	High	High
Extreme Cold	Medium	High	Medium	Medium	High
Extreme Heat	Medium	High	Medium	Medium	High
Flooding	High	Low	Low	Low	Medium
Landslide	High	High	Medium	High	High

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Wildfire	High	High	High	High	High
Wind	High	High	Medium	Medium	High
Winter Weather	High	High	Medium	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

22.2.1. Historical Events and Impacts

This section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Southern Humboldt Community Healthcare District. Other hazard events that broadly affected the entire planning area, including the Southern Humboldt Community Healthcare District, are listed in the risk assessments in Volume 1.

22.2.1.1.HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) National Storm Events Database contains no recorded storm events that have impacted the Southern Humboldt Community Healthcare District from Nov. 1, 2019 to Dec. 31, 2024. However, the database does not always capture localized hazard data. To address this gap, the Southern Humboldt Community Healthcare District has documented additional significant events, and their impacts are detailed below.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- No events have occurred for this hazard.

EXTREME COLD AND HEAT

- No events have occurred for this hazard.

FLOODING

- No events have occurred for this hazard.

LANDSLIDE

- No events have occurred for this hazard.

WILDFIRE

- **July, 2024:** Considered evacuation due to a wildfire that existed near the area.
- **2019:** Evacuations due to a wildfire that existed near the area.

WIND

- No events have occurred for this hazard.

WINTER WEATHER

- **January–March, 2023:** Pre-positioning staffing and response to intense rain and cold

22.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 395 provides information on key vulnerabilities and impacts on the jurisdiction.

Table 395: Southern Humboldt Community Healthcare District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Drought	*Vulnerability:* The hospital and other medical facilities are slightly vulnerable to drought due to water needs for medical procedures. While the function of medical facilities may be impacted in extreme situations, in general, district structures are at low vulnerability to drought. Employees are not particularly vulnerable to drought. *Impacts:* If water restrictions are put in place it could impact the functioning of the hospital, which requires water for a variety of procedures and sanitizing functions. Without an adequate water supply, the hospital may not be able to function at full capacity and would have to restrict procedures for patients. Direct impacts to district structures due to drought is expected to be limited.
Earthquake	*Vulnerability:* The hospital campus would be vulnerable to a significant earthquake, and the residents, if injured, would come to the facility to treat injuries. *Impacts:* Hospital campus could suffer structural damage from a severe earthquake. If large numbers of residents are injured it could overwhelm the hospital staff and facilities.

Hazard	Vulnerabilities and Impacts
Extreme Cold	*Vulnerability:* SHCHD facilities are climate controlled and not vulnerable to extreme cold. Employees and residents that SHCHD serves are at increased vulnerability to cold related injuries. *Impacts:* More residents, especially the elderly and unhoused, will need treatment for cold related injuries. Ice from extreme cold could impact Highway 101, the primary route into and out of Garberville, where most SHCHD facilities are located.
Extreme Heat	*Vulnerability:* SHCHD facilities are climate controlled and not vulnerable to extreme heat. Employees and residents that SHCHD serves are at increased vulnerability to heat related injuries. *Impacts:* More residents, especially the elderly and unhoused, will need treatment for heat related injuries, which could overwhelm the hospital system.
Flooding	*Vulnerability:* SHCHD facilities are not within the 1% or 0.2% annual flood chance zones. Employees and residents that SHCHD serves are vulnerable to flooding and are at risk of being isolated due to flooded roads. *Impacts:* People may be injured on roads that commonly flood and need to get treated at the hospital. Roads, like Highway 101, can be flooded and block access for employees to get to SHCHD facilities.
Landslide	*Vulnerability:* The hospital in Garberville is near a ravine that could experience landslides. Employees of SHCHD may be vulnerable as well. *Impacts:* If the ravine experiences a major landslide it could have impacts on the stability of the hospital in the future. If landslides block roads in other parts of the county it would restrict access for employees to SHCHD facilities.
Wildfire	*Vulnerability:* People who are living in the wildlife urban interface area, which includes many areas surrounding the hospital, are at high risk for wildfire. The hospital is located near a ravine that is highly susceptible to wildfire. The entirety of Garberville is in a high-risk fire severity zone. *Impacts:* Wildfire could impact the functioning of the hospital if it occurs in the nearby ravine. Wildfire could close roads that restrict residents and employee access to SHCHD facilities. Air pollution from nearby fires could exacerbate respiratory illness in the population which will need to be treated at the hospital.

Hazard	Vulnerabilities and Impacts
Wind	*Vulnerability:* Some SHCHD facilities are vulnerable power outages caused by extreme wind events. Employees and residents could be effected by extreme winds. *Impacts:* Downed power lines from high winds can result in power outages to SHCHD facilities. Downed trees can threaten structures and block roadways, including Highway 101, causing transportation issues and hindering emergency response. Downed trees and power lines can pose risk to SHCHD employees and their property.
Winter Weather	Vulnerability: Some SHCHD facilities are vulnerable power outages caused by winter weather and snow events. Employees and residents could be effected by extreme winds. *Impacts:* Hail and heavy rain and snow storms could affect roadways and transportation increasing the potential for auto accidents. Employees may be unable to reach SHCHD facilities due to road conditions. Power outages from winter weather could impact some SHCHD facilities.

22.2.2.1. DEVELOPMENT CHANGES

Table 396 summarizes development trends in the Southern Humboldt Community Healthcare District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 396: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	None	The new hospital should be between June, 2028-July, 2029	No change
Commercial	None	None	No change
Industrial	None	None	No change

22.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Southern Humboldt Community Healthcare District performed an

assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

22.3.1. Planning and Regulatory Capabilities

Table 397and Table 398summarize the Southern Humboldt Community Healthcare District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 397: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	Yes	Incorporating mitigation actions into future projects	2026
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A
Forest Management Plan	No	N/A	N/A
Facility Maintenance Plan	Yes	Ensuring that maintenance is reducing the risk to wildfire, and flooding.	2026

Table 398: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes	Last Update: 2022 California Building Codes, Humboldt County Development Ordinance
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	Yes	Yes	County Flood Damage Prevention Code
Subdivision Ordinance	Yes	Yes	County Subdivision Regulations
Zoning Ordinance	Yes	Yes	County Planning Regulations

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Natural Hazard Specific Ordinance	Yes	Yes	County Flood Damage Prevention Code, County Code Title III, Div. 3, Chapter 6: Geologic Hazards
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	County Code Title II, Division 2, Chapter 4: Improvements and Dedications
Prohibition of Building in At-Risk Areas	Yes	Yes	County Flood Damage Prevention Code

22.3.2. Administrative and Technical Capabilities

Table 399and Table 400summarize the Southern Humboldt CHD's administrative and technical capabilities, including the staff and their respective skills and the tools available to support mitigation actions.

Table 399: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Non-Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 400: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A

22.3.3. Financial Capabilities

Table 401 summarizes the Southern Humboldt CHD's financial capabilities, which are the resources used to fund mitigation actions. Discussing the funding and financial capabilities of the Southern Humboldt CHD is important in determining the kinds of projects feasible given their cost.

Table 401: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	No	N/A	N/A	No
General Funds	No	N/A	N/A	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	No
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	No
Flood Mitigation Assistance (FMA)	No	N/A	N/A	No
Community Development Block Grant (CDBG)	No	N/A	N/A	No
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	No
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	No
Property, Sales, Income or Special Purpose Taxes	Yes	No	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	No
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	No
Impact Fees from New Development and Redevelopment	No	N/A	N/A	No
General Obligation or Special Purpose Bonds	No	N/A	N/A	No
Federal-Funded Programs	Yes	Hospital Construction	USDA, Medicaid and Medicare	No
State-Funded Programs	No	N/A	N/A	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can It Be Used to Fund Future Mitigation Actions?	Can It Be Used as a Local Match for a Federal Grant
Private Sector or Nonprofit Programs	No	N/A	N/A	No

22.3.4. Education and Outreach Capabilities

Table 402 summarizes the Southern Humboldt Community Healthcare District's education and outreach capabilities, which are the programs and actions that can communicate information about and encourage risk reduction.

Table 402: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Disaster preparedness	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	Board Meeting
Emergency Management Listserv	No	N/A	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	Yes	Yes	Family Resource Center is a valued partner and active in the community.
Social Media	Yes	No	Facebook, Instagram, website
Weekly Press Releases	No	N/A	N/A

22.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are listed in Table 403. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 403: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Develop a Southern Humboldt Mitigation group to provide guidance on incorporating mitigation into planning documents.
Administrative and Technical	More staffing is needed to adequately incorporate mitigation into regular operations at SHCHD.
Financial	More resources for identifying and applying for federal grants, such as HMGP. Currently the capacity to apply and receive federal mitigation grants are limited.
Education and Outreach	Coordinate with other organizations in Humboldt County to align and amplify mitigation messaging.

22.4. National Flood Insurance Program

The Southern Humboldt Community Healthcare District is not required to participate in the NFIP program, because, as a special district, it does not have authority to do so. However, a flood event might result in the loss of electricity, water and wastewater systems and could impact public health.

22.5. Mitigation Strategy

The Southern Humboldt Community Healthcare District has adopted the same goals and prioritization process as those adopted by Humboldt County. These are presented in Volume 1. Previous mitigation actions and their statuses are in Table 404, while new mitigation action items and those carried forward from the previous plan are inTable 405.

22.5.1. Previous Mitigation Actions

Table 404: Previous Mitigation Actions

Mitigation Action	Description	Status
SHCHD-1	California SB1953 requires the construction of new facilities to meet seismic standards.	Carry forward, in process of building a new facility, by the end of June, 2025
SHCHD-2	Perform a non-structural retrofit to ensure seismic compliance.	Completed
SHCHD-3	Replace generators.	Completed
SHCHD-4	Support countywide initiatives identified in Volume 1 of this plan.	In process

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22.5.2. Updated Mitigation Actions

Table 405: 2025 Mitigation Actions[32]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
SHCHD1	California SB 1953 requires the construction of new facilities to meet seismic standards.	High	Southern Humboldt Community Healthcare District	Earthquake	HMGP, USDA, district funds	$75,000,000	New	3–5 years	Yes	All
SHCHD2	Continue to support countywide initiatives identified in this plan.	High	Southern Humboldt Community Healthcare District	Earthquake, floods, drought, extreme temperatures, landslide, wildfire, wind, winter weather	HMGP, district funds	$100,000	Both	Short-term and ongoing	Yes	All
SHCHD3	Generator at new facility and transfer switch	High	Southern Humboldt Community Healthcare District	Earthquake, floods, drought, extreme temperatures, landslide, wildfire, wind, winter weather	HMGP, district funds	$1,000,000	Both	3–5 years	Yes	All

[32] BRIC: Building Resilient Infrastructure and Communities, HMGP: Hazard Mitigation Grant Program, USDA: U.S. Department of Agriculture

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23. City of Trinidad Annex

This section presents the jurisdictional annex for the City of Trinidad. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, there have been no changes in priorities.

23.1. Planning Process

23.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the City of Trinidad, the stakeholders and the public. The City of Trinidad was represented during the planning process by the following individual listed in Table 406.

Table 406: City of Trinidad Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Joe Tagliaboschi	City Manager	City of Trinidad	citymanager@trinidad.ca.gov

23.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized inTable 407. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 407: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Angela Cather	Grant Writer/ Project Manager	City of Trinidad	Acather@Trinidad.ca.gov	1. Local and regional agencies involved in hazard mitigation activities
Cheryl Kelly	Mayor	City of Trinidad	CKelly@Trinidad.ca.gov	2. Agencies that have the authority to regulate development
Trevor Parker	City Planner	City of Trinidad	trevorpark@shn-engr.com	2. Agencies that have the authority to regulate development
		Orick Volunteer Fire Department		3. Neighboring communities, including special districts
		Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross – Northern CA Coastal Region	simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

23.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comments. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. Figure 37 illustrates how the public was

encouraged to participate in the survey. The City of Trinidad utilized a variety of free and easily accessible communication channels, including their website.

Figure 37: Public Outreach Methods

Public feedback was appropriately incorporated into the risk assessment and the list of mitigation action ideas. The City reviewed these ideas during the Mitigation Action Workshop to determine what should be included in the updated list of mitigation actions for this plan update. This process is reflected in the area-wide actions that Trinidad selected for inclusion in the update.

23.1.3.1.VULNERABLE POPULATION OUTREACH

Some Trinidad residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in Trinidad may have less access to information and resources to help mitigate risk and increase their preparedness for emergencies. To better understand the risks and vulnerabilities the city residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. The city advertised the survey specifically to vulnerable populations by posting the flyers inside the city hall so that individuals could contribute to the survey.

23.1.4. Plan Integration

23.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan

will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed inTable 408.

Table 408: Previous Plan Integration for the City of Trinidad

Plan Name	Description
N/A	Lack of staff, time, funds, resources, and relevant plan updates within the last 5 years

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 409 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 409: Future Types of Plan Integration for the City of Trinidad

Type of Plan	Integration Method
Capital Improvement Plan	Future capital improvement planning will address the mitigation of hazards and climate change impacts. Incorporation of risk assessment data and mitigation actions from the updated hazard mitigation plan will be considered.

23.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as displayed in Table 410 andTable 411. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 410: City of Trinidad Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	N	There are no high-hazard dams specifically in Trinidad that could affect the city.
Drought	Y	N/A
Earthquake	Y	N/A
Extreme Heat	Y	N/A

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Extreme Cold	Y	N/A
Flooding	Y	N/A
Landslide	Y	N/A
Tsunami	Y	N/A
Wildfire	Y	N/A
Wind	Y	N/A
Winter Weather	Y	N/A

Table 411: City of Trinidad Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	High	High	High	Low	High
Earthquake	Medium	High	High	High	High
Extreme Heat	High	High	High	High	High
Extreme Cold	High	High	High	High	High
Flooding	Medium	Medium	Medium	Low	Medium
Landslide	Medium	Low	Low	Low	Low
Tsunami	Low	Low	Low	Low	Low
Wildfire	High	High	High	High	High
Wind	High	High	High	Low	High
Winter Weather	High	High	High	Low	High

Note: The process used to assign risk rankings is described in Volume 1.

23.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the City of Trinidad. Other hazard events that broadly affected the entire planning area, including the City of Trinidad, are listed in the risk assessments in Volume 1.

23.2.1.1. HISTORICAL EVENTS

Table 412 presents a summary of the storm events that have occurred in the City of Trinidad between Nov. 1, 2019 and Dec. 31, 2024 from the National Centers for Environmental Information (NCEI).

Trinidad has experienced a relatively calm weather pattern in recent times, with one recorded storm event directly affecting it. However, the broader northern Humboldt coastal region has faced several storm events, as documented by the National Storm Events Database.

While Trinidad itself may have avoided the brunt of these storms, neighboring areas have seen varying impacts, ranging from high winds to heavy rainfall. Trinidad's proximity to the coast means that it can still feel the effects of these weather systems, even when it does not experience severe weather directly.

Table 412: NCEI Storm Event Database for the City of Trinidad (2019–2024)

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Trinidad	03/01/2024	Thunderstorm wind	0	0	$1,000.00	$0

The NCEI database does not always capture localized hazard data. To address this gap, the City of Trinidad has documented additional significant events, with their impacts detailed below.

DROUGHT

- **2021–2023:** Fire and smoke from dry brush and dead timbers. Drought management for water supply.

EARTHQUAKE

- **Dec. 5, 2024:** Water main break.

EXTREME HEAT AND EXTREME COLD

- **December, 2024–January, 2025:** Residents with insecure housing. Outdoor plants and animals at risk. No reported damage.
- **January–March, 2024:** Residents with insecure housing. Outdoor plants and animals at risk. No reported damage.
- **November, 2023:** Residents with insecure housing. Outdoor plants and animals at risk. No reported damage.

- **February–March, 2023:** Residents with insecure housing. Outdoor plants and animals at risk. No reported damage.

FLOODING

- No events have occurred for this hazard.

LANDSLIDE

- **2023:** Sliding on bluff at Edwards Street and Trinity. Lost trails and potential infrastructure loss.

TSUNAMI

- **December, 2024:** Warning after earthquake.

WILDFIRE

- No events have occurred for this hazard.

WIND

- **March 1, 2024:** Downed trees and power lines.

WINTER WEATHER

- **January–March, 2023**: Downed trees and power lines.

23.2.2. Jurisdiction-Specific Vulnerabilities

Table 413 provides information on a few key vulnerabilities for the jurisdiction.

Table 413: City of Trinidad Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Drought	*Vulnerabilities:* During droughts, people face significant challenges due to limited water supply. Access to drinking water may be restricted, impacting vulnerable groups, such as the elderly and low-income families. Critical infrastructure is also affected, as water treatment facilities may struggle to maintain quality and supply. Agricultural infrastructure can suffer from inadequate irrigation, resulting in crop failures and economic consequences. Certain areas in Trinidad, such as upland regions and those with sandy soils, are particularly vulnerable to drought due to their low water retention and lower precipitation amounts. Urban development can exacerbate this issue, increasing water consumption and diminishing groundwater recharge. *Impacts:* The impacts on residents can include health issues like dehydration and increased stress over water availability. For critical infrastructure, drought can result in economic losses, particularly in agriculture, with reduced crop yields and rising food prices. Additionally, infrastructure such as roads may incur increased repair costs due to deterioration from inadequate maintenance and water supply.
Earthquake	*Vulnerabilities:* People are vulnerable to earthquakes due to aging buildings that may not meet modern seismic standards. The elderly and those with disabilities may struggle to evacuate or access help quickly. Critical infrastructure, including roads, bridges, and utilities, is vulnerable to severe damage, which can disrupt essential services and hinder emergency responses. In Trinidad, areas along the northern coast near the San Andreas Fault and the understudied segment of the fault system are particularly susceptible to earthquakes. Coastal regions and steep hillsides are also at risk due to their geological composition and proximity to fault lines. *Impacts:* The impacts on residents can include injuries, fatalities, psychological stress, disruptions to daily life and potential displacement. For critical infrastructure, earthquakes can cause significant economic losses from repair costs and hinder emergency services, complicating relief efforts and delaying aid to affected communities.

Hazard	Vulnerabilities and Impacts
Extreme Cold	*Vulnerabilities:* Many homes may lack adequate insulation and heating systems. This can pose health risks, especially for vulnerable populations like the elderly and those with preexisting conditions. Additionally, transportation can become hazardous due to icy conditions, while power supply strains during increased demand may lead to outages. Areas at higher elevations and those near the Humboldt Bay are more susceptible to extreme cold due to their geographical features. Coastal regions can experience chilly temperatures influenced by the ocean, while valley floors and less sun-exposed areas may feel colder, especially during the winter months when frost and freeze warnings are common. *Impacts:* Extreme cold can pose significant challenges for residents, especially the elderly and those with limited resources, as it increases the risk of hypothermia and other cold-related illnesses. Additionally, infrastructure such as roads and bridges may experience wear and tear from icy conditions, leading to dangerous travel situations and costly repairs.
Extreme Heat	*Vulnerabilities:* Inadequate cooling systems in many homes can lead to health risks for vulnerable populations like the elderly. The increased demand for electricity during heat waves can strain power supplies, resulting in outages. Additionally, high temperatures may exacerbate the risk of wildfires and impact water availability. Areas that are particularly susceptible to extreme heat include the inland regions and valley areas, where temperatures can rise significantly during summer months. Additionally, elevated terrains with limited tree cover may experience higher heat stress due to less shade and vegetation to mitigate temperature increases. *Impacts:* Extreme heat can have severe implications for public health, resulting in heat-related illnesses and increased mortality rates, particularly among vulnerable populations. The demand on energy infrastructure also skyrockets as residents rely heavily on air-conditioning, potentially leading to power outages and strain on electrical grids. Additionally, extreme heat can increase wildfire risks, threatening both lives and property.

Hazard	Vulnerabilities and Impacts
Flooding	*Vulnerabilities:* Areas near the coastline and along local rivers and streams are particularly susceptible to flooding, especially during heavy rainfall or storm surges. Low-lying regions, especially those near the Trinidad Bay and creeks that drain into the ocean, are at risk due to their proximity to water bodies and the potential for runoff. Those in flood-prone areas, especially the elderly and disabled, may struggle to evacuate or access help. Critical infrastructure, such as roads and utilities, can be severely affected, making it difficult for emergency services to operate and isolating communities. *Impacts:* Flooding can cause significant property damage, displacement and health risks, such as waterborne diseases, for residents. For critical infrastructure, flooding leads to costly repairs and service interruptions, complicating recovery efforts and negatively impacting local businesses and the economy.
Landslide	*Vulnerabilities:* Areas that are more susceptible to landslides include the coastal bluffs and steep hilly regions, particularly after heavy rainfall. Additionally, neighborhoods near riverbanks and those built on recently disturbed land are at higher risk due to soil instability. The elderly or families with young children may struggle during evacuations. Low-income residents may lack resources for relocation or home reinforcement. Critical infrastructure, such as roads and bridges, is also at risk. Landslides can block transportation routes, hindering emergency response efforts, while utility lines may be disrupted, affecting essential services. *Impacts:* Landslides can lead to severe injuries or fatalities, as well as displacement for residents, causing emotional stress and uncertainty. Loss of homes and belongings can have lasting psychological effects. For critical infrastructure, landslides result in significant damage, costly repairs, and service disruptions. This can isolate communities and hinder recovery efforts, causing economic strain as local businesses may struggle to operate.

Hazard	Vulnerabilities and Impacts
Tsunami	*Vulnerabilities:* Residents in this area face risks from tsunamis due to their coastal location, particularly those in low-lying areas near Trinidad Bay with limited evacuation routes. The coastline's steep cliffs and narrow beaches can amplify the impact of tsunami waves, making these zones more vulnerable. Vulnerable groups like the elderly may struggle to evacuate quickly. Critical infrastructure, such as emergency services and utilities, is also at risk of significant damage, which can hinder community responses. *Impacts:* Tsunamis can cause loss of life, injuries, and displacement, resulting in emotional trauma for residents. For critical infrastructure, extensive damage leads to high repair costs and prolonged service disruptions, complicating emergency responses and negatively affecting local businesses and the economy.
Wildfire	*Vulnerabilities:* Residents are at risk from wildfires because of their proximity to dense forests and hilly terrains. Those living near coastal bluffs are particularly vulnerable due to the dry vegetation and strong winds that heighten fire risks. This situation makes evacuation difficult, especially for the elderly and disabled. Low-income families may lack the resources needed for fire-resistant improvements. Additionally, critical infrastructure, such as utilities and transportation routes, is also at risk, which can hinder access to emergency services. *Impacts:* Wildfires can lead to loss of life, injuries and displacement for residents, resulting in long-term emotional effects. For critical infrastructure, damage to power lines and roads causes costly repairs and service interruptions, complicating emergency responses and straining local economies as businesses struggle to recover.

Hazard	Vulnerabilities and Impacts
Wind	*Vulnerabilities:* All people are vulnerable to wind hazards due to the risk of falling trees and debris, but those along coastal bluffs and exposed ridges are more susceptible, posing threats especially to the elderly and children. Those with mobility issues may struggle to find shelter during high winds, while low-income families could face challenges during power outages. Critical infrastructure, like power lines and communication towers, is also at risk. Strong winds can damage these assets, leading to service disruptions and hampering emergency responses. Roads can become blocked by debris, isolating communities and obstructing access for emergency services. *Impacts:* Wind impacts residents through injuries from falling objects and heightened anxiety over property damage. Power outages can lead to food spoilage and hinder access to medical care for vulnerable individuals, sometimes resulting in displacement. For critical infrastructure, repair costs can be substantial, and prolonged service interruptions can have a negative impact on local businesses. Debris clearance may burden emergency services, complicating recovery efforts and extending disruptions to essential services.
Winter Weather	*Vulnerabilities:* During winter weather, residents face risks such as hypothermia and frostbite, particularly among the elderly, homeless individuals, and those with underlying health conditions. Limited access to heating can worsen these health threats for low-income families. Critical infrastructure is also vulnerable, as power lines and utilities can be damaged by snow and ice. Icy roads make it difficult for emergency services to respond, and falling trees pose additional risks to both people and infrastructure. *Impacts:* The impacts on residents can include health issues, such as respiratory problems from inadequate heating, and potential displacement if homes are damaged by snow or flooding. For critical infrastructure, winter weather can disrupt public services. Power outages may lead to service interruptions, and icy roads hinder transportation and emergency responses, straining local economies and delaying recovery efforts.

23.2.2.1. DEVELOPMENT CHANGES

Table 414 summarizes development trends in the City of Trinidad since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 414: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Trinidad is mainly built out, so little new development	Not likely	No change
Commercial	Trinidad is mainly built out, so little new development	Not likely	No change
Industrial	Trinidad is mainly built out, so little new development	Not likely	No change

23.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The City of Trinidad performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

23.3.1. Planning and Regulatory Capabilities

Table 415and Table 416 summarize the City of Trinidad's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards.

Table 415: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	Yes Assembly Plan: No	The General Plan Policy helps identify safety-related issues that can be used for the Hazard Mitigation Plan.	Last Update: 01/2021 Next Update: 05/2025
Recovery Plan	N/A	N/A	N/A
Capital Improvement Plan	N/A	N/A	N/A
Climate Change Adaptation Plan	Yes	More research needed	Last Update: 08/2024 Next Update: 08/2034
Community Wildfire Protection Plan	Yes	Unsure; the city participates through the county plan	Last update: 2019 Next update: Unknown
Economic Development Plan	N/A	N/A	N/A
Land Use Plan	Yes	More research needed	Last Update: 02/2021 Next Update: 12/2025
Local Emergency Operations Plan	Yes	More research needed	Last Update: 06/2014 Next Update: 08/2034
Stormwater Management Plan	Yes	More research needed	Last Update: 02/2019 Next Update: 06/2025
Transportation Plan	N/A	N/A	N/A
Substantial Damage Plan	N/A	N/A	N/A
Debris Management Plan	N/A	N/A	N/A

Table 416: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes, Humboldt County (2022 California Building Codes)	The city uses the most current version of the CA Building Code (2022). It is scheduled to be updated in 2025 and implemented starting in 2026.
Flood Insurance Rate Maps	Yes	Yes	Last Update: 02/2022 Next Update: 11/2025
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	Yes	Yes	Last Update: 01/2021 Next Update: 02/2025
Natural Hazard Specific Ordinance	Yes	Yes	Last Update: 07/2024 Next Update: 12/2025
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

23.3.2. Administrative and Technical Capabilities

Table 417 and Table 418summarize the City of Trinidad's administrative and technical capabilities, including its staff and their respective skills and the available tools to support mitigation actions.

Table 417: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Non-Vacant	Yes	No	No
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Non-Vacant	Yes	Yes	No
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Non-Vacant	Yes	Yes	No
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 418: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	Yes	Hazard areas are mapped in the general plan and additional development restrictions and standards apply in hazard areas.	The data is currently being updated in the draft Safety Element, which will be used to refine development restrictions and standards more effectively.

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
GIS	Yes	More research is needed.	By creating detailed hazard maps that identify vulnerable areas to wildfires and flooding, while supporting emergency response planning through optimized evacuation routes and resource management
Mutual Aid Agreements	Yes	Further research is needed.	By providing additional resources in a time of need

23.3.3. Financial Capabilities

Table 418 summarizes the City of Trinidad's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the city is important to determine the kinds of projects that are feasible given their cost.

Table 419: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	Fire hydrants, backup generators and power supply	Yes	Yes
General Funds	Yes	Not sure	Yes	No
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	Yes	Yes
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	Yes	Potentially
Flood Mitigation Assistance (FMA)	No	N/A	Yes	No

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Community Development Block Grant (CDBG)	No	N/A	Yes	Yes
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	No	Yes	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	No	No	No
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

23.3.4. Education and Outreach Capabilities

Table 420 summarizes the City of Trinidad's education and outreach capabilities, which refer to programs and actions that communicate information about and encourage risk reduction.

Table 420: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	Yes	Variety of local government meetings
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	No	Website

23.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 421. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 421: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	Further research is needed.
Administrative and Technical	Further research is needed.
Financial	Additional funds could be used to help fund emergency generators, additional GIS capabilities/seats/licenses, and additional fire and police services.
Education and Outreach	Further research is needed.

23.4. National Flood Insurance Program

The City of Trinidad does not participate in the NFIP program. Details are in Table 422.

Table 422: City of Trinidad NFIP Details

Question	Response
Does the community participate in the NFIP?	No
Why does the community not participate in the NFIP?	The city elected not to participate in the flood mapping program because there is essentially no risk of flooding in the city due to the topography. There is a small flood zone along Mill Creek that was outside the city when it was mapped but has now been annexed. That was where the city had a dam and its old water intake. The impoundment filled in and the dam eventually rotted away. I do not think there's anything left. There are no structures in the vicinity of that flood zone. The VE zone, which is a type of flood zone indicating areas subject to high-velocity wave action, along the shoreline was recently mapped, and that is a wave runup flood zone. That also does not affect any structures outside the Harbor Area, which is now in federal trust. Therefore, I see no reason for the city to participate in NFIP.
Is the community interested in joining the NFIP?	No

23.5. Mitigation Strategy

The City of Trinidad has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation action items and their statuses are detailed in Table 423, while new action items and those carried forward from the previous plan are inTable 424.

23.5.1. Previous Mitigation Actions

Table 423: Previous Mitigation Actions

Mitigation Action	Description	Status
TRD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas. Encourage the utility operator to install underground electrical utilities.	Deferred: This will be an ongoing mitigation action. No structures were lost or damaged by disasters during the plan period.
TRD2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the following: • Update the city land use code for seismic setbacks/structural requirements and hillside development standards. • Incorporate the hazard mitigation plan as part of the General Plan Safety Element. The Safety Element enables the city to regulate future land uses in areas affected by all hazards of concern identified in the plan. • Establish mapped hazard zones or overlays and update land uses and zoning requirements to minimize risks from hazards. • Restrict or limit construction of new development in zones or overlay areas identified as hazardous. • Protect existing open space adjacent to the coast.	Deferred: Trinidad is currently updating its Safety Element, which incorporates the hazard mitigation plan (and its update). Hazard maps have been drafted but require finalization. Trinidad's codes and ordinances already incorporate standards in fault hazard zones and in areas mapped as being unstable or questionably stable. These will be updated based on more current work. Lands along the coast are already designed for open space and a specific environment.

Mitigation Action	Description	Status
TRD3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Deferred: To be completed as time and resources allow.
TRD4	Develop and adopt a capital improvement plan that addresses hazards and the impacts of climate change.	Deferred: To be completed as time and resources allow.
TRD5	Identify and pursue strategies to increase adaptive capacity to climate change, including but not limited to the following: fostering community awareness of the possible effects of climate change and encouraging involvement in planning for the future.	Completed. Trinidad developed a coastal resiliency plan and partnered in the development of a CERT.
TRD6	Update the Trinidad Emergency Operations Plan to integrate it with the LHMP and the Mitigation Action Plan, and update plans that support or enhance continuity of operations following disasters. Develop a continuity of operations plan. Address isolation due to critical road closure. Provide emergency preparedness education. Develop and incorporate into the EOP a program to capture perishable data following significant events, supporting future mitigation efforts, including the implementation and maintenance of the hazard mitigation plan.	Deferred: To be completed as time and resources allow.
TRD7	Support the countywide initiatives identified in Volume 1 of the hazard mitigation plan.	Deferred: To be completed as time and resources allow.
TRD8	Work with the County of Humboldt on the development of regional planning documents, including evacuation plans and maps, disaster recovery plans, and debris management plans. Identify/develop alternatives for evacuation, supply and emergency response when the Trinidad community is isolated due to highway and road closures and failures.	Deferred: To be completed as time and resources allow.
TRD9	Repair Van Wycke Trail storm damage and relocate vulnerable water line and storm drain along Van Wycke.	Completed

Mitigation Action	Description	Status
TRD10	Improve resiliency of water system. • Replace old water mains and collaborate with the county to replace culverts at risk of failure on Westhaven Drive, thereby protecting the water mains. • Relocate vulnerable water line along Van Wycke Trail (T-14). • Identify emergency water supplies and obtain emergency connection equipment. • Inter-tie between Trinidad and Westhaven Community Services District. • Upgrade all water mains to a minimum of 4 inches and install fire hydrants. • Increase water system storage capacity for existing community water supply and firefighting. • Perform seismic retrofit of critical facilities (e.g., Trinidad water storage tanks, water plant). • Create defensible space at the water tank site and other critical water facilities. • Promote the installation of residential water storage tanks above the water system intake.	Deferred: To be completed as time and resources allow.
TRD11	Implement priority actions in the Community Wildfire Protection Plan, including developing collaborative partnerships, anticipating in a wildfire preparedness program (e.g., Firewise), and addressing water system and firefighting water supply needs.	Deferred: To be completed as time and resources allow.
TRD12	Work with the National Oceanic and Atmospheric Association to attain the certifications of Storm Ready and Tsunami Ready in collaboration with interested local support agencies. Includes participation in the Redwood Coast Tsunami Workgroup.	Deferred: To be completed as time and resources allow.

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23.5.2. Updated Mitigation Actions

Table 424: 2025 Mitigation Actions[33]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
TRD1	Where appropriate, support the retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are situated in high- or medium-risk hazard areas. Encourage the utility operator to install underground electrical utilities.	Medium	City of Trinidad	Wildfire, landslide, earthquake, tsunami	HMGP, PDM, FMA	$20,000,000	Existing	5+ years	Yes	Safety and Security

[33] FMA: Flood Mitigation Assistance, FMAG: Fire Management Assistance Grant, HMGP: Hazard Mitigation Grant Program, LCP: Local Coastal Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
TRD2	Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the following: • Update the city's land use code to reflect seismic setbacks, structural requirements and hillside development standards. • Incorporate the hazard mitigation plan as part of the General Plan Safety Element. The Safety Element enables the city to regulate future land uses in areas affected by all hazards of concern identified in the plan. • Establish mapped hazard zones or overlays and update land uses and zoning requirements to minimize risks from hazards. • Restrict or limit construction of new development in zones or overlay areas identified as hazardous. • Protect existing open space adjacent to the coast.	Medium	City of Trinidad	Wildfire, landslide, drought, earthquake, tsunami, flooding	Coastal Commission LCP Grant, staff time, general funds	$200,000	Existing	3–5 years	Yes	Safety and Security
TRD3	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Medium	City of Trinidad	Wildfire, landslide, winter weather, drought, earthquake, tsunami, flooding	Staff time, general funds	$50,000	Existing	1–2 years	Yes	All lifelines

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
TRD4	Develop and adopt a capital improvement plan that addresses hazards and the impacts of climate change.	Medium	City of Trinidad	Wildfire, landslide, winter weather, drought, earthquake, tsunami, flooding	Staff time, general funds, water fund	$100,000	Existing	1–2 years	Yes	All lifelines
TRD5	Update the Trinidad Emergency Operations Plan to integrate it with the LHMP and the Mitigation Action Plan, and update plans that support or enhance continuity of operations following disasters. Develop a continuity of operations plan. Address isolation due to critical road closure. Provide emergency preparedness education. Develop and incorporate into the EOP a program to capture perishable data following significant events, supporting future mitigation efforts, including the implementation and maintenance of the hazard mitigation plan.	Medium	City of Trinidad	Wildfire, landslide, winter weather, drought, earthquake, tsunami, flooding	HMGP, PDM, FMA, staff time, general funds	$100,000	Existing	1–2 years	Yes	All lifelines
TRD6	Support the countywide initiatives identified in Volume 1 of the hazard mitigation plan.	Medium	City of Trinidad	Wildfire, landslide, winter weather, drought, earthquake, tsunami, flooding	HMGP, PDM, FMA, staff time, general funds, water funds	$0	Existing	1–2 years	Yes	All lifelines

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
TRD7	Work with the County of Humboldt on the development of regional planning documents, including evacuation plans and maps, disaster recovery plans, and debris management plans. Identify/develop alternatives for evacuation, supply and emergency response when the Trinidad community is isolated due to highway and road closures and failures.	Medium	City of Trinidad	Wildfire, landslide, winter weather, drought, earthquake, tsunami, flooding	HMGP, PDM, FMA, staff time, general funds	$100,000	Existing	1–2 years	Yes	All lifelines
TRD8	Improve resiliency of water system. • Replace old water mains and collaborate with the county to replace culverts at risk of failure on Westhaven Drive, thereby protecting the water mains. • Relocate vulnerable water line along Van Wycke Trail (T-14). • Identify emergency water supplies and obtain emergency connection equipment. • Inter-tie between Trinidad and Westhaven Community Services District. • Upgrade all water mains to a minimum of 4 inches and install fire hydrants. • Increase water system storage capacity for existing community water supply and firefighting. • Perform seismic retrofit of critical facilities (Trinidad water storage tanks, water plant, etc.). • Create defensible space at the water tank site and other critical water facilities. • Promote the installation of residential water storage tanks above water system intake.	Medium	City of Trinidad	Wildfire, landslide, winter weather, drought, earthquake	HMGP, PDM, FMA, FMAG, staff time, general fund, water fund	$10,000,000	Existing	5+ years	Yes	Water Systems, Hydration

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	New and/or Existing Asset	Timeframe for Completion	Vulnerable Population Benefit?	Community Lifelines Benefit?
TRD9	Implement priority actions in the CWPP, including developing collaborative partnerships, anticipating in a wildfire preparedness program (e.g., Firewise), and addressing water system and firefighting water supply needs.	Medium	City of Trinidad	Wildfire, drought	HMGP, PDM, FMA, FMAG, staff time, general fund, water fund	$100K,000	Existing	1–2 Years	Yes	Safety and Security, Water Systems
TRD10	Work with the National Oceanic and Atmospheric Association to attain the certifications of Storm Ready and Tsunami Ready in collaboration with interested local support agencies. Includes participation in the Redwood Coast Tsunami Workgroup.	Medium	City of Trinidad	Winter weather, earthquake, tsunami	Staff time, general fund	$100,000	Existing	1–2 years	Yes	All lifelines
TRD11	Get generators and transfer switches for all critical assets.	High	City of Trinidad	Earthquake, extreme temperature, tsunami, wildfire, wind, winter weather	HMGP, general fund, PDM	Medium	Both	1–2 years	yes	Power, Health and Medical, Safety and Security, Communications
TRD12	Identify and pursue strategies to increase adaptive capacity to climate change including but not limited to the following: fostering community awareness of the possible effects of climate change and encouraging involvement in planning for the future.	High	City of Trinidad	Earthquake, extreme temperature, tsunami, wildfire, wind, winter weather	HMGP, general fund, PDM	$100,000	New	1–2 years	Yes	All lifelines

24. Westhaven Community Services District Annex

This section presents the jurisdictional annex for the Westhaven Community Services District (CSD). The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Westhaven CSD did not identify any changes in priorities for this plan update.

24.1. Planning Process

24.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Westhaven CSD, the stakeholders and the public. Table 425 shows the individual who represented the Westhaven CSD during the planning process:

Table 425: Westhaven Community Services District Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Paul Rosenblatt	General Manager	Westhaven Community Services District	Prosenblatt.wcsd@suddenlinkmail.com 707-677-0798

24.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized inTable 426. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 426: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Type of Stakeholder
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	1. Local and regional agencies involved in hazard mitigation activities
Kristen Lark	Mad River District Ranger	U.S. Department of Agriculture	Kristen.lark@usda.gov	2. Agencies that have the authority to regulate development
Joe Tagliaboschi	City Manager	City of Trinidad	citymanager@trinidad.ca.gov	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

24.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories, and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and public hearings. Figure 38 illustrates how the public was encouraged to participate in the survey available via a QR code link and administered in English, Spanish and Hmong languages. The Westhaven Community Services District shared the survey flyer at the Fire Hall Bulletin Board and the Office Bulletin Board.

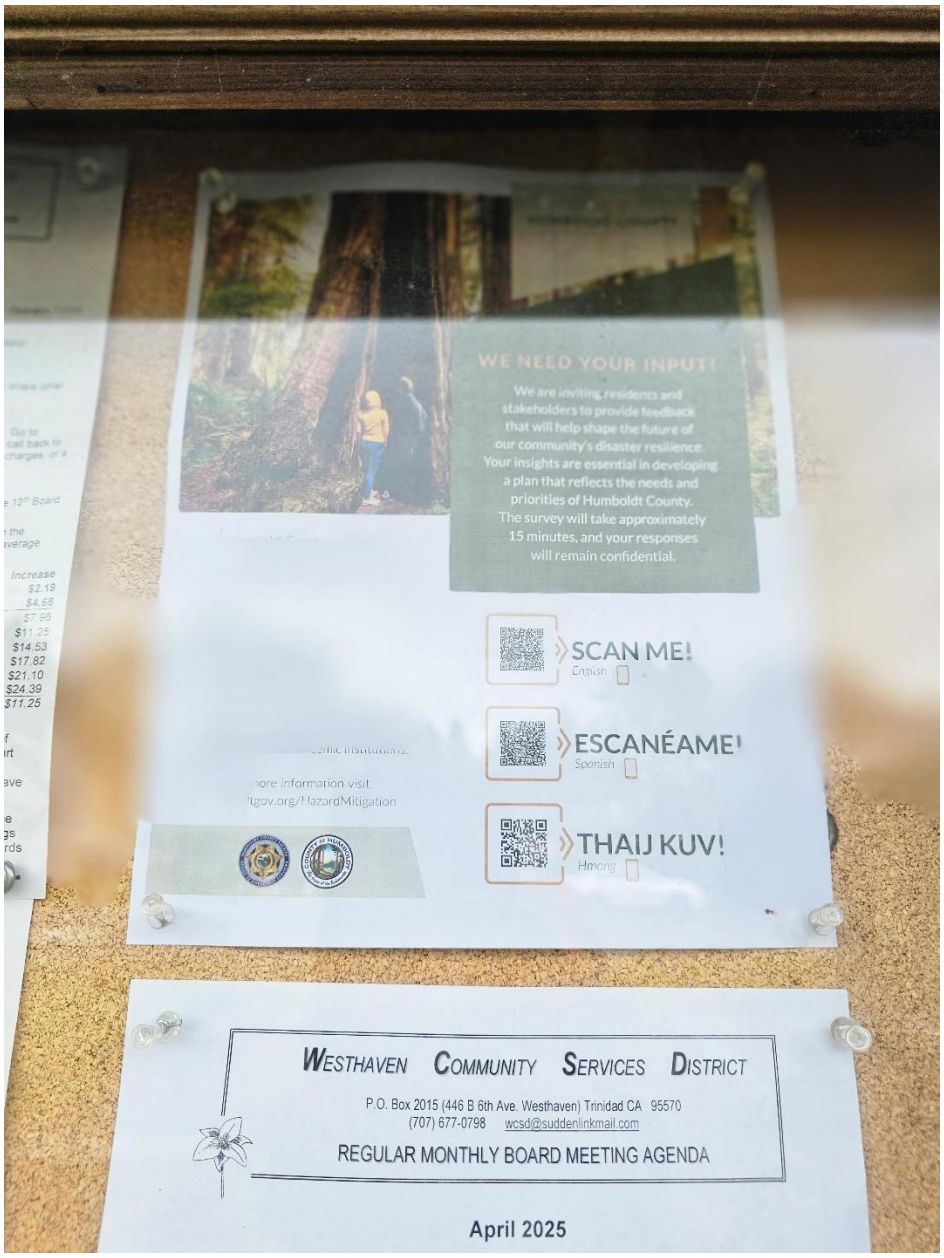

Figure 38: Public Outreach Methods

The public survey received responses from 1 respondent who identified themselves as a resident of Westhaven. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?" the respondent indicated that they wanted to see mitigation projects focused on restoration of the natural environment to absorb impacts from natural hazards and opportunities for training for the public to better respond to natural disasters. One example of Westhaven CSD's efforts to incorporate public feedback into mitigation actions is the addition of mitigation action WCSD4 – Intertie with the City of Trinidad

and Westhaven to enhance the resiliency capabilities of both water systems to survive drought and system failure.

24.1.3.1. VULNERABLE POPULATION OUTREACH

Some Westhaven CSD customers may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in the Westhaven Community Services District may have less access to information and resources they need to mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the district customers face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels.

Figure 39 shows how the district advertised the survey specifically to vulnerable populations. Some of the outreach methods included resources such as providing the flyer at the Bulletin Boards at the Westhaven Volunteer Fire Department Firehall and the Westhaven CSD office.

Figure 39: Public Outreach to Vulnerable Populations

24.1.4. Plan Integration

24.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Table 427 shows the existing planning mechanism into which this plan has been integrated.

Table 427: Previous Plan Integration for the Westhaven Community Services District

Plan Name	Description
Capital Improvement Plan	Westhaven CSD reviewed the risk assessment from the previous plan to identify potential hazard risks and changes in development that could impact implementation of its capital improvement projects.

In addition, the plan must identify the local planning mechanisms into which the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 428 shows how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 428: Future Types of Plan Integration for the Westhaven Community Services District

Type of Plan	Integration Method
Community Wildfire Protection Plan (CWPP)	Westhaven CSD anticipates integrating the wildfire hazard risk assessment for the district. Since the CSD is a stakeholder in that planning process, the risk assessment in the Westhaven CSD Annex will be incorporated in the future CWPP planning efforts.

24.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities that are of the most concern for each jurisdiction, as shown in Table 429 and Table 430. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 429: Westhaven Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If No, What Is the Rationale for Omitting Hazard?
Dam Failure	No	Not in any major dam inundation area
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures (Extreme Heat and Extreme Cold)	Yes	N/A
Flooding	No	Westhaven CSD infrastructure is not in any high or moderate risk flood zones.
Landslide	Yes	N/A
Tsunami	No	The district is outside the tsunami inundation zone.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 430: Westhaven Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	High	High	Low	Low	High
Earthquake	High	High	High	High	High
Extreme Heat	Medium	High	Low	Low	Medium
Extreme Cold	Medium	High	Low	Low	Medium
Landslide	Medium	Medium	Low	Low	Medium
Wildfire	Medium	High	High	High	High
Wind	High	High	High	High	High
Winter Weather	High	High	High	Medium	High

Note: The process used to assign risk rankings is described in Volume 1.

24.2.1. Historical Events and Impacts

This section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Westhaven Community Services District. Other hazard events that broadly affected the entire planning area, including the Westhaven Community Services District, are listed in the risk assessments in Volume 1.

24.2.1.1. HISTORICAL EVENTS

The National Centers for Environmental Information (NCEI) database contains no record of storm events that have occurred in the Westhaven Community Services District from Nov. 1, 2019 to Dec. 31, 2024. However, the NCEI database does not always capture localized hazard data. To address this gap, the Westhaven Community Services District has documented additional significant events, and their impacts are detailed below.

DROUGHT

- **2019–2021:** Years of drought decreased the water supply for the district and increased wildfire risk.

EARTHQUAKE

- **December, 2022:** An earthquake caused several leaks in water systems, and one significant leak exceeded the district's capability to supply water. Water trucks were used to augment water treatment capacity. To respond, the district worked with California Governor's Office of Emergency Services (Cal OES). The impact of the earthquake included the possibility of depressurization and a risk of bacteriological and viral contamination in the distribution system. Additionally, there was a risk of losing fire suppression water flow.

EXTREME HEAT

- No events have occurred for this hazard.

EXTREME COLD

- No events have occurred for this hazard.

LANDSLIDE

- No events have occurred for this hazard.

WILDFIRE

- No events have occurred for this hazard.

WIND

- No events have occurred for this hazard.

WINTER WEATHER

- No events have occurred for this hazard.

24.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 431 provides information on key vulnerabilities and impacts on the district.

Table 431: Westhaven Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Drought	*Vulnerabilities:* The Westhaven CSD's current water treatment and distribution system serves 205 customers in the Westhaven community and is sourced from three springs located at the headwaters of Two Creeks and two 100-ft deep wells. The springs have been the source of water for Westhaven since 1916. One well has been in service since 1994, and the two additional wells are came on line in 2024–2025. All critical systems located in the Westhaven CSD service area that rely on groundwater sources for operations are vulnerable to drought. Also, Westhaven CSD customers who rely on available local water supplies for hydration may become vulnerable to water rationing and health and hygiene risks during prolonged drought. *Impacts:* Drought events impact the water supply by reducing the water levels that could impact firefighting efforts during prolonged drought events. In addition, a decrease in water supply levels can impact the Westhaven CSD's ability to supply water to its customers. Any increase water usage during drought conditions could lead to water restrictions and rationing.

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* All unreinforced structures in the Westhaven CSD are vulnerable to major damage. Westhaven CSD critical facilities occupying unreinforced structures are vulnerable to facility and equipment damage from failing structures. The Westhaven CSD operates 7.5 miles of underground waterlines that are vulnerable to seismic activity. The Westhaven CSD's two 100,000 gallon water storage tanks are vulnerable to earthquake damage. *Impacts:* Earthquake events could impact the Westhaven CSD's water storage tanks, underground waterlines infrastructure system and water treatment facility, disrupting critical services to 205 Westhaven CSD customers. Also the Westhaven CSD may be impacted by extensive repair costs to restore critical facilities, potential loss of life of employees and loss of revenue from service disruptions.
Extreme Temperatures (Extreme Heat and Extreme Cold)	*Vulnerabilities:* Westhaven CSD's critical infrastructures that lack proper weatherproofing are vulnerable. The Westhaven CSD's 205 customers are vulnerable to service disruptions from extreme heat and extreme cold events. *Impacts:* Extreme cold impact critical infrastructure causing waterline pipes to freeze over and water mains to burst, events that could lead to prolonged service disruption to Westhaven CSD customers. Excessive heat can lead to increased demand on Westhaven CSD water services, reducing water levels. Extreme heat and cold temperatures can put a stress on the local electrical grid, causing prolonged power outages that impact the water distribution systems that disrupt services to customers. The Westhaven CSD may also be impacted from a loss of revenue during prolonged service disruptions during power outages.
Landslide	*Vulnerabilities:* In landslide susceptible areas of Westhaven CSD service areas, all daily operations are vulnerable to damage to critical facility infrastructure from landslide events. Westhaven CSD customers may be vulnerable to prolonged service disruption in impacted service areas. *Impacts:* Landslide events can impact the Westhaven CSD's water distribution system and water treatment systems. Inaccessible roads blocked by landslides can delay repairs to damaged infrastructure, causing prolonged service disruptions for Westhaven CSD customers. Extensive and expensive repair costs can impact the Westhaven CSD financially and result in a loss of revenue during prolonged service disruptions.

Hazard	Vulnerabilities and Impacts
Wildfire	*Vulnerabilities:* CSD customers of Westhaven service areas located in wildfire risk areas are vulnerable to water service disruption from prolonged power outages during planned power safety shutoffs. The Westhaven CSD water supply is vulnerable to increased demand during wildfire events. Westhaven CSD critical facilities located in the wildfire risk areas are also vulnerable to wildfire damage. *Impacts:* Wildfire events can cause extensive damage to critical infrastructure and loss of revenue from prolonged service disruptions impacting Westhaven CSD customers. Firefighting efforts make an increase demand on the local water system impacting the water supply levels.
Wind	*Vulnerabilities:* Westhaven CSD employees conducting repair activities are vulnerable injury or fatalities from downed trees and power lines during strong wind events. In addition, Westhaven CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. Westhaven CSD critical facilities are vulnerable to strong wind damage during events. *Impacts:* Severe wind events impact the Westhaven CSD's water distribution systems and wastewater treatment systems ability to provide services to its customers in service areas affected by severe wind preventative measures. Severe wind damage can also impact critical facility operations, and flying debris can make roads inaccessible to conduct repairs to critical facilities, prolonging service disruptions.
Winter Weather	*Vulnerabilities:* Westhaven CSD critical infrastructure and facilities lacking proper weatherization treatment are vulnerable to extreme winter weather events. Unreinforced roofs on Westhaven CSD critical facilities are vulnerable to collapse from snow piles during blizzards and heavy snow. Westhaven CSD customers are vulnerable to prolonged service disruptions when roads are inaccessible to employees to make repairs to damaged critical infrastructure and facilities. *Impacts:* Winter weather events impact employees ability to provide critical services to customers and could impact water treatment systems operations from prolonged power outages. Winter weather events could also cause critical facility damage and loss of road access to Westhaven CSD critical facilities.

24.2.2.1.DEVELOPMENT CHANGES

Table 432summarizes development trends in the Westhaven Community Services District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 432: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	Limited build-out	Possible total build-out	Moderately increasing
Commercial	Very limited	There is very limited potential for district development. If any development takes place, essentially all of it will be in the Coastal Zone.	No change
Industrial	None	None	No change

24.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Westhaven Community Services District performed an assessment of its existing capabilities for implementing hazard mitigation actions. Westhaven CSD intends to use the assessment to identify and address gaps in capabilities and will support the update in the next LHMP. The capability assessment is evaluated upon a multifaceted approach, including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

24.3.1. Planning and Regulatory Capabilities

Table 433 and Table 434 summarize the Westhaven Community Services District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Land uses in the district are currently subject to the Humboldt County

General Plan, Westhaven CSD Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Westhaven CSD operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 433: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 434: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

24.3.2. Administrative and Technical Capabilities

Table 435 and Table 436 summarize the Westhaven Community Services District's administrative and technical capabilities, including the staff and their respective skills and the tools available to support mitigation actions.

Table 435: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Non-Vacant	No	No	No
Civil Engineer	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Community Planner	Non-Vacant	No	Yes	No
Emergency Manager	Non-Vacant	No	Yes	No
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 436: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	We have used mutual aid for repair parts and leak detection during earthquakes and winter weather.	Other mutual aid partners of ours have limited planning capacity.

24.3.3. Financial Capabilities

Table 437summarizes the Westhaven Community Services District's financial capabilities, which are the resources used to fund mitigation actions. Discussing the funding and financial capabilities of the district is important in determining the kinds of projects feasible given their cost.

Table 437: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	Yes	Repairs and capacity building	Yes	Yes
General Funds	No	N/A	N/A	N/A
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	Yes	Used in the early 1990s to put in water lines	Yes	Yes
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	Yes	There were fees for the installation of a fire hydrant.	Yes	Yes

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	Yes	Programs: Department of Water Resources (DWR) drought funding Activities: replacement of water lines, and installation of a permanent standby generator	Yes	No
Private Sector or Nonprofit Programs	Yes	Infrastructure redundancy	Yes	Yes

24.3.4. Education and Outreach Capabilities

Table 438summarizes the Westhaven Community Services District's education and outreach capabilities, which are the programs and actions that can communicate information about and encourage risk reduction.

Table 438: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	The district holds monthly board meetings where all topics of district business, including mitigation activities and goals, are discussed. The district also participates in local Fire Safe Council meetings.
Emergency Management Listserv	Yes	No	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	Yes	No	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	No	Nextdoor and Facebook

24.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are listed in Table 439. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 439: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The CSD would like to improve the Capital Improvement Plan, including integrating hazard mitigation into future projects.
Administrative and Technical	None at this time
Financial	None at this time
Education and Outreach	None at this time

24.4. National Flood Insurance Program

The Westhaven Community Services District is not required to participate in the NFIP program, because, as a special district, it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure, which will impact fire services, hydration and public health.

24.5. Mitigation Strategy

The Westhaven Community Services District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation action items and their statuses are detailed in Table 440, while new action items and those carried forward from the previous plan are in Table 441.

24.5.1. Previous Mitigation Actions

Table 440: Previous Mitigation Actions

Mitigation Action	Description	Status
WCSD1	Where appropriate, support the retrofitting, purchasing or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Ongoing. Built a well facility that is less seismically vulnerable. Will be building a water treatment plant that will be less seismically vulnerable.
WCSD2	Actively participate in the plan maintenance protocols outlined in Volume 1 of this HMP.	Completed

Mitigation Action	Description	Status
WCSD3	Purchase generators for critical facilities and infrastructure—including the well, treatment plant and office—that lack adequate backup power.	Completed and ongoing Purchased a standby generator at the well facility. There will be a standby generator at the water treatment plant. Would like to find funding for battery backup.
WCSD4	Upgrade or retrofit the water distribution system and enhance storage capacity to address earthquakes, landslides and wildfires to meet the wildfire mitigation goals of the CWPP.	Completed and ongoing Upsized the fire flow, replaced a mile and a half of water line, and installed 11 new fire hydrants. A mile of aged-out lines still needs to be replaced. Multiple fire hydrants need to be replaced.
WCSD5	Intertie with the cities of Trinidad and Westhaven to enhance the resiliency capabilities of both water systems to survive drought and system failure.	Completed and ongoing An RFP has been issued to bidders and should be completed by the end of 2025. Installed an emergency water intertie with the Moonstone Heights Mutual Water Association.
WCSD6	Develop a debris management plan. Prepare for severe weather and wildfire incidents.	Deleted, the plan and will include it in the countywide mitigation action, instead.
WCSD7	Identify priority roads and culvert locations where the district's water lines are vulnerable, and partner with stakeholders and neighboring agencies to conduct repair and replacement. Protect district infrastructure and important community ingress and egress.	Deferred due to funding
WCSD8	Enhance radio communications capabilities to become interoperable with County Public Works, neighboring utilities, and emergency responders.	Deferred due to funding

Mitigation Action	Description	Status
WCSD9	Adopt a long-term capital improvement plan to enhance the district's capacity for addressing infrastructure and operational needs.	Ongoing We received a grant, and the approval of the improvement plan, including Board adoption, is approximately 90% complete.
WCSD10	Support the implementation, monitoring, maintenance, and updating of the Humboldt Operational Area Hazard Mitigation Plan.	Completed
WCSD11	Periodically update the Emergency Operations Plan, including Recovery Operations.	Deferred because of a lack of staff and staff time.
WCSD12	Support countywide initiatives identified in the County Hazard Mitigation Plan.	Completed
WCSD13	Become a StormReady® community.	Deleted: too broad

24.5.2. Updated Mitigation Actions

Table 441: 2025 Mitigation Actions[34]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCSD1	Build a water treatment plant that will be less seismically vulnerable.	High	Westhaven	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	DWR, the state water resources control board division of financial assistance	High	Medium-term	Both	Yes	Safety and Security, Water Systems
WCSD2	Purchase generators for critical facilities and infrastructure—including the well, treatment plant, and office—that lack adequate backup power.	High	Westhaven	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	DWR, the state water resources control board division of financial assistance	High	Medium-term	New	Yes	Energy (power grid, fuel)
WCSD3	Upgrade or retrofit the water distribution system, and enhance storage capacity to address earthquakes, landslides and wildfires, to meet the wildfire mitigation goals of the CWPP.	High	Westhaven	Earthquake, landslide, wildfires	DWR, the state water resources control board division of financial assistance, North Coast Resource Project	High	Long-term	Both	Yes	Safety and Security, Water Systems
WCSD4	Intertie with the City of Trinidad and Westhaven to enhance the resiliency capabilities of both water systems to survive drought and system failure.	High	Westhaven	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	DWR	High	Short-term	Both	Yes	Water Systems

[34] BRIC: Building Resilient Infrastructure and Resources, CDFW: California Department of Fish and Wildlife, DWR: Department of Water Resources, HMGP: Hazard Mitigation Grant Program

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCSD5	Identify priority roads and culvert locations where the district's water lines are vulnerable, and partner with stakeholders and neighboring agencies to conduct repair and replacement. Protect district infrastructure and important community ingress and egress.	High	Westhaven	Landslide, earthquake	DWR, the state water resources control board division of financial assistance, North Coast Resource Project	High	Medium-term	Both	Yes	Water Systems, Transportation
WCSD6	Enhance radio communications capabilities to become interoperable with County Public Works, neighboring utilities, and emergency responders.	Medium	Westhaven	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	HMGP	Low	Long-term	New	Yes	Communications
WCSD7	Periodically update the Emergency Operations Plan, including Recovery Operations.	High	Westhaven	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	Staff time, general fund	Low	Medium-term	Existing	Yes	Safety and Security
WCSD8	Update and replace undersized and failing culverts.	High	Westhaven	Drought, earthquake, extreme temperatures, wildfire, wind, winter weather	DWR, the state water resources control board division of financial assistance, North Coast Resource Project	High	Long-term	Both	Yes	Water Systems, Transportation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCSD9	Partner with the California Division of Fish and Wildlife to establish a conceptual area protection plan aimed at improving watershed stability and health.	High	Westhaven	Drought, extreme temperatures, wildfire, wind, winter weather	Wildlife conservation board, CAL FIRE, CDFW	High	Long-term	Both	Yes	Water Systems, Food, Water, Shelter, Health and Medical
WCSD10	Continue to support countywide initiatives identified in this plan.	High	HBMWD	Earthquake, drought, extreme temperatures, landslide, wildfire, wind, winter weather	HMGP	$100,000	Short-term and ongoing	Both	Yes	All

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25. Willow Creek Community Services District Annex

This section presents the jurisdictional annex for the Willow Creek Community Services District (CSD). The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Willow Creek CSD has focused its priorities for this plan update on building and maintaining an environmentally progressive wastewater system by engaging in mitigation projects to upgrade its systems to protect the health of its customers and the Willow Creek River. In addition, the district has experienced significant increase in temperatures from the normal heat in the summer months, increasing fire danger and increases water usage.

25.1. Planning Process

25.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Willow Creek Community Services District, the stakeholders and the public. The Willow Creek Community Services District was represented during the planning process by the following individual listed in Table 442.

Table 442: Willow Creek Community Services District Point of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Susan O'Gorman	General Manager	Willow Creek Community Services District	susan@willowcreekcsd.com

25.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 443. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 443: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Samantha Smith	Fire Chief	Willow Creek Volunteer Fire Department	ssmithwcvfd@gmail.com	1. Local and regional agencies involved in hazard mitigation activities
T. K. Williams	General Manger	Humboldt Community Services District	Twilliams@humboldtcsd.org	2. Agencies that have the authority to regulate development
Patric Esh	Program Coordinator – Hazard Mitigation Program	Humboldt County OES	pesh2@co.humboldt.ca.us	3. Neighboring communities, including special districts
Sara Dronkers	Chief Executive Officer	Humboldt Area Foundation	SaraD@hafoundation.org	4. Representatives of businesses, academia and other private organizations
Simon Knopf	Disaster Program Manager	American Red Cross	Simon.knopf@redcross.org	5. Representatives of nonprofit organizations, including community-based organizations

25.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 40 illustrates how the public was encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages. The Willow Creek Community Services District utilized Facebook, which is free and easily accessible.

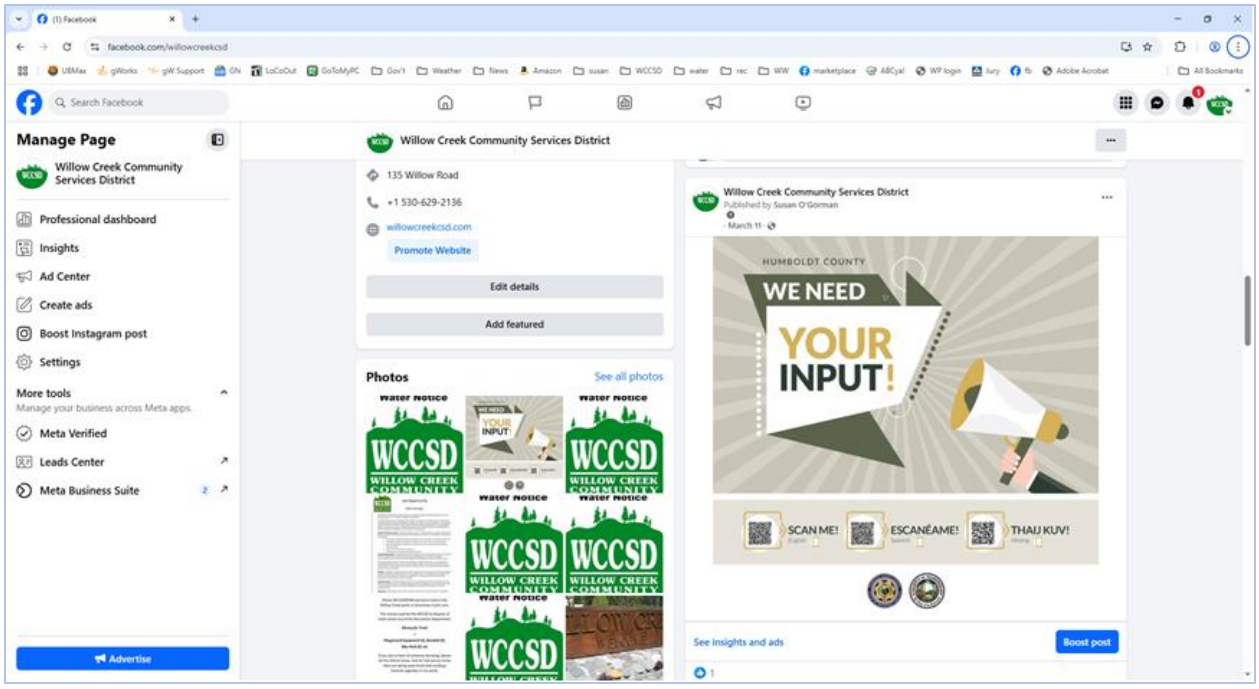

Figure 40: Public Outreach Methods

The public survey received responses from 13 respondents who identified themselves as residents of Willow Creek. When asked, "What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?" most respondents indicated that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply and wastewater and restore natural environment to absorb impacts from natural hazards and support hazard upgrades of vulnerable developed properties. One example of Willow Creek CSD's efforts to incorporate public feedback into mitigation actions is the addition of mitigation action – WCCSD1 (see Table 458) Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.

25.1.3.1. VULNERABLE POPULATION OUTREACH

Some Willow Creek Community Services District customers may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in the Willow Creek Community Services District may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities the district residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network level. Figure 41 displays how the district advertised the survey specifically to vulnerable populations. Some of the outreach methods included the Food Bank for Humboldt County distributing pictures of the survey in Willow Creek.

Figure 41: Public Outreach to Vulnerable Populations

25.1.4. Plan Integration

25.1.4.1.INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 444.

Table 444: Previous Plan Integration for the Willow Creek Community Services District

Plan Name	Description
None	No plan integration implemented for previous plan due to lack of adequate staffing to accomplish tasks related to plan integration.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 445 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 445: Future Types of Plan Integration for the Willow Creek Community Services District

Type of Plan	Integration Method
Capital Improvement Plan	The HMP plan risk assessment analysis will be used to identify concerns that may impact decision-making for capital improvement project planning.

25.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 446 and Table 447. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 446: Willow Creek Community Services District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A
Tsunami	No	Not near a tsunami evacuation zone
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 447: Willow Creek Community Services District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	Medium	Medium	Medium	Low

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Drought	Low	High	High	High	Low
Earthquake	High	Medium	Medium	Medium	High
Extreme Heat	High	High	High	High	High
Extreme Cold	High	High	High	High	High
Flooding	Medium	Medium	Medium	Medium	Medium
Landslide	High	High	High	High	High
Wildfire	High	High	High	High	High
Wind	Medium	Medium	Medium	Medium	Medium
Winter Weather	High	High	High	High	High

Note: The process used to assign risk rankings is described in Volume 1.

25.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Willow Creek Community Services District. Other hazard events that broadly affected the entire planning area, including the Willow Creek Community Services District, are listed in the risk assessments in Volume 1.

25.2.1.1.HISTORICAL EVENTS

There have been no recorded storm events that have occurred in the Willow Creek Community Services District from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for Environmental Information (NCEI). However, the NCEI database does not always capture localized hazard data. To address this gap, the Willow Creek Community Services District has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- **December, 2022:** The December earthquake is believed to be the cause of an 8-inch mainline break on New Year's Eve (Dec. 31, 2022).

EXTREME HEAT

- No events have occurred for this hazard.

EXTREME COLD

- No events have occurred for this hazard.

FLOODING

- No events have occurred for this hazard.

LANDSLIDE

- **December 20, 2022:** Heavy rains from a multi-day atmospheric river initiated an active landslide across one lane of Highway 299 west of Willow Creek. A landslide blocked one lane of Redwood Drive between Redway and Garberville. Heavy rain caused a rockslide across one lane of Freshwater Road near Kneeland.

WILDFIRE

- **August, 2023**: Lone Pine Fire north of the Horse Linto Creek and the Trinity River in Willow Creek burned a total of 500 acres.
- **August, 2022**: Six Rivers Lightning Complex Fire, where 25,832 acres burned near Willow Creek.
- **September, 2021:** Knob Fire burned more than 2,000 acres near Willow Creek.

WIND

- **January 26, 2021:** A series of strong upper waves moved east-southeast across northwest California, resulting in periods of strong winds and mountain snow. Multiple trees were down on Highway 96 north of Willow Creek, leading to a full overnight road closure. The nearest wind observation reported gusts up to 37 mph. Property damage was reported at $6,000.

WINTER WEATHER

- **Dec. 26, 2021:** Snow event causing hundreds of trees to be knocked down. Power outages, limited emergency services. Unsafe road conditions, leading to accidents, one fatality, and delay in travel. Many local roads blocked; Highways 299 and 96 closed.

25.2.2. Jurisdiction-Specific Vulnerabilities and Impacts

Table 448 provides information on a few key vulnerabilities and impacts on the district.

Table 448: Willow Creek Community Services District Vulnerabilities and Impacts

Hazard	Vulnerabilities and Impacts
Dam Failure	*Vulnerabilities:* The Willow Creek CSD critical facilities, infrastructures, parks and recreation areas are all vulnerable to dam failure of the Trinity and Lewiston Dams. Willow Creek CSD employees may be vulnerable to injuries or fatalities during dam failure events. Willow Creek CSD customers may be displaced due to flooding during dam failure events. *Impacts:* Dam failure could impact the Willow Creek CSD's critical facilities and infrastructure for all of the Willow Creek service area. Dam failure would damage water and wastewater treatment facilities from flooding inundation that could disrupt services and lead to costly repairs of damaged equipment to restore services. Parks and recreation areas managed by the Willow Creek CSD would experience flooding that would make those areas inaccessible until the flooding subsides.
Drought	*Vulnerabilities:* The Willow Creek CSD water supply is vulnerable to drought conditions, as its source of supply for water for its 950 service connections for a population of 1,710 is from Willow Creek, a tributary of the Trinity River, as well as from surface water collection system in summer months. *Impacts:* Prolonged drought conditions will impact Willow Creek CSD water supply levels, decreasing the availability of water to its customers, potentially requiring mandatory water rationing and restrictions. Firefighting efforts may be impacted by reduced water levels. Willow Creek CSD may experience a loss in revenue from lower water supply levels and water restrictions.

Hazard	Vulnerabilities and Impacts
Earthquake	*Vulnerabilities:* The district lies in a seismically active region influenced by the Cascadia Subduction Zone. The area's rugged terrain and aging infrastructure increase vulnerability. Willow Creek CSD structural damage/loss of structures, water system damage, power outages, transportation issues, limited ingress/egress are a risk. The district's water treatment facility is vulnerable to earthquakes as well as the pipes providing domestic water across the district's 22 mile public water system. Many structures are not retrofitted for seismic activity, and landslides could be triggered on unstable slopes. *Impacts:* Earthquakes could damage or destroy water and wastewater lifeline utilities and obstruct Willow Creek CSD employee response routes with debris or road collapse. Willow Creek CSD employees may be injured from structural collapses or delayed medical response. People could be affected by loss of water, resulting in public health concerns and economic losses.
Extreme Heat	*Vulnerabilities:* Willow Creek CSD utility systems are vulnerable to power outages as increased wildfire danger/severity increases due to extreme heat. Willow Creek CSD employees working outdoors are vulnerable to heat exhaustion. *Impacts:* Willow Creek CSD employees unable to respond to service related emergencies due to extreme heat. Willow Creek CSD infrastructure and critical facilities could be impacted by wildfires related to extreme heat. Prolonged service disruptions can impact Willow Creek CSD customers.
Extreme Cold	*Vulnerabilities:* The Willow Creek CSD's aging water lines, limited winterized infrastructure, and reliance on electric heating make some residents and facilities vulnerable to extreme cold. *Impacts:* Extreme cold cause burst water main and disrupt the water supply to Willow Creek CSD customers. Willow Creek CSD employees could be impacted from cold stress, frostbite, and hypothermia while operating outdoors.

Hazard	Vulnerabilities and Impacts
Flooding	*Vulnerabilities:* The Willow Creek area includes communities adjacent to the Trinity River and other seasonal tributaries and near the SFHA AE zone. Steep terrain and poor drainage exacerbate flash flooding and debris flows during intense rain events, making all Willow Creek CSD's critical infrastructure vulnerable to flooding. *Impacts:* Flooding may sever road access to remote neighborhoods, limiting Willow Creek CSD employee access to perform repair work on water or wastewater systems. Willow Creek CSD culverts and storm sewer could be damaged from flooding. CSD employees could experience restricted ingress/egress during flooding events.
Landslide	*Vulnerabilities:* Willow Creek CSD service areas in the Willow Creek landslide quadrangle (landslides in the Highway 299 Corridor Between Blue Lake and Willow Creek) are vulnerable to damage to critical facilities and infrastructure and its employees working in those areas. In addition, Willow Creek CSD customers located in those areas are more vulnerable to experiencing service disruption in the event of a landslide. *Impacts:* Landslides can impact highway and local road access to Willow Creek CSD critical facilities and damage infrastructure, resulting in costly repairs and loss of revenue during prolonged service disruptions to Willow Creek CSD customers.
Wildfire	*Vulnerabilities:* The Willow Creek CSD critical infrastructure located in the high-risk wildlife urban interface could be vulnerable to structural damage/loss of structures, power outages and communication challenges. Almost the entire district, including the water treatment facility, is located in the high or moderate-risk zones. Willow Creek CSD employees working outdoors could be vulnerable to decreased air quality from wildfire events. Willow Creek CSD customers are vulnerable to service disruptions due to power outages during wildfire events. Campers at the Camp Kimtu campground, which Willow Creek maintains, are also vulnerable. *Impacts:* Wildfires can result in critical infrastructure loss, road closures, power outages and hazardous air quality. Willow Creek CSD customers could experience prolonged service disruptions during planned service power shutoffs during wildfire events. People could be injured or killed.

Hazard	Vulnerabilities and Impacts
Wind	*Vulnerabilities:* The Willow Creek CSD critical infrastructure and facilities are all vulnerable to major damage and service disruptions from strong wind events. Willow Creek CSD customers may experience prolonged power outages from downed power lines or service disruptions from planned power safety shutoffs during high wind/wildfire prevention events. *Impacts:* Strong wind events can cause power outages and prolonged disruptions to its customers. Strong wind events can cause injuries and fatalities to Willow Creek CSD employees from downed trees and power lines during restoration. Willow Creek CSD employees may be affected by road closures from downed trees and power lines.
Winter Weather	*Vulnerabilities:* The Willow Creek CSD's inland mountainous location makes all critical facilities and infrastructure vulnerable to extreme winter weather events. Willow Creek CSD customers may be vulnerable to prolonged power outages with service disruptions during winter weather events. *Impacts:* Willow Creek CSD critical facilities and infrastructure that lack weatherization for cold weather events may experience damage from burst water mains and pipes, causing prolonged service disruptions. Willow Creek CSD customers would be impacted by prolonged service disruptions.

25.2.2.1. DEVELOPMENT CHANGES

Table 449 summarizes development trends in the Willow Creek Community Services District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 449: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	None	Around 50 downtown residential houses will be changing from private septic to sewer in the summer of 2025.	Increased vulnerability due to power outages during multiple hazard events.

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Commercial	None	Around 50 downtown businesses will be changing from private septic to sewer in the summer of 2025.	Increased vulnerability due to power outages during multiple hazard events.
Industrial	None	None	None

25.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Willow Creek Community Services District performed an assessment of its existing capabilities for implementing hazard mitigation actions. Willow Creek CSD intends to use the assessment to identify and address gaps in capabilities and will support the update in the next LHMP. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

25.3.1. Planning and Regulatory Capabilities

Table 450 and Table 451 summarize the Willow Creek Community Services District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Land uses in the district are currently subject to the Humboldt County General Plan, Willow Creek CSD Community Plan and Zoning Regulations (Humboldt County Code Title III, Division 1). Willow Creek CSD operates under the 2022 California Building Codes, Humboldt County building code 331-11 and Title 24 Building codes (2019 and 2022).

Table 450: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A
Community Wildfire Protection Plan	Yes	The wildfire protection plan was not created by the Community Services District but by the county and the local Fire Safe Council.	2019, unknown
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 451: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	Yes	Yes – County enforced	Last Update: 12/2022 Next Update: 12/2025
Flood Insurance Rate Maps	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

25.3.2. Administrative and Technical Capabilities

Table 452 and Table 453 summarize the Willow Creek Community Services District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 452: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Non-Vacant	Yes	No	Yes

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Vacant	N/A	N/A	N/A
Floodplain Administrator	Vacant	N/A	N/A	N/A
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Vacant	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Vacant	N/A	N/A	N/A

Table 453: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A

25.3.3. Financial Capabilities

Table 454 summarizes the Willow Creek Community Services District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 454: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Capital Improvement Project Funding	Yes	No	Yes	Yes
General Funds	No	N/A	N/A	N/A
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Building Resilient Infrastructure and Communities (BRIC)	No	N/A	No	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	Yes	Willow Creek CSD has used CDBG for the planning of our new wastewater system.	Yes	Yes
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	No	N/A	N/A	N/A
Stormwater Utility Fee	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant
Fees for Water, Sewer, Gas or Electric Services	Yes	No	No	Yes
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	No	N/A	N/A	N/A
State-Funded Programs	No	N/A	N/A	N/A
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

25.3.4. Education and Outreach Capabilities

Table 455 summarizes the Willow Creek Community Services District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 455: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	No	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public Meetings/Events	Yes	No	We have monthly board meetings.
Emergency Management Listserv	Yes	No	N/A
Local News	No	N/A	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	No	Facebook

25.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 456. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 456: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	The CSD would like to finalize its Capital Improvement Plan, including incorporating hazard mitigation into future projects.

Capability Type	Opportunity to Expand and/or Improve
Administrative and Technical	None
Financial	None
Education and Outreach	None

25.4. National Flood Insurance Program

The Willow Creek Community Services District is not required to participate in the National Flood Insurance Program (NFIP) because, as a special district, it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure, which will impact its fire services, hydration and public health. Flooding can cause evacuations, which impact people and systems. Damage can occur to structures and cultural resources.

25.5. Mitigation Strategy

The Willow Creek Community Services District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. Previous mitigation actions and their statuses are in Table 457, while new mitigation action items and those carried forward from the previous plan are in Table 458.

25.5.1. Previous Mitigation Actions

Table 457: Previous Mitigation Actions

Mitigation Action	Description	Status
WCCSD1	Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.	Ongoing
WCCSD2	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Ongoing

Mitigation Action	Description	Status
WCCSD3	Purchase permanent generators for critical facilities and infrastructure that lack adequate backup power, including Bigfoot Pump Station and Hodgson/Panther Pump Station.	Completed with Cal OES grant
WCCSD4	Complete a hazard assessment of the two Willow Tower tanks and renovate as necessary to provide future security for these two remaining original district tanks, which are the primary water storage for the district.	Ongoing. Both tanks were inspected in the spring of 2025. We are waiting for the report.
WCCSD5	Construct new 650,000-gallon Brannan Mountain Water Tank. This new tank will add to the storage capacity of the WCCSD. Provide water storage to Highway 96 in the event the water line that crosses the Willow Creek Bridge is damaged.	Ongoing. Grant has been received. We are in design and will hopefully construct in the summer of 2025.
WCCSD6	Replace section of distribution main on Highway 299, east of town, which is buried approximately 20 feet deep. In the event of an earthquake or other event that causes a break in this pipe, the repair would be extremely difficult.	Deferred
WCCSD7	Purchase property to provide wildfire and/or watershed protection for district water source, facilities and community.	Completed
WCCSD8	Complete a hazard assessment of the 6-inch water line crossing the Trinity River to Seely McIntosh Road. Construct a secondary supply pipe as necessary to reduce the hazard by providing reliability and an auxiliary source during emergencies.	Deferred
WCCSD9	Evaluate dam failure concerns.	Deferred

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25.5.2. Updated Mitigation Actions

Table 458: 2025 Mitigation Actions[35]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCCSD1	Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.	Medium	Willow Creek Community Services District	Dam failure, drought, earthquake, extreme temperature, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, CDBG, general funds	$1,000,000	Medium-term	Existing	Yes	All Community Lines
WCCSD2	Complete a hazard assessment of the two Willow Tower tanks and renovate as necessary to provide future security for these two remaining original district tanks, which are the primary water storage for the district.	High	Willow Creek Community Services District	Drought, earthquake, extreme temperatures, wildfire	HMGP, general funds	$500,000	Short-term	Existing	Yes	Water and Wastewater Systems
WCCSD3	Construct new 650,000-gallon Brannan Mountain Water Tank. This new tank will add to the storage capacity of the WCCSD. Provide water storage to Highway 96 in the event the water line that crosses the Willow Creek Bridge is damaged.	High	Willow Creek Community Services District	Drought, earthquake, extreme temperatures, wildfire	HMGP, CA Prop 1, general funds	$2,100,000	Short-term	New	Yes	Water and Wastewater Systems

[35] BRIC: Building Resilience Infrastructure and Communities, CA Prop 1: California Proposition 1, CDBG: Community Development Block Program, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCCSD4	Replace section of distribution main on Highway 299, east of town, which is buried approximately 20 feet deep. In the event of an earthquake or other event that causes a break in this pipe, the repair would be extremely difficult.	High	Willow Creek Community Services District	Earthquake	HMGP, general funds	$50,000	Short-term	Existing	Yes	Water and Wastewater Systems
WCCSD5	Complete a hazard assessment of the 6-inch water line crossing the Trinity River to Seely McIntosh Road. Construct a secondary supply pipe as necessary to reduce the hazard by providing reliability and an auxiliary source during emergencies.	High	Willow Creek Community Services District	Earthquake, wildfire, extreme temperatures	HMGP, general funds	$150,000	Short-term	Existing	Yes	Water and Wastewater Systems
WCCSD6	Evaluate dam failure concerns for Trinity and Lewiston Dams.	Medium	Willow Creek Community Services District	Dam failure	HMGP, PDM, CDBG, general funds	$25,000	Medium-term	Existing	Yes	Water and Wastewater Systems
WCCSD7	Upgrade creek water intake facilities, which are old and susceptible to damage from high-water events.	High	Willow Creek Community Services District	Flooding, winter weather	HMGP, general funds	$750,000	Short-term	Existing	Yes	Water and Wastewater Systems
WCCSD8	Increase the sizes of water pipes in areas with insufficient fire flow capacity and install new fire hydrants.	High	Willow Creek Community Services District	Wildfire, extreme temperatures	HMGP, general funds	$1,000,000	Short-term	Existing	Yes	Water and Wastewater Systems

26. Willow Creek Fire Protection District Annex

This section presents the jurisdictional annex for the Willow Creek Fire Protection District, which was known in the previous plan as the Willow Creek Volunteer Fire Department. Both entities still exist; however, the Willow Creek Fire Protection District will be the lead. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. Since the last plan update, the Willow Creek Fire Protection District has experienced multiple significant hazard events including the Six Rivers Lightning Complex Fire, Red Salmon Complex and recurring winter storms that have shaped the mitigation actions for the current plan. The Willow Creek VPD maintains the same priorities and goals as the 2014 HMP update.

26.1. Planning Process

26.1.1. Contact Information

A key part of hazard mitigation planning is engaging the whole community. This plan was developed by planning consultant IEM, with input from the participating jurisdictions, including the Willow Creek Fire Protection District, the stakeholders and the public. The Willow Creek Fire Protection District was represented during the planning process by the following individual listed in Table 459.

Table 459: Willow Creek Fire Protection District Points of Contact

Name	Job Title	Jurisdiction/Agency	Preferred Contact Info (Email and/or Phone)
Samantha Smith	Chief	Willow Creek Fire Protection District	ssmithwcvfd@gmail.com
Olivia Lopes	Clerk	Willow Creek Fire Protection District	willowcreekfpd@gmail.com

26.1.2. Stakeholder Engagement

Stakeholders, including local and regional agencies, neighboring communities, representatives of businesses and academia, private organizations, nonprofit organizations and community-based organizations that work directly with and/or provide support to underserved communities and vulnerable populations, were invited to be involved in the planning process and are recognized in Table 460. Stakeholders were invited to the stakeholder meetings through emails, calendar invites and phone calls. Additionally, they were encouraged to

complete and share a public survey to gather more information. Lastly, all stakeholders were provided the opportunity to review the draft plan and provide feedback.

Table 460: Stakeholders Invited to Participate

Name	Job Title	Agency or Organization	Preferred Contact Info (Email and/or Phone)	Stakeholder Type
Patrick Esh	Program Coordinator – Hazard Mitigation Planner	Humboldt County OES	pesh2@co.humboldt.ca.us	1. Local and regional agencies involved in hazard mitigation activities
Susan O'Gorman	General Manager	Willow Creek Community Services District	susan@willowcreekcsd.com	2. Agencies that have the authority to regulate development.
Cybelle Immitt	Natural Resources Manager, Public Works	County of Humboldt	cimmitt@co.humboldt.ca.us	3. Neighboring communities, including special districts
–	–	Cal Poly Humboldt Emergency Management	EOC@humboldt.edu	4. Representatives of businesses, academia and other private organizations
Justin Legge	Stewardship Director	Friends of the Dunes	justin@friendsofthedunes.org	5. Representatives of nonprofit organizations, including community-based organizations

26.1.3. Public Outreach

Continued public involvement was imperative to the overall success of the plan's implementation. The update process provided an opportunity to solicit participation from new and existing stakeholders, publicize mitigation success stories and seek additional public comment. The plan's maintenance and update will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media and public hearings. Figure 42 illustrates how the public was

encouraged to participate in the survey available via a QR code link in English, Spanish and Hmong languages. The Willow Creek Fire Protection District shared the flyer at the fire hall.

Figure 42: Public Outreach Methods

Public input played a vital role in the development of the updated mitigation strategy. The final mitigation strategy reflects both the technical assessment of risk and the values voiced by the community. The public survey received responses from 13 respondents who identified themselves as residents of Willow Creek. When asked, “What types of projects do you believe the County and other local jurisdictions (cities and community service districts) should be doing to reduce damage and disruption from natural hazard events?” most respondents indicated

that they wanted to see mitigation projects focused on upgrades to bridges, power, roads, water supply and wastewater and restore natural environment to absorb impacts from natural hazards and support hazard upgrades of vulnerable developed properties. One example of Willow Creek VFD's efforts to incorporate public feedback into mitigation actions is the addition of mitigation action – WCVFD4 (see Table 475) Acquire generators to be available to community members during extended power outages.

26.1.3.1. VULNERABLE POPULATION OUTREACH

Some Willow Creek Fire Protection District residents may be disproportionately affected by natural hazard events for reasons other than proximity to high-risk areas. Vulnerable and underserved residents in the Willow Creek Fire Protection District may have less access to information and resources to help mitigate risk and increase preparedness for emergencies. To better understand the risks and vulnerabilities that the Willow Creek Fire Protection District residents face, this planning update developed a bilingual public survey that collectively identified ways to support, enhance and broaden capacity and resilience at the individual and social network levels. Figure 43 displays how the Willow Creek Fire Protection District advertised the survey specifically to vulnerable populations. Some outreach methods included resources such as placing the flyers at the fire hall and the community bulletin board.

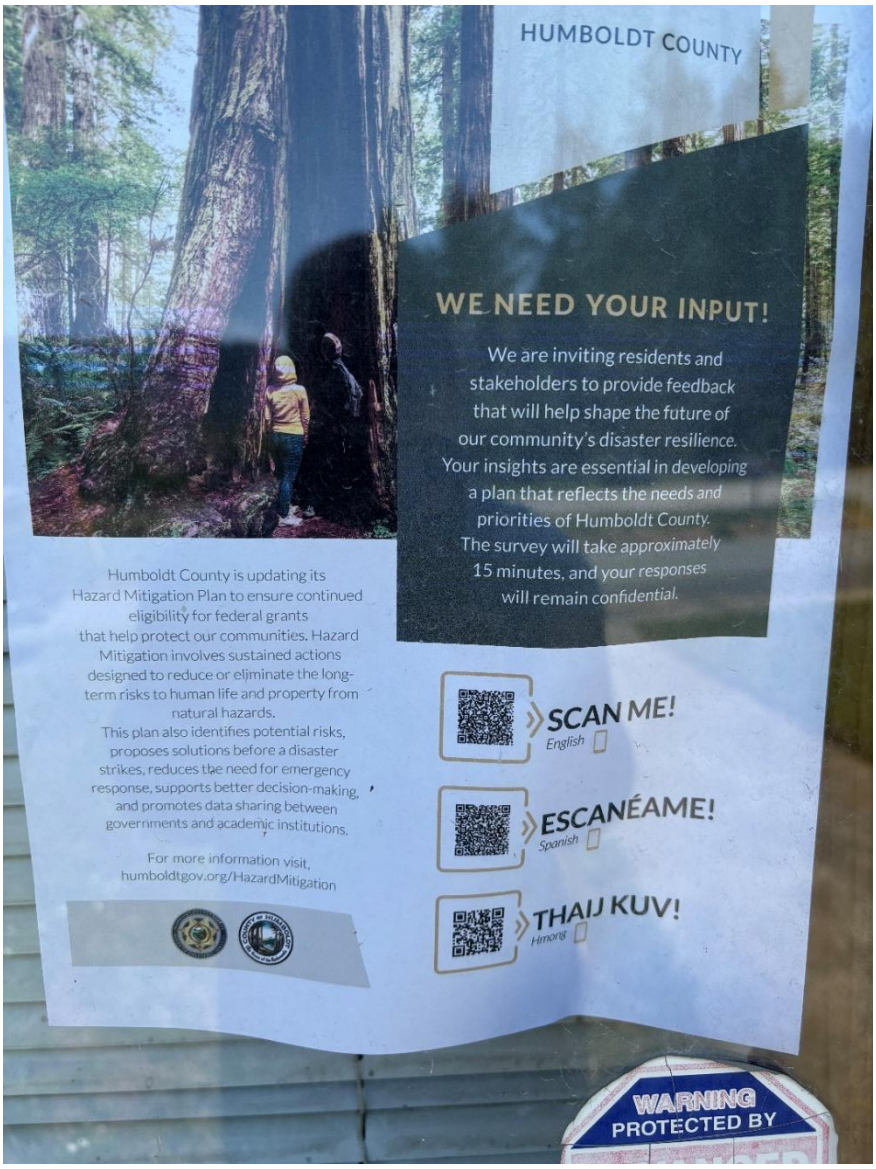

Figure 43: Public Outreach to Vulnerable Populations

26.1.4. Plan Integration

26.1.4.1. INTEGRATION INTO LOCAL PLANNING MECHANISMS

This section identifies where such integration is already in place and where there are opportunities for further integration in the future. The successful implementation of this plan will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Existing planning mechanisms into which this plan has been integrated are listed in Table 461. The previous plan was not included in any planning mechanisms as there were no updates to relevant planning mechanisms during the last 5 years.

Table 461: Previous Plan Integration for the Willow Creek Fire Protection District

Plan Name	Description
Community Wildfire Protection Plan	The 2014 HMP Willow Creek Fire Protection District Annex Hazard Identification Risk Analysis was used for the newest CWPP and the Firewise certificate that the Willow Creek FPD supported but were not part of the planning process that used it.

The plan must also identify the local planning mechanisms where the updated hazard mitigation information and actions may be integrated in the future. The plan must describe each participant's process for integrating information from the mitigation strategy into their identified planning mechanisms. Table 462 displays how each community will integrate the hazard mitigation plan into other planning mechanisms in the future.

Table 462: Future Types of Plan Integration for the Willow Creek Fire Protection District

Type of Plan	Integration Method
Community Wildfire Protection Plan (CWPP)	Utilize critical infrastructure and vulnerable population data from the HMP to inform the CWPP.

26.2. Risk Assessment

This plan must develop a comprehensive risk assessment to systematically identify the specific hazards and vulnerabilities of the most concern for each jurisdiction, as displayed in Table 462 and Table 464. For further information about these hazards, including extent, please refer to Volume 1 of this HMP.

Table 463: Willow Creek Fire Protection District Hazards

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Dam Failure	Yes	N/A
Drought	Yes	N/A
Earthquake	Yes	N/A
Extreme Temperatures	Yes	N/A
Flooding	Yes	N/A
Landslide	Yes	N/A

Type of Hazard Event	Jurisdiction Impact? (Yes/No)	If Not, What Is the Rationale for Omitting Hazard?
Tsunami	No	Not located near the coast.
Wildfire	Yes	N/A
Wind	Yes	N/A
Winter Weather	Yes	N/A

Table 464: Willow Creek Fire Protection District Risk Assessment

Type of Hazard Event	Probability of Future Occurrence	People Impact	Property Impact	Economy Impact	Category
Dam Failure	Low	Low	Low	Low	Low
Drought	High	High	Low	Medium	High
Earthquake	Medium	High	Medium	High	High
Extreme Cold	Medium	High	Medium	Low	Medium
Extreme Heat	High	High	Medium	Medium	High
Flooding	High	Medium	Low	High	High
Landslide	High	High	Low	Medium	High
Wildfire	High	High	High	High	High
Wind	High	High	Medium	Medium	High
Winter Weather	High	High	Medium	High	High

Note: The process used to assign risk rankings is described in Volume 1.

26.2.1. Historical Events and Impacts

The following section lists past occurrences of natural hazards for which specific impacts and damages were recorded in the Willow Creek Fire Protection District. Other hazard events that broadly affected the entire planning area, including the Willow Creek Fire Protection District, are listed in the risk assessments in Volume 1.

26.2.1.1. HISTORICAL EVENTS

There have been no recorded storm events that have occurred in the Willow Creek Fire Protection District from Nov. 1, 2019 to Dec. 31, 2024 according to the National Centers for

Environmental Information (NCEI). However, the NCEI database does not always capture localized hazard data. To address this gap, the Willow Creek Fire Protection District has documented additional significant events, with their impacts detailed below.

DAM FAILURE

- No events have occurred for this hazard.

DROUGHT

- No events have occurred for this hazard.

EARTHQUAKE

- No events have occurred for this hazard.

EXTREME HEAT

- **Annual:** Decreased fuel moisture, increased wildfire severity, power shutoffs. During power shutoffs, water cannot get pumped uphill without generators.

EXTREME COLD

- No events have occurred for this hazard.

FLOODING

- No events have occurred for this hazard.

LANDSLIDE

- **Annual:** Restricts transportation in and out of the area; affects fuel and food distribution; hampers emergency medical services (EMS); increased road construction causes delayed response to emergencies.

WILDFIRE

- **August, 2023**: The Lone Pine Fire, north of Horse Linto Creek and the Trinity River in Willow Creek, burned a total of 500 acres.
- **August, 2022:** The Six Rivers Lightning Complex Fire burned 25,832 acres near Willow Creek.
- **September, 2021:** The Knob Fire burned over 2,000 acres near Willow Creek.
- **July–October, 2020:** On July 27, lightning strikes in the Trinity Alps Wilderness started two fires, the Salmon Fire and the Red Fire, which eventually merged. The Red Salmon Complex was located 14 miles north of Willow Creek, Calif., burning over 144,000 acres in the Klamath, Six Rivers and Shasta-Trinity national forests.

WIND

- **Annual:** Power outages.

WINTER WEATHER

- **Dec. 26, 2021:** Power outages and unsafe road conditions led to accidents and delays in travel. Highways and roadways were closed due to downed trees and power lines. Extended power outages impacted emergency personnel's ability to respond to emergencies and led to a communication breakdown. EMS were delayed and restricted. Downed trees caused further wildfire danger and increased ladder fuels.

26.2.2. Jurisdiction-Specific Vulnerabilities

Table 465 provides information on a few key vulnerabilities for the jurisdiction.

Table 465: Willow Creek Fire Protection District Vulnerabilities

Hazard	Vulnerabilities
Dam Failure	*Vulnerabilities:* The Willow Creek area is located downstream of several impoundments and small reservoirs in the surrounding mountainous terrain. While there are no major high-hazard dams immediately upstream, localized failures could result in flash flooding through tributaries. Fire stations, access roads and water infrastructure located in low-lying zones near river corridors are at elevated risk. Vulnerable populations include residents in flood-prone zones and first responders operating in inundation areas. *Impacts:* Inundation could lead to road washouts, isolation of remote neighborhoods and damage to water systems and communication lines. Emergency services may face response delays, and critical facilities could become temporarily inoperable.
Drought	*Vulnerabilities:* Drought increases wildfire potential with limits on water usage for gardens/pools. Additionally, impacts on fish population are possible due to low water levels. Prolonged drought may reduce surface water availability and strain local water systems critical to fire suppression. This could affect both fire district operations and residential water access. Drought conditions also increase wildfire risk. Outdoor personnel, particularly fire crews, are vulnerable to heat-related illness. *Impacts:* Limited water access may reduce the effectiveness of fire suppression, especially in WUI areas. High heat during droughts can result in increased EMS calls for dehydration or heat stroke, especially among seniors, unhoused individuals and field personnel.

Hazard	Vulnerabilities
Earthquake	*Vulnerabilities:* Displaced residents due to structural damage/loss of structures. Additionally, water system damage, power outages, transportation issues, and limited ingress/egress can occur due to earthquakes. The district lies in a seismically active region influenced by the Cascadia Subduction Zone. The area's rugged terrain and aging infrastructure increase vulnerability. Many structures are not retrofitted for seismic activity, and landslides could be triggered on unstable slopes. *Impacts:* Earthquakes could damage fire stations, disrupt lifeline utilities, and obstruct response routes with debris or road collapse. Community members may suffer injuries from structural collapses or delayed medical response.
Extreme Cold	*Vulnerabilities:* Although lower elevations rarely experience snow, higher elevation communities in the district can face subfreezing temperatures. Aging water lines, limited winterized infrastructure, and reliance on electric heating make some residents and facilities vulnerable. *Impacts:* Frozen pipes can disrupt water supply and fire suppression capabilities. Cold stress, frostbite, and hypothermia are risks for vulnerable populations and first responders operating outdoors.
Extreme Heat	*Vulnerabilities:* Displaced residents, power outages, harm to emergency responders and increased wildfire danger/severity could occur. Extreme heat events, though less frequent than inland California, are increasing in frequency. Outdoor workers, seniors and medically fragile individuals are at highest risk. The district's emergency responders may face increased exposure while combating heat-related calls and fires. Critical infrastructure is largely not impacted by extreme heat in the district. *Impacts:* Increased medical calls, risk of wildfires, and heat-related illness among vulnerable residents and firefighters are expected. Prolonged events can strain emergency services and disrupt operations. There are no impacts on critical infrastructure for the district.

Hazard	Vulnerabilities
Flooding	*Vulnerabilities:* Displaced residents, structural damage/loss of structures, water system damage, erosion, loss of cultural resources, loss of water activities (fishing, river sports), impact on fish population and restricted ingress/egress could potentially occur. The Willow Creek area includes communities adjacent to the Trinity River and other seasonal tributaries. Steep terrain and poor drainage exacerbate flash flooding and debris flows during intense rain events. Key infrastructure, such as access roads and utilities, may lie in flood-prone areas. *Impacts:* Flooding may sever road access to remote neighborhoods, delay emergency response and damage communication lines and power systems. Vulnerable populations in low-lying areas may face evacuation or sheltering needs.
Landslide	*Vulnerabilities:* Displaced residents, structural damage/loss of structures, water system damage, erosion, loss of cultural resources and restricted ingress/egress could potentially occur. The steep slopes and unstable soils in the district are highly susceptible to landslides, especially after intense rainfall or seismic activity. Emergency routes and hillside homes are at high risk. Fire crews may be endangered during access or rescue operations. *Impacts:* Landslides can isolate neighborhoods, damage critical infrastructure, and result in injuries or fatalities. Emergency responders may be hindered by blocked roads and unstable terrain.
Wildfire	*Vulnerabilities:* Displaced residents, no designated evacuation center, structural damage/loss of structures, power outages, communication challenges, harm to emergency responders, insufficient number of Volunteer Fire Department personnel, decreased air quality and forestry/wildlife impacts could potentially occur. The fire district is situated in a high-risk wildland-urban interface area. Many homes are surrounded by dense vegetation, and limited evacuation routes increase community vulnerability. Fire stations and utility corridors lie in or near high fire risk areas. *Impacts:* Wildfires can lead to structure loss, road closures, power outages and hazardous air quality. Emergency responders are at significant risk during suppression activities. Community members may face delayed evacuations or prolonged displacement.

Hazard	Vulnerabilities
Wind	*Vulnerabilities:* Power outages, communication disruptions and downed trees/power lines in roadways could potentially occur. High wind events can cause treefalls, damage above-ground utilities and obstruct roads. Older buildings, trailers, and outbuildings are particularly susceptible. Fire stations and critical infrastructure with exposed utilities are at risk. *Impacts:* Wind damage may lead to downed power lines, road closures and disruption to communication and emergency services. Vulnerable individuals may be isolated or lose access to heating, water or power.
Winter Weather	*Vulnerabilities:* Power outages, communication disruptions, downed trees/power lines in roadways, restricted ingress/egress, displaced residents, fuel/food distribution challenges and EMS delays could potentially occur. While snow is infrequent in lower elevations, higher elevations in the district can experience snow, ice and freezing rain. Limited snow removal capacity and steep road grades can hinder access. *Impacts:* Icy roads and downed trees can isolate neighborhoods and delay emergency response. Power outages may occur from heavy snow or ice accumulation on lines. Outdoor responders face increased physical risk during operations.

26.2.2.1.DEVELOPMENT CHANGES

Table 466 summarizes development trends in the Willow Creek Fire Protection District since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 466: Recent and Expected Future Development Trends

Type of Development	Recent Development	Future Development	Overall Vulnerability (Increased, Decreased, No Change)
Residential	No recent changes	Nothing planned	No change
Commercial	No recent changes	No recent changes	No change
Industrial	No recent changes	No recent changes	No change

26.3. Capability Assessment

Local mitigation capabilities are essential for reducing the impact of hazards on communities. Local authorities can effectively mitigate hazards by leveraging existing authorities, policies, programs and resources. The Willow Creek Fire Protection District performed an assessment of its existing capabilities for implementing hazard mitigation actions. The capability assessment is evaluated upon a multifaceted approach including the following:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

26.3.1. Planning and Regulatory Capabilities

Table 467 and Table 468 summarize the Willow Creek Fire Protection District's planning and regulatory capabilities, including plans, policies, codes and ordinances that prevent and reduce the impacts of hazards. Willow Creek Fire Protection district is a special district without land use authority or its own building code enforcement. It relies on Humboldt County (2022 California Building Codes) to establish and enforce planning, zoning and development regulations in its service area.

Table 467: Plans

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
General Plan	No	N/A	N/A
Recovery Plan	No	N/A	N/A
Capital Improvement Plan	No	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A

Plans	Does the Plan Address Hazards? (Y/N)	How Can the Plan Be Used to Implement Mitigation Actions?	When Was It Last Updated? When Will It Next Be Updated?
Community Wildfire Protection Plan	Yes	Continue to support local and county efforts to obtain grant funding for hazardous fuels reduction, home hardening and shaded fuel breaks, among other initiatives, as we did with the Community Wildfire Defense Grant (CWDG) in 2023.	Last Update: 03/2019 Next Update: 12/2025
Economic Development Plan	No	N/A	N/A
Land Use Plan	No	N/A	N/A
Local Emergency Operations Plan	No	N/A	N/A
Stormwater Management Plan	No	N/A	N/A
Transportation Plan	No	N/A	N/A
Substantial Damage Plan	No	N/A	N/A
Debris Management Plan	No	N/A	N/A

Table 468: Regulations and Ordinances

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Building Code	N/A	N/A	N/A
Flood Insurance Rate Maps	N/A	N/A	N/A

Regulation or Ordinance	Does This Effectively Reduce Hazard Impacts?	Is It Adequately Administered and Enforced?	When Was It Last Updated? When Will It Next Be Updated?
Floodplain Ordinance	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A
Natural Hazard Specific Ordinance	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A

26.3.2. Administrative and Technical Capabilities

Table 469 and Table 470 summarize the Willow Creek Fire Protection District's administrative and technical capabilities, including the staff and their respective skills and the available tools to support mitigation actions.

Table 469: Administrative Capabilities

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Chief Building Official	Vacant	N/A	N/A	N/A
Grant Writer	Vacant	N/A	N/A	N/A
Civil Engineer	Vacant	N/A	N/A	N/A
Community Planner	Vacant	N/A	N/A	N/A
Emergency Manager	Non-Vacant	No	Yes	Yes
Floodplain Administrator	Vacant	N/A	N/A	N/A

Administrative Capability	Status (Non-Vacant, Vacant)	Is Staffing Adequate?	Is Staff Trained on Hazards?	Is Coordination Effective?
Geographic Information System (GIS) Coordinator	Vacant	N/A	N/A	N/A
Planning Commission	Vacant	N/A	N/A	N/A
Fire Safe Council	Non-Vacant	No	Yes	No
Community Emergency Response Team (CERT)	Vacant	N/A	N/A	N/A
Active Organizations Active in Disaster	Non-Vacant	No	Yes	No

Table 470: Technical Capabilities

Technical Capability	Utilized? (Y/N)	How Has the Capability Been Used to Assess or Mitigate Risk in the Past?	How Can the Capability Be Used to Assess or Mitigate Risk in the Future?
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Through the county, used for grants.	Grants, pre-planning.
Mutual Aid Agreements	Yes	Mutual aid with local fire protection districts to have adequate volunteer response to emergencies.	Same as above. Also, information sharing.

26.3.3. Financial Capabilities

Table 471 summarizes the Willow Creek Fire Protection District's financial capabilities, which refer to the resources to fund mitigation actions. Discussing the funding and financial capabilities of the district is important to determine the kinds of projects that are feasible given their cost.

Table 471: Financial Capabilities

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Capital Improvement Project Funding	No	N/A	N/A	N/A
General Funds	No	N/A	N/A	N/A
Hazard Mitigation Grant Program (HMGP/404)	No	N/A	N/A	N/A
Flood Mitigation Assistance (FMA)	No	N/A	N/A	N/A
Community Development Block Grant (CDBG)	No	N/A	N/A	N/A
Natural Resources Conservation Services (NRCS) Programs	No	N/A	N/A	N/A
U.S. Army Corps of Engineers (USACE) Programs	No	N/A	N/A	N/A
Property, Sales, Income or Special Purpose Taxes	Yes	No	No	Yes
Stormwater Utility Fee	No	N/A	N/A	N/A
Fees for Water, Sewer, Gas or Electric Services	No	N/A	N/A	N/A
Impact Fees from New Development and Redevelopment	No	N/A	N/A	N/A
General Obligation or Special Purpose Bonds	No	N/A	N/A	N/A
Federal-Funded Programs	Yes	CWDG grant in 2023	Unknown	Unknown
State-Funded Programs	No	N/A	N/A	N/A

Funding Resource	Utilized? (Y/N)	What Types of Activities?	Can Be Used to Fund Future Mitigation Actions?	Can Be Used as a Local Match for a Federal Grant?
Private Sector or Nonprofit Programs	No	N/A	N/A	N/A

26.3.4. Education and Outreach Capabilities

Table 472 summarizes the Willow Creek Fire Protection District's education and outreach capabilities, which refer to programs and actions that can communicate information about and encourage risk reduction.

Table 472: Education and Outreach

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Community Newsletter(s)	Yes	Yes	N/A
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	N/A
Public Meetings/Events	No	N/A	N/A
Emergency Management Listserv	Yes	Yes	N/A
Local News	Yes	Yes	N/A
Distributing Hard Copies of Notices (e.g., Public Libraries, Door-to-Door Outreach)	No	N/A	N/A
Insurance Disclosures/ Outreach	No	N/A	N/A

Education and Outreach Capability	Used? (Y/N)	Does It Incorporate Hazard Mitigation?	Notes
Organizations that Represent, Advocate for or Interact with Underserved and Vulnerable Communities	No	N/A	N/A
Social Media	Yes	Yes	Facebook, Instagram

26.3.5. Opportunities to Expand and/or Improve Capabilities

The capability assessment findings were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. These opportunities are included in Table 473. Where such opportunities were identified and determined to be feasible, they are included in the action plan.

Table 473: Opportunities to Expand and/or Improve

Capability Type	Opportunity to Expand and/or Improve
Planning and Regulations	They will be participating in the CWPP update this year. There is a need for improving community and residential structures with home hardening efforts that assist a community that is predominantly low-income and/or has an elderly. They would like to update their outdated evacuation plan. The community is restricted in ingress/egress and would like to see county and state plans address road closures due to landslides, snow, tree falls, etc.
Administrative and Technical	Unable to apply for larger grants due to inadequate staff. They need a grant writer and GIS coordinator or training for the staff they do have.
Financial	They are a small community with a limited number of volunteers. They could use assistance in finding grants that are not yet known to them. They have partnered with Humboldt County Resource District and the Willow Creek Fire Safe Council on a community wildfire defense grant and hope to partner again in the future. Communities to the west of Willow Creek, such as Titlow Hill and Redwood Valley communities, could use assistance. Since fires typically move east, any assistance in those areas would benefit them as well as the Willow Creek community.

Capability Type	Opportunity to Expand and/or Improve
Education and Outreach	The Willow Creek Fire Safe council has a strong outreach program in defensible space and home hardening that the fire department tries to participate in when volunteer time allows. The fire department attempts to put out a yearly newsletter but would like to more frequently if more volunteer hours were available.

26.4. National Flood Insurance Program

The Willow Creek Fire Protection District is not required to participate in the NFIP program because, as a special district, it does not have authority to do so. However, a flood event might result in the loss of potable water infrastructure, which would impact fire services, hydration and public health. Vulnerabilities from flooding could include displaced residents, structural damage/loss of structures, water system damage, erosion, loss of cultural resources, loss of water activities (fishing, river sports), impacts on fish populations and restricted ingress/egress.

26.5. Mitigation Strategy

The Willow Creek Fire Protection District has adopted the same goals and prioritization process as Humboldt County, which is in Volume 1. The Willow Creek Fire Protection District previous mitigation actions and their statuses are in Table 474, while new mitigation action items and those carried forward from the previous plan are in Table 475.

26.5.1. Previous Mitigation Actions

Table 474: Previous Mitigation Actions

Mitigation Action	Description	Status
WCFD1	Structural/ non-structural seismic retrofit of current station.	Not completed. No longer a priority
WCFD2	Construct a 2nd fire station within the District	In progress as of 2025
WCFD3	Replace Current Rescue Truck	Completed
WCFD4	Replace current Fire Engine	Continued to 2025 (non-mitigation)
WCFD5	Support countywide initiatives identified in Volume 1 of this plan.	In progress as of 2025

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26.5.2. Updated Mitigation Actions

Table 475: 2025 Mitigation Actions[36]

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCVFD1	Partner with Humboldt County OES to co-host public outreach events and distribute countywide hazard preparedness materials in the service area.	High	Willow Creek VFD/FPD	Dam failure, drought, earthquake, extreme temperatures, flooding, landslide, wildfire, wind, winter weather	HMGP, PDM, general funds, property taxes, benefit assessment	Under $100,000	Long-term	Existing	Yes	All
WCVFD2	Rebuild the fire station to include a clean air facility and a cooling/warming shelter.	High	Willow Creek VFD/FPD	Extreme temperatures, wildfire, winter weather	HMGP, PDM, general funds, property taxes, benefit assessment	Over $500,000	Short-term	New	Yes	Food, Hydration, and Shelter
WCVFD3	Rebuild the fire station to house all apparatus to more adequately respond to emergencies.	High	Willow Creek VFD/FPD	Wildfire, wind, winter weather, earthquake	HMGP, PDM, general funds, property taxes, benefit assessment	Over $500,000	Medium-term	New	Yes	All
WCVFD4	Acquire generators to be available to community members during extended power outages.	Low	Willow Creek VFD/FPD	Extreme temperatures, wind, winter weather, wildfire	HMGP, PDM, general funds, property taxes, benefit assessment	Over $500,000	Medium-term	New	Yes	Energy

[36] CWDG: Community Wildfire Defense Grant, FPD: Fire Protection District, HMGP: Hazard Mitigation Grant Program, PDM: Pre-Disaster Mitigation, VFD: Volunteer Fire Department

#	Action Description	Priority	Lead Agency	Hazards Mitigated	Potential Funding Source(s)	Estimated Cost	Estimated Timeline	New and/or Existing Asset	Vulnerable Population Benefit?	Community Lifelines Benefit?
WCVFD5	Update the Blue Dot Program.	Medium	Willow Creek VFD/FPD, Willow Creek Fire Safe Council	Wildfire, earthquake	HMGP, PDM, general funds, property taxes, benefit assessment, CWDG	Under $100,000	Short-term	Existing	Yes	All