

Section 16: Rainbow Water and Fire District Annex to the Lane County Multi-Jurisdictional



Final: 03/29/25

2024 – 2028 Planning Cycle

Updated:

Rainbow Water District Board of Commissioners adopted May 14, 2025 by Resolution #2025-13.

FEMA Region 10 approved on June 9, 2025.



Table of Content

16.01 Introduction and History

16.02 Jurisdictional Profile and Background

16.03 NHMP Meetings and Work Sessions

16.04 Hazard Quantification

16.05 Mitigation Action Items

16.06 Plan Implementation and Maintenance

16.07 List of Tables

1. Acronyms
2. Estimated Value of District Assets
3. RWD Internal Work Session Participants
4. RWD Participation with City/County NHMP Committee & Workgroups
5. Natural Hazard Events
6. Hazard Quantification Summary
7. 2020 – 2024 Mitigation Action Items – Summary of
8. 2024 - 2028 Mitigation Action Items – Summary of Planned Items
9. Training Requirements Related to NHMP
10. MAI’s Coordination
11. Public Engagement Events

16.08 List of Maps

1. Rainbow Water District Service Area

16.09 List of Figures

1. Photo Images of January 2024 ice storm impacts on front of annex plan

16.10 Attachments

1. Public Engagement Campaign Summary

Acronyms (A)

Table 16.7.1: Acronyms

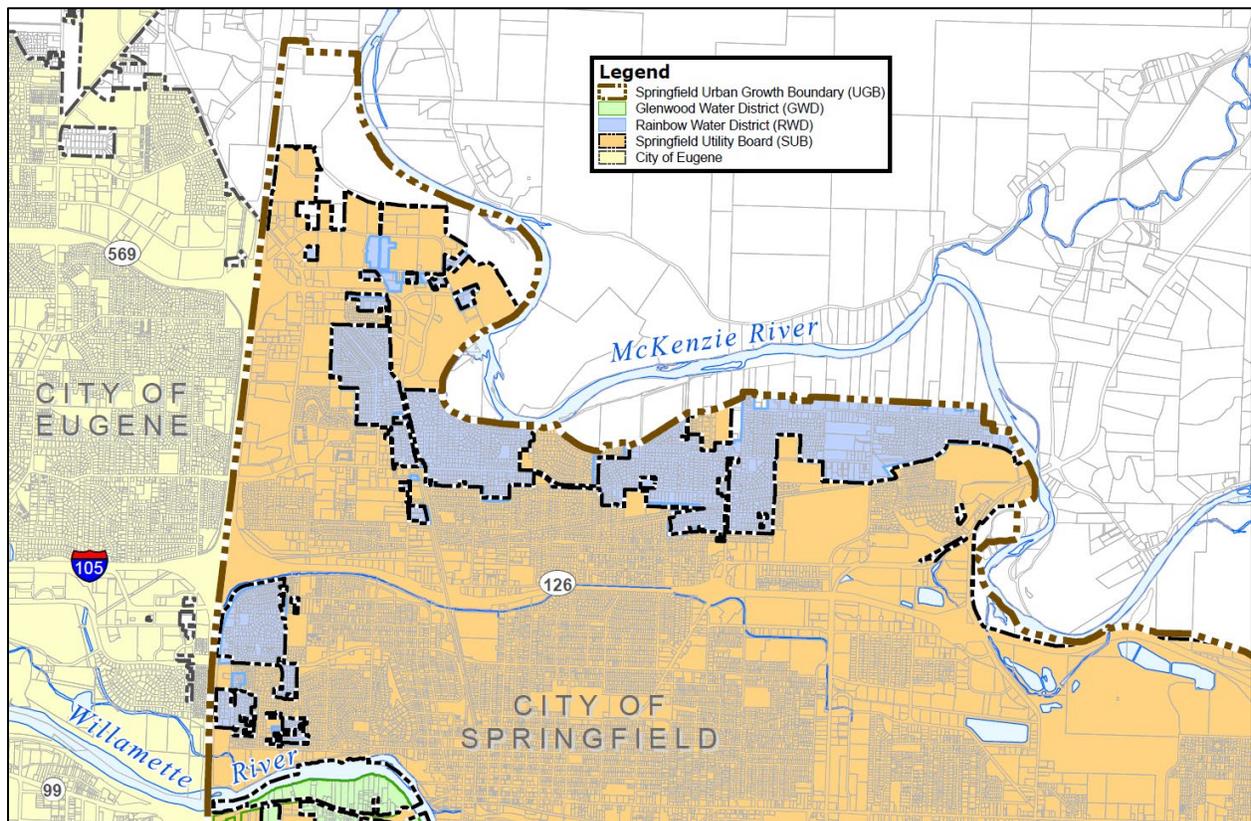
A	Description	A	Description
COE	City of Eugene	HRA	Hazard Risk Assessment
COS	City of Springfield	MIA	Mitigation Action Item(s)
DLCD	OR Dept. of Land Conservation & Development	MWMC	Metropolitan Wastewater Mgmt. Comm.
DPW	Development & Public Works	MJNHMP	Multi-Jurisdictional Nat. Haz. Mit. Plan
EM	Emergency Management	NHMP	Natural Hazard Mitigation Plan
EPUD	Emerald People’s Utility District	OEM	Oregon Dept. of Emergency Mgmt.
EWEB	Eugene Water & Electric Board	PW	Public Works
FEMA	Federal Emergency Mgmt. Agency	RWD	Rainbow Water District
GIS	Geographic Information Systems	SUB	Springfield Utility Board
HMGP	Hazard Mitigation Grant Program	WPRD	Willamalane Park and Recreation District

16.01 Introduction and History

In 2006 Rainbow Water District (RWD) began participating in the then City of Eugene and City of Springfield natural hazard mitigation planning efforts as a community partner. In 2017, COE and COS transitioned their NHMP to a multi-jurisdictional NHMP and invited area partners to join as an annex plan. In 2020 the COE/COS MJNHMP was expanded to include an annex location for local utility service providers. RWD developed and submitted an individual agency annex plan to the MJNHMP. The 2020 MJNHMP was successfully updated and renewed by FEMA.

Early 2024 the renewal process was underway; however, conversations about greater integration of planning efforts across the county became the focal point. COE made a proposal to transition to the Lane County multi-jurisdictional NHMP as there were already 8 cities and 3 utility providers as annex plan participants. Consensus was reached by the current annex holders and with approval from County, State and FEMA achieved the transition pathway was outlined May of 2024. RWD received approval from the governing board and began transferring to the County annex template and hazard quantification process with the goal of completion by end of September 2024.

Map 16.8.1 RWD Service Area



16.02 Jurisdictional Profile and Background

Rainbow Water District was incorporated as a domestic water supply district by a Lane County election held August 22, 1949. On June 9, 1952, Lane County voters also empowered the district to protect its inhabitants from fire, which Rainbow has fulfilled by contracting with Eugene-Springfield Fire (via the City of Springfield) under an intergovernmental agreement for fire protection and emergency medical services. In 1985, Rainbow formally changed its name to Rainbow Water and Fire District to provide clarity on property tax bills but continues to do business as Rainbow Water District.

Rainbow is a special district, a political subdivision of the State of Oregon serving residents of unincorporated Lane County adjacent to the Springfield city limits. Rainbow's primary purpose is to provide water for domestic use, secondarily providing fire protection and operating a small system of streetlights on higher volume county roads in Rainbow's service area. A five-member Board of Commissioners, elected by the residents within its service boundaries, governs the district. RWD employs seven employees. The Board is responsible to adopt this plan and fund priority activities. The Superintendent will oversee plan implementation.

- **Population served:** 23,338 (2023 estimate¹)
- **Land area served:** 8.0 square miles (Rainbow-served portions of north/west Springfield)
- **Land area owned:** 23.3 acres

Rainbow provided drinking water information for the 2014 NHMP but has formally participated in the Eugene-Springfield NHMP process since 2019, making this the second iteration of the utility's annex. As before, the annex notes Rainbow-specific variances from the Eugene-Springfield Area NHMP base plan (Sections 1-4, 6). Variances arise from differing risk profiles between jurisdictions due to utility-specific compliance regulations, capabilities, and locations of critical infrastructure. Public outreach activities are located in section 16.10.

16.2.1: Water System

Rainbow provides drinking water to 2,382 residential customers within its county service area in north Springfield. Rainbow also provides water under a wholesale contract to the Springfield Utility Board (SUB) for use by residential, commercial, industrial, and public sector customers inside the city limits.

The utility maintains permitted and certificated water rights to use groundwater from eleven wells located at four different wellfield facilities in North Springfield. Groundwater is pumped to the surface and disinfected with chlorine. Transmission piping delivers the treated water to the distribution system for consumption. Rainbow's wells produce about 1.5 billion gallons of drinking water each year.

Chase Well #2 is classified as groundwater under the influence of surface water and receives additional filtration. The Chase Wellfield also raises the pH of the water to reduce the potential for corrosion. The Weyerhaeuser Wellfield is jointly owned and operated by Springfield Utility Board, and has additional treatment provided by granular activated carbon filters and raises the pH of the water to reduce the potential for corrosion in household plumbing.

¹ County and City customers in north Springfield comprise about 37% of the population of Springfield, which was estimated at 63,078 per the July 1, 2023 estimate from Portland State University.

Rainbow operates two storage reservoirs (Kelly Butte and Moe Hill/Vitus Butte) to store water for fire protection and daily demand in the North System. (Springfield Utility Board is a part owner of Moe Reservoir, and has six other reservoirs to serve other parts of Springfield.) The discharge pressure of the deep well pumps delivers water directly to the reservoirs. Base level system pressure is regulated by water level in the storage reservoirs. Rainbow’s 2023 annual water operating budget is \$2.6 million, including debt service and capital outlay, operations and maintenance costs.

- **Reservoirs:** 2 (5 million gallons total capacity)
- **Wells:** 11 (including 3 jointly owned with Springfield Utility Board)
- **Water transmission/distribution system:** 12 miles

The estimated value of major water utility assets, in historical cost and insured values (when value approximates replacement costs) is listed below (Table 16.7.2).

Table 16.7.2 Estimated Value of District Assets

Water Utility Asset Type	Historical Cost June of 2024	Insured Values
Land	\$174,292	-
Water Treatment & Controls	\$3,272,945	\$1,891,690
Source of Supply & Pumping	\$2,496,018	\$2,944,150
Distribution System	\$2,073,960	-
Transmission & Reservoirs	\$2,336,493	\$6,338,518
General Plant	\$491,463	\$801,081
Completed Construction, not yet classified	-	-
Construction Work in Progress	-	-
TOTAL	\$10,845,171	\$11,975,439

16.2.2: Anticipated Service Trends

Rainbow primarily serves single family residential county customers on septic systems. Most new development takes place inside the City of Springfield limits, to allow higher densities and connection to public sewer. Because of this development pattern, Rainbow sees very little new construction activity, yet helps serve new City customers through the wholesale contract with SUB.

As property within the boundaries of Rainbow is annexed to the City, water customers are transferred to SUB who will be the eventual water provider as the City expands. Small infill housing developments have provided new customers, however, so the Rainbow customer count has been stable and is anticipated to remain steady for the duration of this plan.

The Springfield area has experienced modest population growth, but more efficient plumbing codes and irrigation practices have offset increased demand to keep water consumption trends relatively flat. Annual usage is weather dependent, so seasonal fluctuations still do occur.

With the low volume of private development, Rainbow staff have been able to support the management and operation of several rural water systems in unincorporated areas of Lane County. Rainbow contracts to operate: Marcola Water District, Deerhorn Community Water Association, Shangri-La Water District, and Shenandoah Homeowners Inc. These small systems operate independently with their own water supplies, governing boards and part-time operators, under the supervision of Rainbow’s licensed staff. Rainbow also supports the Blue River Water District in an advisory and administrative capacity.

16.03 Natural Hazard Mitigation Meetings and Work Sessions

Development of the RWD materials for the Natural Hazard Mitigation Plan involved participation by both internal and external partners to RWD. Some of these efforts were collaborative with the two primary cities of Eugene and Springfield leading the efforts. Area partners included municipalities, public works, school districts, county emergency management, fire districts, utility providers, healthcare providers, community and volunteer organizations.

The process followed FEMA’s prescribed model for organizing resources, identifying hazards, evaluating risk, identifying mitigation actions, and prioritizing mitigation projects. For additional details regarding the planning process, please refer to Section 6 of Volume I of the county base NHMP plan.

Subject matter discussed during work sessions included an overview of the plan and projects contained in the existing plan. This review resulted in the evaluation and removal of some projects from the original plan. It also allowed the group to decide what remaining projects would be updated with the new costs associated with them. Systems and concepts considered included infrastructure resiliency, safeguarding the transportation network, city planning, floodplain management, public safety, and securing public and private facilities.

The following two tables outlines work sessions internally with RWD staff and governing board and as part of a collaborative group with the COE/COS NHMP partners.

Table 16.7.3: RWD Internal Work Sessions

Name/Title	Topic	Meeting Dates
Jamie Porter, RWD Superintendent Eric Carlson, RWD Assistant Superintendent	Review Hazard Risk Assessment Review 2020 MAI’s and select new MAI’s	08/26/24
Jamie Porter, RWD Superintendent Eric Carlson, RWD Assistant Superintendent Jodi Sanders, RWD Office Manager RWD Board of Commissioners	Review 2024 NHMP Annex Plan Draft 01 at Board Work Session	09/11/24

[Source: Rainbow Water District]

Table 16.7.4: RWD City/County NHMP Committee and Workgroup Participation

2024 NHMP Annex Planning Committee and Workgroup EWEB Participation (City/County NHMP Groups)				
City NHMP Committee (1)	County NHMP Committee (2)	MAI & Annex Plan Workgroup (3)	Haz. Risk Assessment Workgroup (4)	Public Engagement Workgroup (5)
07/22/24 04/29/24 02/05/24 10/23/23 08/28/23 04/24/23 01/23/23	02/07/23 – Plan Renewal Work Session 1	07/22/24 06/17/24 06/05/24* 05/23/24 03/13/24 02/29/24	04/16/24 03/21/24	03/13/24 - Workgoup 08/22/24 – RWD Customer Event 09/04/24 – Website Updates w/ Survey 09/04/24 - Eugene Presentation #1 09/10/24 – Spfld Presentation #2

[Source: Rainbow Water District]

- 1) City of Eugene/Springfield (COE/COS) NHMP Committee – met quarterly, concluded 07/22/24
- 2) County of Lane NHMP Committee – semi-annual during maintenance cycle, became member of County Plan June of 2024.
- 3) COE/COS – Annex Specific Mitigation Action Item Review and Annex Plan Discussions
 - *Transition Discussion – City to County NHMP
- 4) COE/COS – Hazard Risk Assessment (HRA) Workgroup
 - Purpose – evaluate the 2020 assessment, evaluate transition to the state HRA methodology, then work towards finalizing assessment. June of 2024 City of Eugene opted to disband their individual plan and move towards the County NHMP. RWD utilized the County HRA to finalize their internal agency HRA.
- 5) Public Engagement Campaign Workgroup
 - Participated in the COE/COS public engagement campaign development process and then the implementation of the campaign.
 - 03/13/24 - Workgroup Meeting
 - 09/04/24 - Shared Media Release/Announcement/Social Media Posts/Survey
 - 09/04/24 – Supported Eugene public presentation
 - 09/10/24 – Supported Springfield public presentation
 - 09/11/24 – Board Work Session to review draft NHMP annex
 - 8/22/24 - Hosted Rainbow’s 75th Anniversary Customer Appreciation Event – provided information on the NHMP Annex, engaged the public and answered questions about the annex and how RWD may be impacted by natural disasters.

16.04 Hazard Quantification

Table 16.7.5 lists past occurrences of natural hazards affecting RWD over the past 20 years and where data is available, the estimated damage to RWD assets for each incident. In many cases, RWD facilities were indirectly impacted due to regional power outages or transportation disruptions, with no significant monetary damages and the costs for impacts were managed with operational funds.

Table 16.7.5: Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Incident Timeframe	Preliminary Damage Assessment (RWD)	Estimated Damage (Lane County)
Severe Winter Storm	TBD	January 12 – 27, 2024	\$40,000	\$35M
Lookout Mtn Wildfire	N/A	August 5 – October 13, 2023		
Holiday Farm Wildfire	DR-4562-OR	September 7 – November 3, 2020		\$62M
Severe Winter Storm	DR-4432-OR	February 25 – March 4, 2019		\$14.2M
Windstorm	N/A	April 7, 2017		
Severe Winter Storm/Freezing Rain	DR-4296-OR	December 14 -17, 2016	\$3,400	\$8.9M
Severe Winter Storm/Windstorm	DR-4258-OR	December 6 – 23, 2015		\$1.3M
Severe Winter Storm	DR-4169-OR	February 6 – 14, 2014		\$6.7M
Severe Winter Storm	DR-4055-OR	January 17-21, 2012		\$1.4M
Severe Winter Storm	N/A	March 21-26, 2012		
Windstorm	N/A	March 13 - 16, 2011		
Severe Winter Storm	N/A	December 27 – 29, 2008		
Windstorm	N/A	February 2-4, 2006		
Windstorm	DR-1405-OR	February 7-8, 2002		\$3.9M

[Source RWD and Lane County]

Table 16.7.6 presents the ranking of hazards of concern to RWD using the quantification method developed by Oregon Department of Emergency Management. This methodology characterizes risk based on history of events, probability of and vulnerability to future events, and the maximum threat posed in a

worst-case scenario. Weighting factors (WF) are applied to produce a total risk score to rank the relative risk of each hazard.

All natural hazards represented in the Lane County MJNHMP are represented in the hazard quantification assessment summary below. Directly following is the narrative review of each individual hazard that is applicable to the RWD service area.

Table 16.7.6: RWD Hazard Quantification Results

Hazard Risk Quantification Summary: RWD Assessment Conducted: March – August 2024, revised Tsunami March 2025 Assessment Tool: State of Oregon – Hazard Analysis Methodology Assessment Reviewed by: <ul style="list-style-type: none"> - RWD Internal Staff Review – 08/26/24 and 03/25/25 - COE/COS NHMP Committee – 07/22/24 - Lane County Emergency Management – 10/7/24 - Public Feedback Via Digital Survey 24 August to 22 September 2024 	Scoring	
	160 - 240	High
	80 – 160	Moderate
	0 - 80	Low

Hazard Type / Weight Factor (WF)	History WF x 2	Probability WF x 7	Vulnerability WF x 5	Maximum Threat WF x 10	Weighted Score	Weighted Score Rank	2024 RWD Rating
Flood	12	49	45	90	196	1	High
Winter Storm	18	63	40	70	191	2	High
Earthquake	6	28	50	100	184	3	High
Wildfire	14	49	40	70	173	4	High
Windstorm	14	42	45	70	171	5	High
Extreme Weather (Heat)	16	56	30	50	152	6	Moderate
Drought	16	49	15	20	100	7	Moderate
Volcano	4	14	10	40	68	8	Low
Landslide	2	7	5	50	64	9	Low
Tsunami*	0	0	0	0	0	N/A	N/A

[Source: RWD Internal Review Team]

*Tsunami hazard impacts the coastal areas along Pacific Ocean as identified in the Lane County MJNHMP base plan, RWD’s service area does not extend to the coastal region. In March 2025 RWD Internal Staff conducted an additional review and revised Table 16.7.6 to remove the scores and ranking for Tsunami.

Individual Hazard Discussions

As the table above indicates, RWD's risk ranking very similar to the Lane County Planning area. However, some variations exist due to differences in the vulnerability and maximum threat to RWD assets and customers to certain hazards. Like Lane County, winter storms, wildfire and earthquakes ranked high. However, flooding ranked highest and extreme heat ranked lower in RWD's analysis than for Lane County. These differences are explained below. Tsunami is not represented below in the individual hazard information as it does not pose a risk to the RWD service area that is shown on Map 16.8.1.

The following provides a narrative review of each of the applicable natural hazards, listed in alphabetical order, which are present in the RWD service area -- unincorporated Lane County adjacent to the City of Springfield city limits in the north and west portions of the Springfield Urban Growth Boundary.

Natural Hazard: Drought

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #7 – Score 100 out of a possible 240, Moderate Rating

Future Impacts:

- Climate: Yes, climate studies indicate that the Western Cascades will experience less overall precipitation, reduced snowpack and more frequent heat waves, increasing drought probability.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: New development and growing population will increase water demand.

According to the last 20 years of data from the U.S. Drought Monitor, severe and extreme drought conditions are occurring with increasing frequency in Lane County. Lane County declared State of Drought Emergencies in both 2015 and 2021, and moderate to extreme drought occurred in 2019 and 2022 as well.

Drought has some direct and indirect impacts on Rainbow's water supplies. Rainbow's wells are drilled into aquifers that are recharged by the McKenzie River, and lower stream flows can reduce the capacity of groundwater supply wells. One well (Chase Well #2) is hydraulically connected to the river and treated to surface water standards, and low stream flows could result in toxic algal blooms that require shutting down the well and further reducing source capacity if treatment is not available.

Natural Hazard: Earthquake

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #3 – Score 184 out of a possible 240, High Rating

Future Impacts:

- Climate: No, climate change is not anticipated to impact earthquake probability or vulnerability.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: More stringent building codes and seismic hardening of infrastructure will continue to improve the ability of the region to withstand earthquake damage.

Fault lines exist near Rainbow's service territory that can produce crustal earthquakes, although these are fairly uncommon. The most recent earthquake was in 2015, a 4.2 magnitude earthquake centered in Walterville. No Rainbow facilities were damaged in this event. Western Oregon is also susceptible to a magnitude 9.0 Cascadia Subduction Zone (CSZ) earthquake which is expected to produce strong to severe ground shaking in and around Springfield. Extensive damage to electric, water and communications infrastructure is expected, particularly in areas where soil liquefaction is likely. Studies indicate that areas

between east Springfield and Waltherville have high susceptibility to liquefaction. Water supply disruption may result from power outages and/or broken pipes causing water to drain from reservoirs.

Oregon Department of Emergency Management estimates there is a 37% chance of a CSZ earthquake in the next 50 years. While Rainbow is working to fortify critical infrastructure against such an event, damage to power supplies, water distribution mains and customer service lines would leave much of our community without water or power for weeks or longer. Given the size and magnitude of such an event, Federal resources would be needed for restoration and therefore, earthquake risk is high.

Natural Hazard: Extreme Weather

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #6 – Score 152 out of a possible 240, Moderate Rating

Future Impacts:

- Climate: Yes, climate studies indicate a greater frequency of extreme heat events are possible.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: A greater reliance on temperature-controlled living and working spaces may help compensate for extreme heat events, but will also add demands on the electric grid.

Heat waves with several days of peak temperatures over 100 degrees are not uncommon in the RWD service area. In the past, these were tempered by nighttime cooling that protected electric infrastructure from over-heating and allowed buildings without air conditioning to cool down. Most recent extreme heat events such as the June 2021 heat dome, where Eugene experienced a high of 111 degrees, put greater strain on utility infrastructure and heightened public health risks. Climate change induced trends indicate we may experience a greater frequency of extreme heat events in the future.

Utility impacts from extreme heat include local and regional power outages due to electrical equipment failures. This can be amplified when the aquifers are stressed (due to seasonal pumping / less recharge from lower river levels) but customers are increasing outdoor watering to double or triple typical daily usage. (The public survey conducted Aug-Sept 2024 supported this, as two-thirds of respondents were very concerned about extreme heat events.)

Natural Hazard: Flooding

Impact Area: The northernmost sections of the RWD Service Area in or adjacent to the floodplain.

Hazard Risk Assessment Rate: #1 – Score 196 out of a possible 240, High Rating

Future Impacts:

- Climate: Climate variability is likely to increase. Overall the Western Cascades may experience less precipitation and reduced snowpack, but periods of long drought will be interspersed with years of heavy precipitation and atmospheric river events leading to the possibility of major flooding.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: RWD's service area includes properties along the McKenzie River north of Springfield, and multiple water supply wells are near the river in potentially vulnerable locations.

Rainbow's service area includes portions of the McKenzie River floodplain that are prone to flooding events. Upstream reservoirs and dams effectively control flooding under most, but not all, circumstances. Significant and prolonged flooding has the potential to damage equipment, and saturated soils can lead to water main breaks. Historically, Rainbow has experienced minimal direct damage to its assets from prior floods, including during the 1996 '100-year' flood event. In the future, climate change and higher instream flows due to atmospheric river events and/or heavy rain on burn-scarred landscapes in the watershed may increase the frequency and severity of flooding events.

Rainbow's newest facilities were built above the 100-year flood level, but older facilities dating back to the 1950s and 1960s are located near the McKenzie River and continue to have some elevated risk. Improved monitoring and treatment capabilities at the Chase Water Treatment Plant are in place to manage any turbidity issues impacting water quality at Chase Well #2. Parts of supply well infrastructure could be inundated and restored relatively easily after flood water receded, but the reduced capacity during system recovery could have a significant impact.

Since the last NHMP, the City of Springfield has identified the need for major improvements to the 42nd Street Levee, and any levee breach or localized flooding due to backups in the drainage channel could directly impact Rainbow's office and central hub for control system communications and business center data storage. The newer concerns over flood risk have elevated this specific hazard significantly. (The public survey conducted Aug-Sept 2024 provided mixed results. Two-thirds of respondents were very concerned about dam failure but not as concerned about flooding. This is an area where additional education could be helpful.)

Natural Hazard: Landslide

Impact Area: Vitus Butte and Kelly Butte, reservoir locations outside but adjacent to the RWD Service Area.

Hazard Risk Assessment Rate: #9 – Score 64 out of a possible 240, Low Rating

Future Impacts:

- Climate: Yes, climate variability ranging from hard drought to extreme rainfall saturating soils could increase the risk of landslides, but the impact area is limited in RWD's service area.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: RWD has two storage reservoirs anchored into bedrock on hilltops, but all of RWD's customers and most of the system piping are in low risk areas on the valley floor.

Rainbow has no upper level pumping zones, just two hilltop reservoirs with transmission piping that could be susceptible to landslide activity. Since the 2019 NHMP, SUB and Rainbow made some seismic improvements to Moe Reservoir that included a new transmission main with restrained joints. Landslide activity has the potential for heavy damage in a worst case scenario, but the low probability and relatively low vulnerability results in landslide risk being ranked low.

Springfield Area Landslide Hazard and Risk Study Eugene-Springfield and Lane County, Oregon by Oregon Department of Geology and Mineral Industries – [2018 Report](#).

Natural Hazard: Volcano

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #8 – Score 68 out of a possible 240, Low Rating

Future Impacts:

- Climate: No, climate change is not anticipated to impact volcano probability or vulnerability.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: No changes expected due to development within RWD’s service area.

According to the Oregon Natural Hazard Mitigation Plan, the Three Sisters region has a clear history of volcanic eruptions, but none documented in the last 15,000 years. Ashfall from an eruption at South Sister or any nearby volcano could potentially impact water quality 60 or more miles downstream, increasing turbidity adjacent to wellfields and triggering a shutdown of Chase Well #2 which is under the influence of surface water. Rainbow’s other wells are protected from turbidity impacts, but ash clogging vents in motors and vehicles could have indirect impacts on response times and delay recovery efforts. Due to the small probability of future occurrences and limited impacts, volcano hazard is ranked low.

Natural Hazard: Wildfire

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #4 – Score 173 out of a possible 240, High Rating

Future Impacts:

- Climate: Yes, climate studies indicate that the Western Cascades will experience less overall precipitation, reduced snowpack and more frequent heat waves, with periods of prolonged drought increasing tree mortality and the probability of wildfire in the Wildland-Urban Interface.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: Fire-resistant materials and defensible space can improve resilience in areas in or adjacent to forests and heavy vegetation.

Lane County’s 2020 Community Wildfire Protection Plan (CWPP) divides Lane County into three distinct ecoregions and describes the overall wildfire risk for the Willamette Valley Ecoregion, where most Rainbow assets and customers are located, as generally low to moderate risk. Areas of higher risk might include heavily treed areas such as around Moe Reservoir.

The Cascades Ecoregion, which includes the McKenzie Valley, was classified as moderate to high risk due to the predominance of forested lands with mountainous topography, frequent lightening events and limited access for firefighting resources. Based on historical occurrences, there is a high probability of future wildfire occurrences in the Cascades region.

Wildfire smoke incursions degrade air quality in the valley on an annual basis, creating unhealthy air for days to weeks at a time. While smoke does not directly impact RWD infrastructure, RWD will make operational adjustments to protect workers from prolonged exposure to poor air quality.

Despite greater focus on wildfire mitigation by electric providers such as EWEB, proximity to and increasing frequency of wildfire activity will result in more frequent use of public safety power shutoffs (PSPS) that result in regional power outages. The possibility of both direct wildfire impacts and indirect impacts such as loss of power and communications on a regional level results in a risk ranking of high. (The public survey conducted Aug-Sept 2024 supported this, as two-thirds of respondents were very concerned about wildfire.)

Natural Hazard: Windstorm

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #5 – Score 171 out of a possible 240, High Rating

Future Impacts:

- Climate: Yes, climate variability is likely to increase with more erratic weather patterns.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: Projects by electricity providers to underground and harden the power grid is costly but could increase reliability, reducing risks of wildfire and outages impacting RWD's supply and treatment facilities.

Windstorms producing sustained gusts of over 40 mph are typically part of a winter or heavy rainstorm event. These events occur every few years and cause localized power outages and infrastructure damage. Extreme wind events occur with less frequency but can result in extensive damage to property and electric infrastructure that RWD relies upon to power water facilities. If the windstorm is accompanied by wind or snow, more extensive damage occurs due to tree-related impacts to powerlines

Peak gusts reached 70 mph during the February 2002 storm and the December 2015 storm caused over \$1.3M in damage countywide (both events were federally declared disasters). RWD relies on electric utilities which are also susceptible to straight-line wind events, which can produce strong, dry east winds and increase risk of a fast-growing wildfire. The possibility of both direct wind damage and indirect impacts such as loss of power and communications on a regional level results in a risk ranking of high.

Natural Hazard: Winter Storm

Impact Area: Entire RWD Service Area

Hazard Risk Assessment Rate: #2 – Score 191 out of a possible 240, High Rating

Future Impacts:

- Climate: Yes, climate variability is likely to increase with more erratic weather patterns.
- Population Patterns: Continued population growth in Springfield and Lane County is anticipated.
- Land Use/Development: Projects by electricity providers to underground and harden the grid could increase reliability and reduce outages impacting RWD's supply and treatment facilities.

As Table 16.7.6 indicates, winter storms occur with relative frequency. Damage typically results from storms that deliver a combination of heavy, wet snow, ice and/or wind. While these types of winter storms may not be severe enough to trigger a disaster declaration, some still require an ICS response for Rainbow to effectively manage the repair and restoration process. Considering both disaster-declarations and ICS-responses together, a severe winter storm can be expected about every other year. Damage often includes power outages due to impacts on electric utilities. A five-day freezing rain and ice accumulation event in January 2024 nearly resulted in a loss of ALL water supplies for both Eugene and Springfield. RWD's office ran on a generator for 12 days, and backup power was necessary to maintain water supplies for Eugene and Springfield. With widespread power outages and transportation system impacts, full restoration could take upwards of two weeks, and mutual aid from neighboring utilities and/or contract crews can be constrained, delaying service restoration. Due to the frequency of winter storm events and potential for widespread damage, winter storm risk is ranked high. (The public survey conducted Aug-Sept 2024 supported this, as all respondents were very concerned about winter storms.)

New Development in Hazard Areas

RWD has very little new development, mostly infill projects whereby large lots may subdivide or add an accessory dwelling unit (ADU). RWD’s service area lies on the valley floor, with no pressure to develop in the floodplain or on steep slopes. There are areas with heavier vegetation and orchard or other trees that can increase risks due to wildfire, but RWD’s service area is protected by a robust system of fire hydrants and a fire protection contract with Eugene Springfield Fire.

16.05 Mitigation Action Items (MAI’s)

This section describes mitigation projects identified by the Rainbow Water District during the planning process. See Section 4 of Volume I for additional information regarding mitigation action item methodology and prioritization.

RWD has assigned a primary and secondary natural hazard for each of their mitigation action items – with each hazard having at least 1 mitigation action item assigned.

Section 16.05 reviews the status of the action items from the previous plan (2020 – 2024) and identifies the new items being added for the 2024 – 2028 plan:

1. 2020 – 2024 MAI’s Summary: Status summary tables followed by individual item summaries.
2. 2024 – 2028 Planned MAI’s Review: Summary of planned items and individual item summaries.

16.05.01: 2020 – 2024 Items Summary

Through RWD’s Board-approved capital improvement plans, the utility has completed many of the mitigation action items described in the 2020 NHMP, with just a few more complex, multi-year projects carrying over into the new planning cycle.

Table 16.7.6: 2020 – 2024 MAI’s Summaries

MAI's - Status Summary 2020 - 2024			
Status	Total	%	
Complete	3	38%	
In Progress	4	50%	
Withdrawn	1	13%	
Total	8	100%	

MAI's - FEMA Categories 2020 - 2024			
FEMA Categories	Total	%	
Structure & Infrastructure	8	100%	
Total	8	100%	

MIA's - Hazards 2020 - 2024		
Hazard	Primary	Secondary
Drought	0	2
Earthquake	6	1
Extreme Weather	0	4
Flooding	1	5
Landslide	0	4
Wildfire	1	4
Windstorm	0	4
Winter Storm	0	4
Volcano	0	4
Total	8	32

[Source: Rainbow Water District]

Mitigation Action Item	#2020.50 - Upgrades Seismic - Pipes and Valves
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2017-2021
Estimated Cost	\$535,000
Potential Funding Sources	Operational
Hazards Mitigated	Flooding
FEMA NHMP Category	Structure & Infrastructure
Comments	Install flexible joints and seismically activated isolation valves at Moe Hill (Vitus Butte) Reservoir.
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> Complete 8/1/2020 • <i>Carryover to 2024:</i> No • <i>Accomplishments:</i> In order to reduce the risk of pipe-to-reservoir connection failure and loss of stored water during a seismic event, we installed a seismic valve and double-ball flexible expansion joints on Moe Reservoir’s inlet/outlet piping and drain/overflow piping. A Flo-Loc seismic valve controller is able to close a valve (electric motor actuator with a battery backup) upon sensing an approximate 7.0 magnitude quake. This valve is connected to the control system and settings can be adjusted by water operators. • <i>Challenges:</i> Springfield Utility Board is a part-owner of this reservoir, and it was a multi-year project to coordinate the design and construction and take the tank out of service for a period of time while the contractor was making new connections.

Mitigation Action Item	#2020.51 - New Install - Chlorine Gas Valve Actuators
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2018-2020
Estimated Cost	\$50,000
Potential Funding Sources	Operational
Hazards Mitigated	Earthquake Flooding Wildfire
FEMA NHMP Category	Structure & Infrastructure
Comments	Install automatic valve actuators for chlorine gas cylinders at all wellfields (Chase equipped 2018).
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> Complete 11/1/2022 • <i>Carryover to 2024:</i> No • <i>Accomplishments:</i> Rainbow Water District uses 150-lb chlorine gas cylinders for water disinfection at five treatment locations (two installations at Chase Wellfield). Sites have chlorine gas detectors that can alert operators via our telemetry system. We added electric actuators (with a battery backup) to allow automatic closure of the

	<p>valves through a remote command issued by a water operator or upon the detection of chlorine gas above a user-defined threshold level. Actuators have been procured and installed at Chase Wellfield (2 locations), I-5 Wellfield, Weyerhaeuser Wellfield, Q Street Well.</p> <ul style="list-style-type: none"> Challenges: Work was performed in phases to spread expenses over multiple budget years. We attempted to purchase some used components to reduce the expense of the project, and that caused some parts incompatibility between different models. We ended up starting over and buying some new components to fix compatibility issues.
--	---

Mitigation Action Item	#2020.52 - New Install - Emergency Communication
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2021
Estimated Cost	\$30,000
Potential Funding Sources	Operational
Hazards Mitigated	Landslide Windstorm Winter Storm
FEMA NHMP Category	Structure & Infrastructure
Comments	Install HAM radio and emergency data transmission antennas at Kelly Butte and/or Moe Hill Reservoirs in coordination with Lane County radio repeater expansion.
Progress Since Last Plan	<ul style="list-style-type: none"> <i>2020 Plan Conclusion Status:</i> In Progress <i>Carryover to 2024:</i> Yes Accomplishments: Concept started small, touring the site with a local ham radio group in July 2018. Explored a possible tower attached to the top of the Kelly Butte Reservoir, but a structural engineer expressed concerns in April 2019 and the idea moved to a standalone tower. Toured the Moe Reservoir site with Michael Harman, manager of the Regional Radio System for Lane County, in April 2023. Shared prior cell tower siting studies to explore the concept of a shared facility at Moe Reservoir. This concept is desirable but funding is not currently available. Challenges: Staff time and access to funding. Kelly Butte may need an easement for a standalone tower. Both Kelly and Moe Reservoir locations could involve some land use planning approvals, and a more exhaustive investigation is not likely to be considered until funding seems possible.

Mitigation Action Item	#2020.53 - New Install - Redundant Control System
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2021
Estimated Cost	\$35,000
Potential Funding Sources	Operational
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Install redundant control system capability at Chase WTP.
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> Complete 1/1/2021 • <i>Carryover to 2024:</i> No • <i>Accomplishments:</i> Rainbow Water District has installed a redundant SCADA server at the Chase Wellfield to provide a data backup and alternate control and operations ability to the 42nd Street headquarters location. Data is incrementally backed up via fiber optic connection to ensure rapid recovery is possible in the event of facility damage or evacuation at the primary control location. • <i>Challenges:</i> Required coordination between business network and controls system consultants, as well as working with Springfield Utility Board who operates the fiber and has some shared control system components at the 42nd Street location.

Mitigation Action Item	#2020.54 - New Install - Procure NOAQ Boxwall
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2021
Estimated Cost	\$20,000
Potential Funding Sources	Operational
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	NOAQ Boxwall or equivalent for flood protection at Chase WTP.
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> Withdrawn • <i>Carryover to 2024:</i> No • <i>Accomplishments:</i> Rainbow Water District met with the City of Springfield to consider participating in a joint order of portable flood barriers that could be stored in anticipation of a flood event. Rainbow’s procurement would encircle the Chase Wellfield Water Treatment Building and provide some level of increased flood protection. • <i>Challenges:</i> The barriers would be more effective when dewatering pumps can operate to remove water that seeps past the barrier, but

	<p>water would likely cover the roadway during a flood event, preventing staff from safely accessing the site to maintain pumps. It would be safer and more cost effective for staff to take some smaller protective measures, such as sandbags or plywood and plastic against the doors of our building, and not attempt to keep this facility in operation during a flood event. Other water sources would be utilized instead.</p>
--	---

Mitigation Action Item	#2020.55 - New Install - Transfer Switch and Generator
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2021
Estimated Cost	\$250,000
Potential Funding Sources	Operational
Hazards Mitigated	Drought Earthquake Wildfire
FEMA NHMP Category	Structure & Infrastructure
Comments	Install transfer switch at I-5 wells and obtain trailer-mounted generator for Chase or I-5 wells.
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> In Progress • <i>Carryover to 2024:</i> Yes • Accomplishments: Rainbow Water District obtained a portable generator under a SPIRE grant that can operate 2 or 3 of the 5 wells in the Chase Wellfield. This may be connected via an existing manual transfer switch. NEW: Rainbow has hired an electrical engineer to design panel upgrades and install a manual transfer switch that could facilitate either a portable or possibly a permanently-installed generator. Design may be used to seek grant funding for generator procurement and installation. • Challenges: The SPIRE generator is owned by the state and may be required for service in another location deemed a higher priority. The ability to operate Chase wells is contingency upon generator availability. At the I-5 Wellfield, the large motors will require an electrical upgrade and generator siting issues need to be resolved.

Mitigation Action Item	#2020.56 - New Install - Emergency Water Distribution Site
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2023
Estimated Cost	\$75,000
Potential Funding Sources	TBD
Hazards Mitigated	Flooding
FEMA NHMP Category	Structure & Infrastructure
Comments	Develop three small emergency water distribution sites located at or near private wells with tested water.
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> In Progress • <i>Carryover to 2024:</i> Yes • <i>Accomplishments:</i> Tested Northwood Church irrigation well in August 2016. Made contact with the church again in September 2020 and learned they are moving to a new location and selling their building. Need to resume conversation with new owner once the sale goes through. (Northwood is still building a new facility as of May 2024.) • In Fall 2023 we distributed emergency water storage containers as part of a customer service promotion, to encourage the concept of self-preparedness. • <i>Challenges:</i> Some of the better sites at schools and parks are served by the neighboring water utility, and there are challenges in coordinating our efforts. The project could entail using emergency wells instead of just transported water, adding complexity to the concept.

Mitigation Action Item	#2020.57 - New Install - All Restraint Water Mains
Location	Rainbow Water District Service Area
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2029
Estimated Cost	\$ TBD - Two times the cost of standard piping.
Potential Funding Sources	Operational
Hazards Mitigated	Flooding Windstorm Winter Storm
FEMA NHMP Category	Structure & Infrastructure
Comments	Use all-restraint water mains for landslide risk transmission mains.
Progress Since Last Plan	<ul style="list-style-type: none"> • <i>2020 Plan Conclusion Status:</i> In Progress • <i>Carryover to 2024:</i> Yes • <i>Accomplishments:</i> Restrained joints may eliminate the need for concrete thrust blocks and simplify the work in some aspects, but

	<p>installation time can be slower to bolt piping at each joint and material costs are roughly double, increasing the overall project cost.</p> <ul style="list-style-type: none"> Challenges: Yes. It is still relevant. With the new standard, new piping projects will continue to be constructed using joint restraint techniques and increase system resiliency over time. As of May 2022, Rainbow is installing a new 8” ductile iron water main along Hayden Bridge Road from 33rd to 38th Streets, and this is our first fully-restrained project.
--	---

16.05.02: 2024 – 2028 Planned Items Summary

The following initiatives are the planned mitigation action items for the new planning cycle. 3 of the 8 items were carried over from the 2020-2024 planning cycle with 5 new items added. RWD is the lead agency and funding source for these initiatives unless otherwise noted.

MIA's - FEMA Categories 2024 - 2028			
FEMA Categories	Total	%	
Structure & Infrastructure	8	100%	
Total	8	100%	

[Source: Rainbow Water District]

MIA's - Funding Estimates 2024 - 2208			
Funding Type	QTY	Estimate	
Operational	8	\$ 3,487,500	
Total	8	\$ 3,487,500	

MIA's - Hazards 2024 - 2028		
Hazard	Primary	Secondary
All Hazards	0	0
Drought	1	3
Earthquake	4	2
Extreme Weather	0	3
Flooding	0	2
Landslide	0	2
Wildfire	1	4
Windstorm	1	3
Winter Storm	1	3
Volcano	0	5
Total	8	27

Mitigation Action Item - A	New Install - Diversified Control System
Location	System-Wide, entire RWD service area, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2024-2029
Estimated Cost	\$75,000
Potential Funding Sources	Water Operating Fund, HMGP
Hazards Mitigated	Earthquake Extreme Weather Windstorm Winter Storm Volcano
FEMA NHMP Category	Structure & Infrastructure
Comments	Install decentralized control system to reduce likelihood of a single point of failure interrupting water system operations. Project to include radio, microwave or cellular connections to provide protection against failed landline connections.
Progress Since Last Plan	N/A – New project for 2025 Plan

Mitigation Action Item - B	New Identify Location and Install - Bulk Water Fill Station
Location	Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2026-2028
Estimated Cost	\$35,000
Potential Funding Sources	Water Operating Fund
Hazards Mitigated	Drought Extreme Weather Wildfire Windstorm Volcano
FEMA NHMP Category	Structure & Infrastructure
Comments	Install bulk water fill station to allow people experiencing drought and water service disruption to load and transport water.
Progress Since Last Plan	N/A – New project for 2025 Plan

Mitigation Action Item - C	New Install - Transfer Switch and Generator
Location	Chase Wellfield, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2025-2029
Estimated Cost	\$175,000
Potential Funding Sources	Water Operating Fund, HMGP
Hazards Mitigated	Drought Earthquake Extreme Weather Wildfire Windstorm Winter Storm Volcano Flooding
FEMA NHMP Category	Structure & Infrastructure
Comments	Design and install transfer switch and permanent generator for running up to three Chase wells. Elevate transformer(s) for flood protection.
Progress Since Last Plan	N/A – New project for 2025 Plan

Mitigation Action Item - D	Structural Evaluation of Chase and I-5 Wellfield facilities.
Location	Chase & I-5 Wellfields, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2024-2029
Estimated Cost	\$30,000
Potential Funding Sources	Water Operating Fund
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Study to review critical equipment anchorage and assessment of building's seismic risk.
Progress Since Last Plan	N/A – New project for 2025 Plan

Mitigation Action Item - E	New Install - Emergency Communication
Location	Kelly or Vitus Butte, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2025-2028
Estimated Cost	\$50,000
Potential Funding Sources	Water Operating Fund, Other Public Partners
Hazards Mitigated	Earthquake Extreme Weather Wildfire Winter Storm Volcano
FEMA NHMP Category	Structure & Infrastructure
Comments	Install HAM radio and emergency data transmission antennas at Kelly Butte and/or Moe Hill Reservoirs in coordination with Lane County radio repeater expansion.
Progress Since Last Plan	N/A – New project for 2025 Plan

Mitigation Action Item - F	New Install - Transfer Switch and Generator
Location	I-5 Wellfield, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2026-2029
Estimated Cost	\$350,000
Potential Funding Sources	Water Operating Fund, HMGP
Hazards Mitigated	Drought Earthquake Flooding Flooding Wildfire Windstorm Winter Storm Volcano
FEMA NHMP Category	Structure & Infrastructure
Comments	Install two VFDs, one transfer switch and permanent 250 kW generator or second power feed for powering either of the two I-5 wells.
Progress Since Last Plan	N/A – New project for 2025 Plan



Mitigation Action Item - G	New Install - Emergency Water Distribution Site
Location	System-Wide, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2025-2029
Estimated Cost	\$150,000
Potential Funding Sources	Water Operating Fund, Other Pubic or Private Partners
Hazards Mitigated	Drought Earthquake Flooding Flooding Landslide Wildfire Winter Storm Volcano
FEMA NHMP Category	Structure & Infrastructure
Comments	Develop three small emergency water distribution sites located at or near private wells with tested water.
Progress Since Last Plan	N/A – New project for 2025 Plan

Mitigation Action Item - H	Chase Water Transmission Main Upgrades and Seismic Evaluation
Location	Chase Wellfield, Springfield
Coordinating Agencies	Rainbow Water District
Implementation Timeframe	2019-2029
Estimated Cost	\$2,842,500
Potential Funding Sources	Water Operating Fund, FEMA Public Assistance
Hazards Mitigated	Earthquake Landslide
FEMA NHMP Category	Structure & Infrastructure
Comments	Install replacement all-restraint tranmission main at Chase Wellfield for improved seismic resiliency in area at risk for lateral spreading.
Progress Since Last Plan	N/A – New project for 2025 Plan

16.06 Plan Implementation and Maintenance

RWD has outlined its internal roles and delegation of responsibilities for maintaining and renewing their annex to the County NHMP.

16.6.1 Annex Plan Coordination: The NHMP annex plan will be coordinated by district Superintendent and will be responsible for:

- identifying and collaborating with internal RWD staff to support the hazard quantification review, mitigation action update/selection process and plan renewal process
- participating as the representative from RWD to the County NHMP Committee, liaison to County staff and other area Cooperators
- reviewing, recommending and incorporating updates to the annex during the plan renewal cycle
- maintaining updates to the mitigation action items and including new items added during the maintenance cycle or at the renewal cycle
- coordinating and/or supporting the public engagement process during the plan renewal cycle or outreach during the maintenance cycle
- coordinating the review and approval by the RWD Board of the annex plan

16.6.2 Training Requirements: RWD will require the following training for RWD personnel who support the maintenance and/or renewal of the NHMP annex.

Table 16.7.9: RWD NHMP Training Requirements

Course #	Title	Purpose	Staff Assignment
FEMA IS-93B	Introduction to Hazard Mitigation	Introduction for those who are new to emergency management and/or hazard mitigation; intended to train those who have responsibility for or participating in NHMP activities. es.	Superintendent and Assistant Superintendent (Operations Manager)
FEMA IS-18A	Local Mitigation Planning Training	The goal is to provide an overview of the requirements for local hazard mitigation plans that are found in the FEMA Local Mitigation Planning Policy Guide.	Superintendent

16.6.3 Capabilities Assessment:

Rainbow thrives on serving in the middle ground between our much larger neighboring city water utilities and the very small rural county water systems. Resiliency efforts have focused on both aspects, helping the small systems operate through and recover from disasters, and directly contributing to the water needs of the interconnected urban water system. The priority placed on mitigation and preparedness is reflected in the significant progress made with mitigation action items in the last five-year cycle, and further demonstrated by Board of Commissioner approval of budgets and policies in a public meeting setting.

Despite Rainbow’s small size, significant effort is expended by staff to participate in local water association and emergency planning efforts, networking and leveraging opportunities with larger neighbors to elevate our emergency response capacity and capabilities.

Applicable plans and agreements that support MJNHMP implementation include:

- Oregon Revised Statutes, Chapter 264 - Conveys the statutory authority to operate as a domestic water supply district.
- 1995 Urban Services Agreement - Guidance for coordination of water services inside the Springfield Urban Growth Boundary.
- 2006 Mutual Aid Agreement for Cooperative Interties - Provision for the emergency exchange of water between Eugene Water & Electric Board (EWEB), SUB and Rainbow, with the Eugene-Springfield water utilities sharing water supplies during times of potential or actual water shortage.
- 2018 Water Management and Conservation Plan (joint SUB & Rainbow) - Required submission to Oregon Water Resources Board that includes water curtailment response. (Five-year progress report provided June 28, 2023.)
- 2021 Water System Master Plan (joint SUB & Rainbow) - Outlines long-term planning options for resiliency, reliability and optimization of the joint SUB and Rainbow water System.
- 2021 Emergency Response Plan and Risk & Resilience Assessment - Comprehensive water supply and customer delivery risk assessment, mitigation actions, and incident-specific response guidance to identified natural hazards and human-caused events.
- Oregon Water/Wastewater Emergency Response Network - Voluntary mutual aid agreement between Oregon utilities to share resources and equipment, and improve emergency planning, coordination, and training.
- RWD Capital Improvement Plans - Describes routine capital work like water main replacements, and large multi-year projects typically financed through grants, loans or bonds.
- Drinking Water Risk Communications Plan - Outlines incident-specific communication strategies and messages to provide timely and accurate information to internal/external stakeholders during water supply disruptions.

While RWD is small and does not have staff dedicated solely to resiliency and emergency planning activities, a benefit of a smaller team is direct communication between all staff members, and that the Superintendent is directly involved in emergency management and provides -policy and funding support.

16.6.4 Mitigation Action Items Coordination:

Mitigation Action Items are segregated into the 4 FEMA categories and assigned based on RWD service/operational areas. The Superintendent coordinates the annual updates of the MAI’s and NHMP Annex Plan as outlined below in table 16.7.10.

Table 16.7.10: MAI’s Coordination

Process	Description of Process
Exploration of New MAI’s	Exploration of new MAI’s may come from a variety of ways: <ul style="list-style-type: none"> • New or Upgraded Regulatory Requirements • Capital Improvement Planning • Actual Event or Exercise Response – After Action Review/Improvement Plans • Planning Updates – Mitigation, Climate, Operations, • Public/Cooperator Feedback/Collaboration
Selection of New MAI’s	New MAI’s may be recommended by the Superintendent, general staff, Board of Commissioners, and other area cooperators. The recommended MAI’s are forwarded to the Superintendent for consideration and inclusion within the NHMP Annex plan. As needed, the Superintendent will consult with Assistant Superintendent (who serves as the Operations Manager) and/or Board of Commissioners.
Coordination of MAI’s	MAI’s are segregated into the 4 FEMA categories with assignment of coordination by like disciplines within RWD. <ul style="list-style-type: none"> • Structure & Infrastructure [Operations, Admin] • Plans/Regulations [Operations, Administration] • Natural Systems Protection [Operations & Admin] • Education & Outreach [Admin] Superintendent will utilize a progress report for tracking of the MAI through conclusion of the item; this may be assigned to individual staff persons as needed. Progress reports will be updated at least annually and then evaluated for carryover during the plan renewal cycle. The Superintendent will coordinate the summary of the MAI’s to the County for inclusion in the County base NHMP plan every 5 years.
Funding to Support MAI’s	RWD administration will provide support for any grant development for the MAI’s and/or for consideration within the agency operational budget. MAI projects will be prioritized based on agency needs and/or align with the capital improvement plan. It is anticipated that some items may not be accomplished for multiple fiscal years due to lack of operational funding or applicable federal grant funding.
Conclusion of MAI’s	Superintendent will finalize the progress reports of concluded MAI’s and update the County as part of the plan renewal process.

16.6.5 Public Engagement:

RWD participated in collaborative public engagement campaign with the City of Eugene, City of Springfield, Eugene Water & Electric Board, and Willamalane Park and Recreation District as part of the 2024 plan renewal.

- Campaign Content – Focus Areas:
 - Orientation to NHMP purpose and transition to County NHMP
 - RWD NHMP Annex to County plan
 - Overview of hazard risk assessment results
 - Overview of selected mitigation action items
 - Solicitation of feedback from public and cooperators on the campaign focus areas via survey and in-person feedback during presentation sessions
- Campaign Events – the following outlines the conducted events with community members on the above focus areas:

Table 16.7.11: Scheduled Public Engagement Events

Date/Time	Type	Intent	Audience	#
03/13/24	Presentation – In Person	Provide overview of the NHMP, purpose, mitigation action items, etc.	RWD Staff, Board of Commissioners and Public	10
08/22/24 1-4pm [Springfield]	RWD Customer Appreciation Open House	75 th Anniversary Event – staff hosted a table to share draft NHMP annex, goals, and proposed mitigation action items	RWD Staff, Board of Commissioners and Public	100
08/26/24*	Media Release	Announce NHMP Presentations, Public Feedback Requested, Transition	Public & Cooperators	*
09/04/24 6-7:30pm [Eugene]	Presentation – In Person	NHMP Overview, Transition to County, Survey, Solicit Public Feedback	Public & Cooperators	11
09/10/24 5:30-7pm [Springfield]	Presentation – In Person	NHMP Overview, Transition to County, Survey, Solicit Public Feedback	Public & Cooperators	7
09/11/24 5:30-6:00 pm [Springfield]	Board Work Session	Provide NHMP Annex Overview, review Hazard Rankings and proposed MAI’s	RWD Staff and Board of Commissioners, Public	8
09/22/24	Survey	Partnered with Survey led by COE and COS, shared on RWD website and social media to reach RWD customers	Public (144 informed participants, 3 stated RWD customers)	3

*Media Release initiated by COE was on behalf of all annex holders and was shared with regional media partners, area cooperators, city social media, city website, city subscribers to city information.

RWD actively promotes emergency management through website updates and social media, with the messaging tailored to severe weather events or seasonal issues. Some of these messages provide an opportunity to refer back to the NHMP. As mitigation projects listed in the NHMP are presented in public meetings for funding authorization by the Board of Commissioners, the public is given the opportunity to hear about the projects and additional references that highlight how the NHMP gets implemented.

RESOLUTION 2025-13
RAINBOW WATER DISTRICT
RESOLUTION ADOPTING 2023 NATURAL HAZARDS MITIGATION PLAN

WHEREAS, Rainbow Water District (Rainbow) is a domestic water supply district organized under Oregon Revised Statutes (ORS) Chapter 264, and ORS 264.410 provides “the power and authority given to districts is vested in and shall be exercised by a board of five commissioners”, and

WHEREAS, Rainbow recognizes the threat that natural hazards pose to people and property within our community; and undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, Rainbow collaborated with other agencies and adopted the “Eugene/Springfield Multi-Jurisdictional Natural Hazards Mitigation Plan” on February 12, 2020, and

WHEREAS, the Federal Emergency Management Agency (FEMA) requires jurisdictions to update and formally adopt their Natural Hazards Mitigation Plan every five years to be eligible to receive grant funding from FEMA for disaster mitigation projects; and

WHEREAS, Rainbow participated in the FEMA-prescribed process to prepare an updated annex, adopting Resolution 2024-07 to formally request to join the October 2023 “Lane County Multi-Jurisdictional Natural Hazards Mitigation Plan” along with neighboring agencies, and Rainbow provided several opportunities for public comment on the updated annex including at a Board of Commissioners meeting on September 11, 2024; and

WHEREAS, officials with the Oregon Office of Emergency Management (OEM) and FEMA Region X reviewed Rainbow’s draft Annex to Lane County’s 2023 Natural Hazards Mitigation Plan and declared it approvable pending adoption on April 28, 2025, and

NOW, THEREFORE, BE IT RESOLVED, the Rainbow Water District Board of Commissioners hereby:

- Adopts the October 2023 Lane County MJNHMP Natural Hazards Mitigation Plan, replacing the previous January 2020 Eugene-Springfield MJNHMP plan, and
- The Rainbow Superintendent will submit this adopting Resolution to the Oregon OEM and FEMA Region X officials to enable the Plan’s final approval, and
- This Resolution will take effect upon adoption by the Rainbow Board of Commissioners.

ADOPTED AND APPROVED by a vote of 4 Yes votes and 0 No votes, this 14th day of May 2025.



President
Board of Commissioners

Attest:



Secretary-Treasurer
Board of Commissioners



FEMA

June 9, 2025

Mr. Stephen Richardson
State Hazard Mitigation Officer
Oregon Department of Emergency Management
3930 Fairview Industrial Drive SE
Salem, Oregon 97305

Reference: Approval of the Lane County Multi-Jurisdictional Hazard Mitigation Plan

Dear Stephen Richardson:

In accordance with applicable¹ laws, regulations and policy, the Risk Analysis Branch of FEMA Region 10 Mitigation Division has approved the local mitigation plan for the following jurisdictions:

Lane County	City of Lowell	City of Oakridge
Blachly-Lane Electric Cooperative	City of Dunes City	City of Florence
City of Westfir	City of Coburg	City of Creswell
City of Veneta	Mapleton Water District	City of Eugene
Rainbow Water District	Eugene Water and Electric Board	

Mitigation plans may include additional content to meet Element H: Additional State Requirements or content the local government included beyond applicable FEMA mitigation planning requirements. FEMA approval does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements.

The approval period for this plan is from October 17, 2023 through October 16, 2028.

The jurisdictions' plan approval ensures the eligibility for project grants under FEMA's Hazard Mitigation Assistance programs. All requests for funding are evaluated individually according to eligibility and other program requirements. Having an approved mitigation plan does not mean that

¹ Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and National Dam Safety Program Act, as amended; 44 CFR Part 201, Mitigation Planning; and Local Mitigation Planning Policy Guide (FP-206-21-0002).

mitigation grant funding will be awarded. Specific application and eligibility requirements can be found in each FEMA grant program's respective policies and annual Notice of Funding Opportunities, as applicable.

FEMA's approval is for a period of five years, effective the date FEMA received the adoption documentation. For this plan, documentation was received on 10/17/2023 and is considered approved as of then. Prior to 10/16/2028, each jurisdiction must review, revise, and submit their plan to FEMA for approval to maintain eligibility for grant funding. The enclosed plan review tool provides opportunities to incorporate into future updates.

Sincerely,

Wendy Shaw, P.E.
Risk Analysis Branch Chief
Mitigation Division

JF:JG

Attachment: Local Mitigation Plan Review Tool

Local Mitigation Plan Review Tool

Cover Page

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA’s evaluation of whether the plan has addressed all requirements.

For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of this guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of this guide.

Plan Information	
Jurisdiction(s)	Lane County, City of Coburg, City of Creswell, City of Dunes City, City of Florence, City of Lowell, City of Oakridge, City of Veneta, City of Westfir, Blachly-Lane Electric Cooperative, Consumers Power, Inc., Emerald People’s Utility District, and Mapleton Water District, City of Eugene, City of Springfield, Eugene Water and Electric Board, and the Rainbow Water and Fire District
Title of Plan	Lane County Multi-Jurisdictional Natural Hazard Mitigation Plan
New Plan or Update	Update
Single- or Multi-Jurisdiction	Multi-jurisdiction
Date of Plan	10/2/2023
Local Point of Contact	
Name and Title	Tiffany Brown, Emergency Manager
Agency	Lane County Emergency Management
Address	125 E. 8th Avenue, Eugene, Oregon 97401
Phone Number	541-682-6999
Email	tiffany.brown@lanecountyor.gov

Additional Point of Contact	
Name and Title	Brendan J. Irsfeld, Senior Management Analyst
Agency	Lane County Emergency Management
Address	3040 North Delta Highway, Eugene, Oregon 97408
Phone Number	541-682-6710
Email	brendan.irsfeld@lanecountyor.gov

Review Information	
State Review	
State Reviewer(s) and Title	Joseph A. Murray, Planner
State Review Date	7/5/2024
FEMA Review	
FEMA Reviewer(s) and Title	Joshewa Fulton, Community Planner
Date Received in FEMA Region	12/23/2024
Plan Not Approved	
Plan Approvable Pending Adoption	
Plan Approved	10/17/2023

Multi-Jurisdictional Summary Sheet

In the boxes for each element, mark if the element is met (Y) or not met (N).

#	Jurisdiction Name	A. Planning Process	B. Risk Assessment	C. Mitigation Strategy	D. Plan Maintenance	E. Plan Update	F. Plan Adoption	G. HHPD Requirements	H. State Requirements
1	Lane County	Y	Y	Y	Y	Y	Y	NA	NA
2	City of Coburg	Y	Y	Y	Y	Y	Y	NA	NA
3	City of Creswell	Y	Y	Y	Y	Y	Y	NA	NA
4	City of Dunes City	Y	Y	Y	Y	Y	Y	NA	NA
5	City of Florence	Y	Y	Y	Y	Y	Y	NA	NA
6	City of Lowell	Y	Y	Y	Y	Y	Y	NA	NA
7	City of Oakridge	Y	Y	Y	Y	Y	Y	NA	NA
8	City of Veneta	Y	Y	Y	Y	Y	Y	NA	NA
9	City of Westfir	Y	Y	Y	Y	Y	Y	NA	NA
10	Blachly-Lane Electric Cooperative	Y	Y	Y	Y	Y	Y	NA	NA
11	Consumers Power Inc.	Y	Y	Y	Y	Y	N	NA	NA
12	Emerald People's Utility District	Y	Y	Y	Y	Y	N	NA	NA
13	Mapleton Water District	Y	Y	Y	Y	Y	Y	NA	NA
14	City of Eugene	Y	Y	Y	Y	Y	Y	NA	NA
15	Eugene Water and Electric Board	Y	Y	Y	Y	Y	Y	N/A	N/A
16	Rainbow Water and Fire District	Y	Y	Y	Y	Y	Y	N/A	N/A
17	City of Springfield	Y	N	N	N	Y	N	N/A	N/A

Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been “met” or “not met.” FEMA completes the “required revisions” summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is “not met.” Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

Element A: Planning Process

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))		
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan’s development, as well as who was involved?	Volume I: Section 6, pp. 176–191 Appendix A, pp. 28–58 Vol. II, Sec. 8.1, pp. 6–8; Sec. 8.3, pp. 10–15; App. 8.B Vol. II, Sec. 13.1, pp. 3–4; Sec. 13.2, p. 8; Sec. 13.5, p. 41; Sec. 13.7, pp. 1–5 Vol. II, Sec. 16.1, p. 3; Sec. 16.3, pp. 6–7; Sec. 16.6, p. 28	Met

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?</p>	<p>Volume I: Section 1, pp. 11–13; Section 6, p. 177</p> <p>Volume II: Annex sections on “Natural Hazard Mitigation Meetings and Work Sessions,” including 9.3, p. 106; Section 10.2, p. 114; Section 11.3, p. 124</p> <p>Volume III: Appendix A, pp. 28–58</p> <p>Vol. II, Sec. 8.3, pp. 10–15; App. 8.B</p> <p>Vol. II, Sec. 13.2, p. 8</p> <p>Vol. II, Sec. 16.3., pp. 6–7</p>	<p>Met</p>
<p>A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))</p>		
<p>A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?</p>	<p>Vol. I, Sec. 6.3, pp. 179–182; Sec. 6.5, pp. 186–191</p> <p>Vol. II, Sec. 8.1, p. 8; Sec. 8.3, pp. 11–15; App. 8.B</p> <p>Vol. II, Sec. 13.2, p. 8; Sec. 13.5, p. 41; Sec. 13.7, pp. 1–5</p> <p>Vol. II, Sec. 16.1, p. 3; Sec. 16.3, pp. 6–7; Sec. 16.6, p. 28</p>	<p>Met</p>

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))</p> <p>A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?</p>	<p>Volume I: Section 6, pp. 183–186</p> <p>Volume III: Appendix B, pp. 6–27</p> <p>Vol. I, Sec. 6.3.5, p. 182; Sec. 6.4, pp. 182–186; App. B, pp. 6–27;</p> <p>Vol. II, Sec. 8.3.4, pp. 14–15; App. 8.B</p> <p>Vol. II, Sec. 13.2, p. 8; Sec. 13.5, p. 41; Sec. 13.7, pp. 1–5</p> <p>Vol. II, Sec. 16.3, p. 7; Sec. 16.6, p. 28</p>	<p>Met</p>

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))</p> <p>A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?</p>	<p>Volume I: Section 2.2.4 GIS Figures; Section 3.1, pp. 128-135; Section 3.4, pp. 139-144; Section 4.2, pp. 147-148</p> <p>Volume II: Section 1.2</p> <p>Vol. I, Sec. 2.2.4, p. 65; Sec. 3.1, pp. 125-132; Sec. 3.4, pp. 136-139; Sec. 4.2, pp. 143-144; Sec. 5.2, pp. 173-174</p> <p>Vol. II, Sec. 8.4. pp. 17-33; Sec. 8.5, pp. 33-35; Sec. 8.7, p. 43</p> <p>Vol. II, Sec. 13.5, pp. 39-40</p> <p>Vol. II, Sec. 16.6, pp. 25-26</p>	<p>Met</p>

ELEMENT A REQUIRED REVISIONS
Required Revisions:

Element B: Risk Assessment

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))</p>		
<p>B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?</p>	<p>Volume I: Section 2.1, pp. 19, 24–25 Volume II: Section 1.4 Vol. I, Sec. 2.1, pp. 19–20, 24–25 Vol. II, Sec. 8.4, pp. 16–24 Vol. II, Sec. 13.3, pp. 9–10 Vol. II, Sec. 16.4, pp. 7–10</p>	<p>Met</p>
<p>B1-b. Does the plan include information on the location of each identified hazard?</p>	<p>Volume I: Section 2.2, pp. 25–106 Volume II: Section 1.4 Vol. I, Sec. 2.2, pp. 25–106 Vol. II, Sec. 8.4, pp. 24–33 Vol. II, Sec. 13.3, pp. 11–14 Vol. II, Sec. 16.4, pp. 10–13</p>	<p>Met</p>

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1-c. Does the plan describe the extent for each identified hazard?	Volume I: Section 2.2, pp. 25–106 Volume II: Section 1.4 Vol. I, Sec. 2.2, pp. 25–106 Vol. II, Sec. 8.4, pp. 20–33 Vol. II, Sec. 13.3, pp. 11–14 Vol. II, Sec. 16.4, pp. 10–13	Met
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Volume I: Executive Summary, p. 2; Section 2.1, pp. 21; 23; Section. 2.2, pp. 25–106 Volume II: Section 1.4 Vol. I, Exec., pp. 1–2; Sec. 2.1, pp. 20–23; Sec. 2.2, pp. 25–106 Vol. II, Sec. 8.4, pp. 18–32 Vol. II, Sec. 13.3, pp. 9–14 Vol. II, Sec. 16.4, pp. 8–13	Met
B1-e. Does the plan include the probability of future events for each identified hazard? Does the plan describe the effects of future conditions, including climate change (e.g., long-term weather patterns, average temperature and sea levels), on the type, location and range of anticipated intensities of identified hazards?	Volume I: Section 2.2, pp. 25–106 Volume II: Section 1.4 Vol. I, Sec. 2.1, pp. 18–19; Sec. 2.2, pp. 25–106 Vol. II, Sec. 8.4, pp. 17–32 Vol. II, Sec. 13.3, pp. 10–14 Vol. II, Sec. 16.4, pp. 8–10	Met

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?</p>	<p>Volume II: Annex Sections on “Hazard Quantification” and subsections on “Individual Hazard Discussions”</p> <p>Vol. II, Sec. 8.4, pp. 16–24</p> <p>Vol. II, Sec. 13.3, pp. 9–10</p> <p>Vol. II, Sec. 16.4, pp. 7–10</p>	<p>Met</p>
<p>B2. Does the plan include a summary of the jurisdiction’s vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))</p>		
<p>B2-a. Does the plan provide an overall summary of each jurisdiction’s vulnerability to the identified hazards?</p>	<p>Volume I: Section 2.2, pp. 25–106; Section 2.3, pp. 107–124</p> <p>Volume II: Annex subsections on “Individual Hazard Discussions”</p> <p>Vol. II, Sec. 8.2, pp. 9–10; Sec. 8.4, pp. 17–35; Sec. 8.5, pp. 33–35</p> <p>Vol. II, Sec. 13.1, pp. 3, 5–7; Sec. 13.3, pp. 10–14</p> <p>Vol. II, Sec. 16.2, pp. 4–6; Sec. 16.4, pp. 8–13</p>	<p>Met</p>

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?</p>	<p>Volume I: Section 2.2, pp. 25–106</p> <p>Volume II: Annex subsections on “Individual Hazard Discussions”</p> <p>Vol. II, Sec. 8.2, pp. 9–10; Sec. 8.4, pp. 17–35; Sec. 8.5, pp. 33–35</p> <p>Vol. II, Sec. 13.1, pp. 3, 5–7; Sec. 13.3, pp. 10–14</p> <p>Vol. II, Sec. 16.2, pp. 4–6; Sec. 16.4, pp. 8–13</p>	<p>Met</p>
<p>B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?</p>	<p>Volume I: Section 2.3, pp. 114–115</p> <p>Volume II: Annex sections on “National Flood Insurance Program”</p> <p>Vol. I, Sec. 2.3, pp. 114–115</p> <p>Vol. II, Sec. 8.4, p. 28</p>	<p>Met</p>

ELEMENT B REQUIRED REVISIONS
<p>Required Revisions:</p>

Element C: Mitigation Strategy

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C1. Does the plan document each participant’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	Volume I: Section 3, pp. 128–139 Vol. I, Sec. 3, pp. 128–144 Vol. II, Sec. 8.4, pp. 27–28, 31; Sec. 8.5, pp. 33–35; Sec. 8.6, pp. 35–36; Sec. 8.7, p. 43 Vol. II, Sec. 13.5, pp. 39–41 Vol. II, Sec. 16.2, p. 4; Sec. 16.6, pp. 25–26	Met
C1-b. Does the plan describe each participant’s ability to expand and improve the identified capabilities to achieve mitigation?	Volume I: Sections 3.2–3.4, pp. 136–144 Vol. I, Sec. 3, pp. 139–144 Vol. II, Sec. 13.5, pp. 39–41	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	<p>Volume I: Section 2.2, pp. 56–60; Section 2.3, pp. 114 – 115; Section 3.1, pp. 128–129</p> <p>Volume II: Annex sections on “Plan Implementation and Maintenance” and subsections on “National Flood Insurance Program”</p> <p>Vol. I, Sec. 2.2, pp. 56, –60; Sec. 2.3, pp. 114–115; Sec. 3.1, pp. 132–135</p> <p>Vol. II, Sec. 8.4, pp. 27–28; Sec. 8.5, pp. 33–34</p>	Met
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	<p>Volume I: Executive Summary, pp. 1–2; Section 4.1, pp. 145–147</p> <p>Volume II: Section 1.5</p> <p>Vol. I, Exec., pp. 1–2; Sec. 4.1, pp. 145–147</p> <p>Vol. II, Sec. 8.6, p. 35</p>	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Volume I: Section 4.3, pp. 150–160 Volume II: Annex sections on “Mitigation Action Items” Vol. I, Sec. 4.2, pp. 147–150; Sec. 4.3, pp. 150–170 Vol. II, Sec. 8.6, pp. 35–42; App. 8.A, pp. 46–55 Vol. II, Sec. 13.4, pp. 15–24; Sec. 13.5, pp. 24–39 Vol. II, Sec. 16.5, pp. 14–24	Met
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan’s risk assessment?	Volume I: Section 4.3, pp. 150–160 Volume II: Annex sections on “Hazard Quantification” and “Mitigation Action Items” Vol. II, Sec. 8.4, p. 16; Sec. 8.6, pp. 36–42 Vol. II, Sec. 13.4, pp. 15–24; Sec. 13.5, p. 34 Vol. II, Sec. 16.5, pp. 14–24	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))		
C5-a. Does the plan describe the criteria used for prioritizing actions?	Volume I: Section 4.2, pp. 147–150 Vol. I, Sec. 4.2, pp. 147–150 Vol. II, Sec. 8.6, pp. 35–36 Vol. II, Sec. 13.1, p. 8; Sec. 13.3, p. 10 Vol. II, Sec. 16.05, p. 14	Met
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	Volume I: Section 4.3, pp. 150–160 Vol. II, Sec. 8.6, pp. 36–42 Vol. II, Sec. 13.4, pp. 15–24 Vol. II, Sec. 16.5, pp. 14–24	Met
ELEMENT C REQUIRED REVISIONS		
Required Revisions:		

Element D: Plan Maintenance

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	Volume I: Section 5.1, pp. 171-72; Section 5.3, pp. 174-175; Section 6.4, pp. 182-186 Vol. I, Sec. 5.3, pp. 174-175 Vol. II, Sec. 8.7, p. 44 Vol. II, Sec. 13.5, p. 41 Vol. II, Sec. 16.6, pp. 25, 28	Met
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	Volume I: Section 5.1, pp. 171-173 Vol. I, Sec. 5.3, pp. 174-175 Vol. II, Sec. 8.7, p. 44 Vol. II, Sec. 13.5, p. 41 Vol. II, Sec. 16.6, pp. 25, 28	Met
D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	Volume I: Section 5.1, pp. 171-173 Vol. I, Sec. 5.3, pp. 174-175 Vol. II, Sec. 8.7, p. 44 Vol. II, Sec. 13.5, p. 41 Vol. II, Sec. 16.6, pp. 25, 28	Met

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	Volume I: Section 5.1, pp. 171-72 Vol. I, Sec. 5.3, pp. 174-175 Vol. II, Sec. 8.7, p. 44 Vol. II, Sec. 13.5, p. 41 Vol. II, Sec. 16.6, pp. 25, 28	Met
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?	Volume I: Section 3.1, pp. 128-135; Section 4.2, pp. 147-149; Section 5.2, pp. 173-174 Vol. I, Sec. 3.1, pp. 128-135; Sec. 4.2, pp. 148-150; Sec. 5.2, pp. 173-174 Vol. II, Sec. 8.7, pp. 42-43 Vol. II, Sec. 13.5, pp. 39-41 Vol. II, Sec. 16.6, pp. 25-26	Met

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?</p>	<p>Volume I: Section 3.1, pp. 128–135; Section 4.2, pp. 147–149; Section 5.2, pp. 173–174</p> <p>Volume II: Annex sections on “Plan Implementation and Maintenance” and “Applicable Regulations and Plans”</p> <p>Vol. I, Sec. 3.1, pp. 128–135; Sec. 4.2, pp. 148–150; Sec. 5.2, pp. 173–174</p> <p>Vol. II, Sec. 8.7, pp. 42–43</p> <p>Vol. II, Sec. 13.5, pp. 39–41</p> <p>Vol. II, Sec. 16.6, pp. 25–26</p>	<p>Met</p>
<p>D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?</p>	<p>Volume II: Annex sections on “Plan Implementation and Maintenance” and “Applicable Regulations and Plans”</p> <p>Vol. I, Sec. 3.1, pp. 128–135; Sec. 4.2, pp. 148–150; Sec. 5.2, pp. 173–174</p> <p>Vol. II, Sec. 8.7, pp. 42–43</p> <p>Vol. II, Sec. 13.5, pp. 39–41</p> <p>Vol. II, Sec. 16.6, pp. 25–26</p>	<p>Met</p>

ELEMENT D REQUIRED REVISIONS

Required Revisions:

Element E: Plan Update

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community’s vulnerability since the previous plan was approved?	<p>Volume I: Section 1, pp. 4–17; Section 2.3, pp. 107–124; Section 3.1, pp. 128–132; Section 6.4, pp. 186–191</p> <p>Volume II: Annex sections on “New Development in Hazard Areas”</p> <p>Vol. II, Sec. 8.4, pp. 25–26, 30–31, 33; Sec. 8.5, pp. 33–35</p> <p>Vol. II, Sec. 13.1, pp. 6–7; Sec. 13.6, p. 13</p> <p>Vol. II, Sec. 16.2, pp. 5–6; Sec. 16.4, p. 13</p>	Met

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	<p>Volume I: Section 4.1, pp. 145–150; Section 6.1 and 6.2, pp. 177–179</p> <p>Volume II: Annex sections on “Natural Hazard Mitigation Meetings and Work Sessions”</p> <p>Vol. II, Sec. 8.1, pp. 6–8; Sec. 8.3, pp. 10–14; Sec. 8.4, pp. 16–17, 33; Sec. 8.6, pp. 35–36; App. 8.B, pp. 56–108</p> <p>Vol. II, Sec. 13.1, pp. 3–7; Sec. 13.2, p. 8; Sec. 13.5, pp. 24–41</p> <p>Vol. II, Sec. 16.1, p. 3; Sec. 16.2, pp. 4–6; Sec. 16.3, pp. 6–7; Sec. 16.5, pp. 14–20</p>	Met
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	<p>Volume I: Section 4.4, pp. 161–169</p> <p>Vol. II, Sec. 8.6, pp. 37–42; App. 8.A, pp. 46–55</p> <p>Vol. II, Sec. 13.4, pp. 24–39</p> <p>Vol. II, Sec. 16.5, pp. 14–20</p>	Met

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	Volume II: Annex sections on “Plan Implementation and Maintenance” and “Applicable Regulations and Plans” Vol. II, Sec. 8.4, p.17; Sec. 8.7, p. 43 Vol. II, Sec. 13.4, pp. 39–40 Vol. II, Sec. 16.6, pp. 25–26	Met

ELEMENT E REQUIRED REVISIONS

Required Revisions:

Element F: Plan Adoption

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F1-a. Does the participant include documentation of adoption?	Click or tap here to enter text.	Choose an item.
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	Click or tap here to enter text.	Not Met

ELEMENT F REQUIRED REVISIONS

Required Revisions:

F2-a. Will be met once formally adopted:

Element G: High Hazard Potential Dams (Optional)

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?		
HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency?	Click or tap here to enter text.	Choose an item.
HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners?	Click or tap here to enter text.	Choose an item.
HHPD2. Did the plan address HHPDs in the risk assessment?		
HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD2-b. Does the plan document the limitations and describe how to address deficiencies?	Click or tap here to enter text.	Choose an item.
HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?		
HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies?	Click or tap here to enter text.	Choose an item.
HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals?	Click or tap here to enter text.	Choose an item.
HHPD4-a. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?		
HHPD4-a. Does the plan describe specific actions to address HHPDs?	Click or tap here to enter text.	Choose an item.

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD Required Revisions		
Required Revision: Click or tap here to enter text.		

Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan (section and/or page number)	Met / Not Met
This space is for the state to include additional requirements.		
The State imposes no additional requirements upon local NHMPs.	Click or tap here to enter text.	Choose an item.

Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

Element A. Planning Process

Strengths

- The Exploratory Scenario Planning Workshops were a unique way to think across the region and engage experts. FEMA encourages future conditions in hazard mitigation planning. This will reduce long-term risk and build community resilience.
- You must account for underserved and socially vulnerable groups in the planning process. One way the plan addressed this is through mailings to rural county residents. Make sure you follow through with in-person events to broaden their impact (p. 177).

Opportunities for Improvement

- The plan could better explain the role of the three utility participants in the larger steering committee. The city and utility annexes included contacts. That said, their roles were not as clear in the County Base Plan.

Element B. Risk Assessment

Strengths

- The plan looks at a range of potential impacts from climate change for each hazard.
- The city and utility annexes are strong in how they rank and describe location-specific hazards.

Opportunities for Improvement

- The Vulnerability Assessment names people, structures and systems at risk. Still, the section would be stronger if the assets related to specific hazards. Maps or other visuals would help make the connection.

Element C. Mitigation Strategy

Strengths

- The strategy includes a mix of actions, such as structural and planning tools. Finding places for rural water storage and Resiliency Hubs shows how mitigation can help vulnerable groups.
- Mitigation actions for Mapleton Water District are comprehensive and help show the

Opportunities for Improvement

- The plan describes an in-depth process for ranking mitigation actions. That said, “Vetting action items and prioritization” could be clearer. What does the community value in terms of benefits? What is the tradeoff in terms of costs? Factors can be quantitative or qualitative.

-
- Some participants should look into adding specific actions to address high-risk hazards. For instance, Lane County and the city of Creswell could target winter storms.

Element D. Plan Maintenance

Strengths

- There are strong goals and processes for plan integration. The mention of planning mechanisms is thorough. The plan also commits to a mitigation action on a safe growth audit to connect land use and mitigation.

Opportunities for Improvement

- The plan could vary up its plan for public outreach by accounting for groups in “Demographics and Communities” (Section 1.2) and “Vulnerability Assessment” (Section 2.3). Another way to commit to public outreach is linking these groups to where Resilience Hubs are (p. 170).

Element E. Plan Update

Strengths

- The plan uses data and examples to show how the community’s mitigation priorities have changed since the last update. In the future, a summary narrative would help spell out the key changes.

Opportunities for Improvement

- The plan describes changes in development throughout the plan, especially the hazard profiles and annexes. Visuals would help bolster this information. Think about layering hazard data with assets that could be at risk (e.g., building permit locations).

Element G. HHPD Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element H. Additional State Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]