COUNCIL RESOLUTION NO. 5446

A RESOLUTION ADOPTING THE CITY OF EUGENE ANNEX TO THE LANE COUNTY MULTI-JURISDICTIONAL NATURAL HAZARDS MITIGATION PLAN; AND REPEALING RESOLUTION NO. 5303.

PASSED: 7:0

REJECTED:

OPPOSED:

ABSENT: Zelenka

CONSIDERED: May 12, 2025

RESOLUTION NO. 5446

A RESOLUTION ADOPTING THE CITY OF EUGENE ANNEX TO THE LANE COUNTY MULTI-JURISDICTIONAL NATURAL HAZARDS MITIGATION PLAN; AND REPEALING RESOLUTION NO. 5303.

The City Council of the City of Eugene finds that:

A. The City of Eugene recognizes the threat that natural hazards pose to people and property within our community and that undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences.

B. The Federal Emergency Management Agency ("FEMA") requires the City to adopt a city-wide natural hazard mitigation plan ("NHMP") to serve as a representation of the City's commitment to reduce risks from natural hazards, a guide for decision makers as they commit resources to reducing the effects of natural hazards, and to qualify the city for grant funds under FEMA's Hazard Mitigation Grant Program and other mitigation project grants.

C. FEMA requires the City to update its NHMP every five years.

D. Since 2004, the City of Eugene has addressed FEMA's requirement through a joint NHMP with the City of Springfield and area service providers, most recently updated on June 24, 2020, by Resolution No. 5303, when the Eugene City Council adopted the "Eugene-Springfield Area Multi-Jurisdictional Natural Hazards Mitigation Plan 2020."

E. The 2025 update will change the region's approach to addressing FEMA's NHMP requirement, with both Eugene and Springfield adopting "annex plans" that will become a part of the Lane County Multi-Jurisdictional Natural Hazards Mitigation Plan, a county-wide plan assessing and outlining mitigation strategies for hazards specific to regional geography.

F. The City of Eugene fully participated in the FEMA-prescribed mitigation planning process to prepare "Section 4: City of Eugene Annex to the Lane County Multi-Jurisdictional Natural Hazards Mitigation Plan" attached as Exhibit A.

G. The Oregon Office of Emergency Management and Federal Emergency Management Agency, Region 10 (X) officials have reviewed the City of Eugene Annex to the Lane County Multi-Jurisdictional Natural Hazards Mitigation Plan and have pre-approved it contingent upon this official adoption of the participating governments and entities.

NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF EUGENE, a Municipal Corporation of the State of Oregon, as follows:

Section 1. The "City of Eugene Annex to the Lane County Multi-Jurisdictional Natural Hazards Mitigation Plan" attached as Exhibit A is adopted.

Section 2. Resolution No. 5303 is repealed.

Section 3. The City Manager, or the Manager's designee, is requested to submit a copy of this Resolution, including Exhibit A, to Lane County for its inclusion as Volume II, Section 4 of the Lane County Multi-Jurisdictional Natural Hazards Mitigation Plan and submittal to the Oregon Office of Emergency Management and Federal Emergency Management Agency, Region 10 (X) officials to obtain formal approval of the Plan.

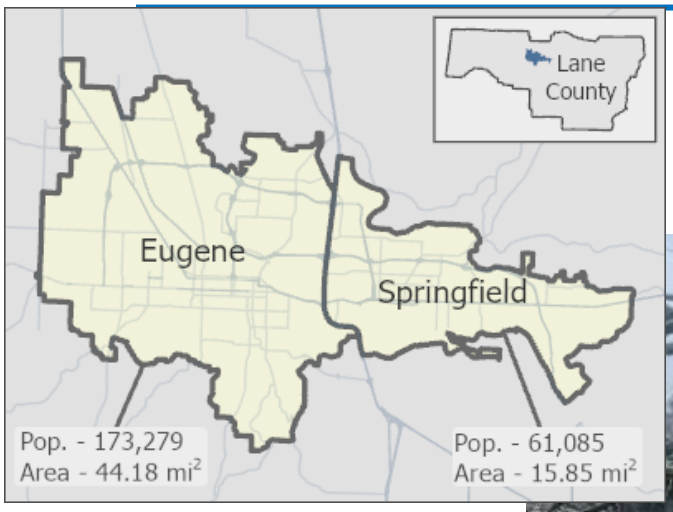
Section 4. This Resolution is effective immediately upon its passage by the City Council.

The foregoing Resolution adopted the 12th day of May, 2025

City Recorder

Section 4: City of Eugene Annex

to the Lane County Multi-Jurisdictional Natural Hazard Mitigation Plan



January 2025

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Acronyms (A)

Table 4.7. 1: Acronyms

A	Description	A	Description
COE	City of Eugene	FIRMs	Flood Insurance Rate Maps
COS	City of Springfield	GIS	Geographic Information Systems
CWPP	Community Wildfire Protection Plan	HRA	Hazard Risk Assessment
DLCD	OR Dept. of Land Conservation & Devp.	MAI	Mitigation Action Item(s)
DOC	Department Operations Center	MJNHMP	Multi-Jurisdictional NHMP
DOGAMI	OR Dept. of Geology and Mineral Industries	MWMC	Metropolitan Wastewater Mgmt. Commission
DPW	Development & Public Works	NHMP	Natural Hazard Mitigation Plan
EDI	Equity, Diversity, Inclusion	ODF	OR Dept. of Forestry
EM	Emergency Management	OEM	OR Dept. of Emergency Mgmt.
EOC	Emergency Operations Center	PW	Public Works
EOP	Emergency Operations Plan	RWD	Rainbow Water District
EPUD	Emerald People's Utility District	SFHAs	Special Flood Hazard Areas
EWEB	Eugene Water & Electric Board	SUB	Springfield Utility Board
FEMA	Federal Emergency Mgmt. Agency	WPRD	Willamalane Park and Rec. District

04.01 Introduction and History

In 2004 and 2005, the Cities of Eugene and Springfield developed their first Natural Hazards Mitigation Plan (NHMP) entitled "Multi-Hazard Mitigation Plan for the Eugene/Springfield Metropolitan Area." Due to the proximity of the cities and shared risks for most of the identified natural hazards it was agreed upon to pool resources, convert the current plan into a multi-jurisdictional plan and broaden participation. Area utility providers who provided strong foundational participation in the plan development and participating in the natural hazard mitigation committee were Eugene Water & Electric Board (EWEB), Rainbow Water District (RWD) and Springfield Utility Board (SUB). There after the COE/COS NHMP was successfully renewed and approved by FEMA every five years.

In 2017, with the guidance from the Oregon Department of Emergency Management (OEM), both jurisdictions decided to reorganize the structure of the NHMP to better align with "special district" requirements set forth by the Robert T. Stafford Act, as amended by the Disaster Mitigation Act (DMA). Since EWEB, RWD, and SUB invested a significant amount of time assisting with the development of the plan, they agreed formal adoption of the MJNHMP was in their best interest to ensure their eligibility to participate in the programs outlined within the Stafford Act. The plan was renamed to "City Eugene and City of Springfield Multi-Jurisdictional Natural Hazards Mitigation Plan" (COE/COS MJNHMP). In May of 2020 the next plan was successfully renewed with approval by FEMA.

In 2023 Willamalane Park and Recreation District indicated interest in joining the multi-jurisdictional plan and began the process to onboard for the upcoming May 2025 plan renewal. Also in 2023, Lane County successfully a renewal process and brought on four (4) additional annex plan participants: Blachly-Lane Electric Co-op, Consumers Power Inc., Emerald People's Utility District, and City of Lowell. With these additions the County MJNHMP included eight (8) cities and three (3) utility providers as annex plan partners.

In early 2024 the COE/COS MJNHMP Committee selected to adopt the state hazard risk assessment methodology that was also utilized by Lane County. This transition provided for an aligned risk assessment of the area hazards specifically for the COE/COS annex holders as many of them had overlapping service areas outside of the city's jurisdiction. This transition provided for a continuity of risk assessment across disciplines such as fire and floodplain management and most Lane County jurisdictions. The response to both the 2020 global pandemic and the catastrophic 2020 Oregon wildfires identified the need for more collaborative and integrated processes for preparedness, mitigation, response and recovery efforts among regional jurisdictions.

As the 2025 COE/COS MJMJNHMP renewal process continued the City of Eugene expressed interest to evaluate whether an integration with or complete transition to the County Multi-Jurisdictional Natural Hazard Mitigation Plan (MJNHMP); would benefit the plan holders, area cooperators and be in the public's best interest. Eugene staff identified transition to the County plan would provide many benefits such as:

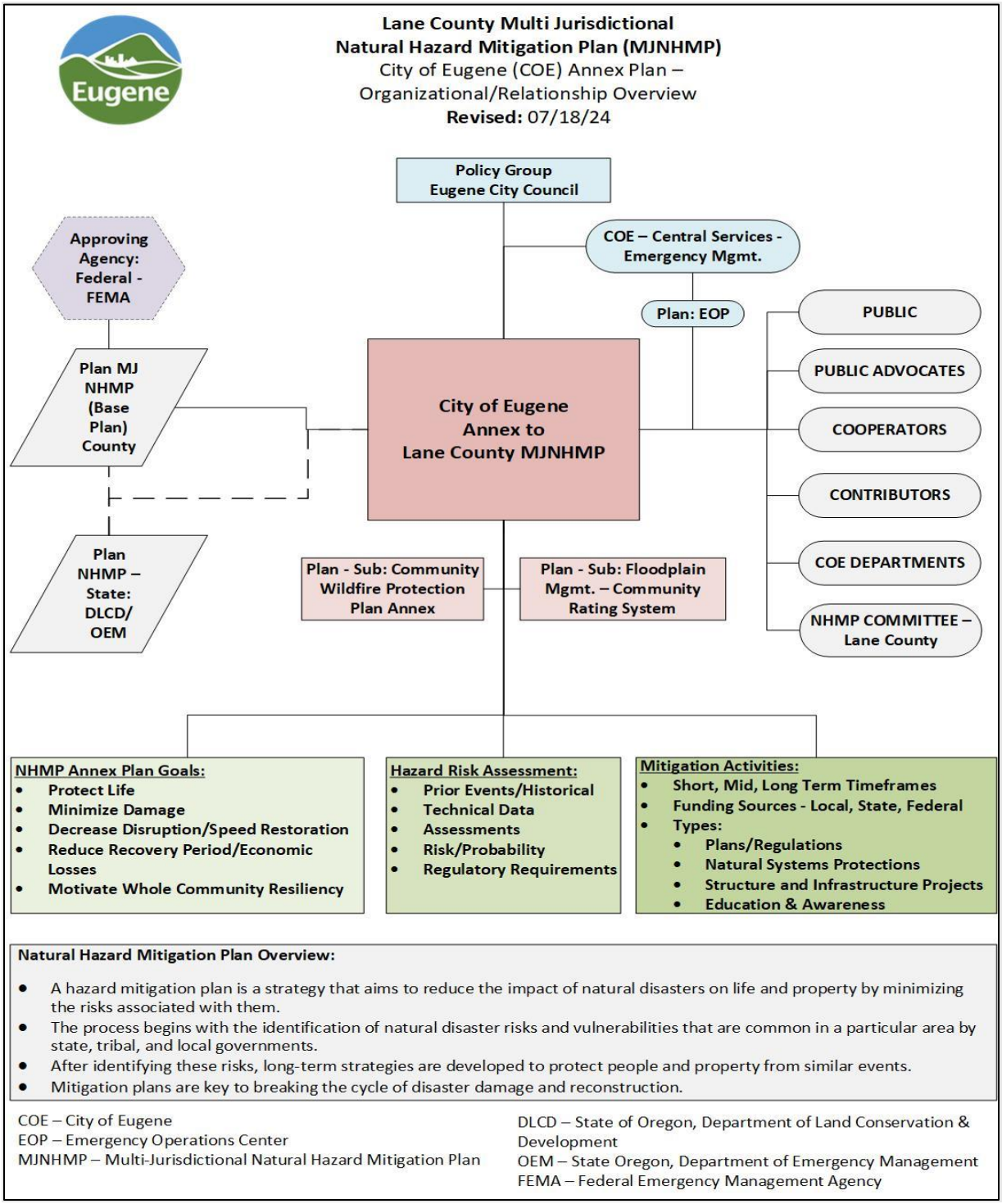
- Continuity of the risk assessment process among many jurisdictions that are already incorporated within the county MJNHMP – shared resources for research, analysis of risk and impacts to area populations and infrastructure.
- Consolidated planning efforts in response to those identified risks specific to mitigation strategies and potential regional grant project alignments and applications.
- Expanded ability to conduct capabilities assessment to a larger service area – more in line with an actual response with mutual aid resource requests.
- Consolidated public engagement, i.e., reduction of duplicate efforts engaging with the public on same subject matters but initiated in different cycles.
- Provide for a more regional approach to partnerships for annex holders; planning, on-going natural hazard committee meetings would incorporate a larger partnership vs. limited to a smaller geographical area.

The City of Eugene agreed with the concept of transitioning to the County MJNHMP, consulted with Lane County Emergency Management and the Oregon Department of Emergency Management (OEM). OEM consulted with the Federal Emergency Management Agency (FEMA) regarding approval timeframes and received favorable opinion the transition could take place as long as the annex plans were submitted to the County by their post one year approval date of October 17, 2024.

Both the City of Eugene and City of Springfield as well as their current annex holders agreed to move forward with the transition. The current COE/COS MJNHMP plan will be retired once the annex plans are approved by FEMA. Separate public engagement events were held on September 4th and September 10th, 2024, to allow the public to provide feedback on the individual annex plans and their individual feedback on the hazard risk assessments, and mitigation strategies.

Figure 4.9.1 outlines the organizational relationship between the City of Eugene MJNHMP annex plan, their cooperators, city departments, the public and coordination with County, State and Federal plans.

Figure 4.9. 1: COE MJNHMP Annex Plan Organizational/Relationship Overview



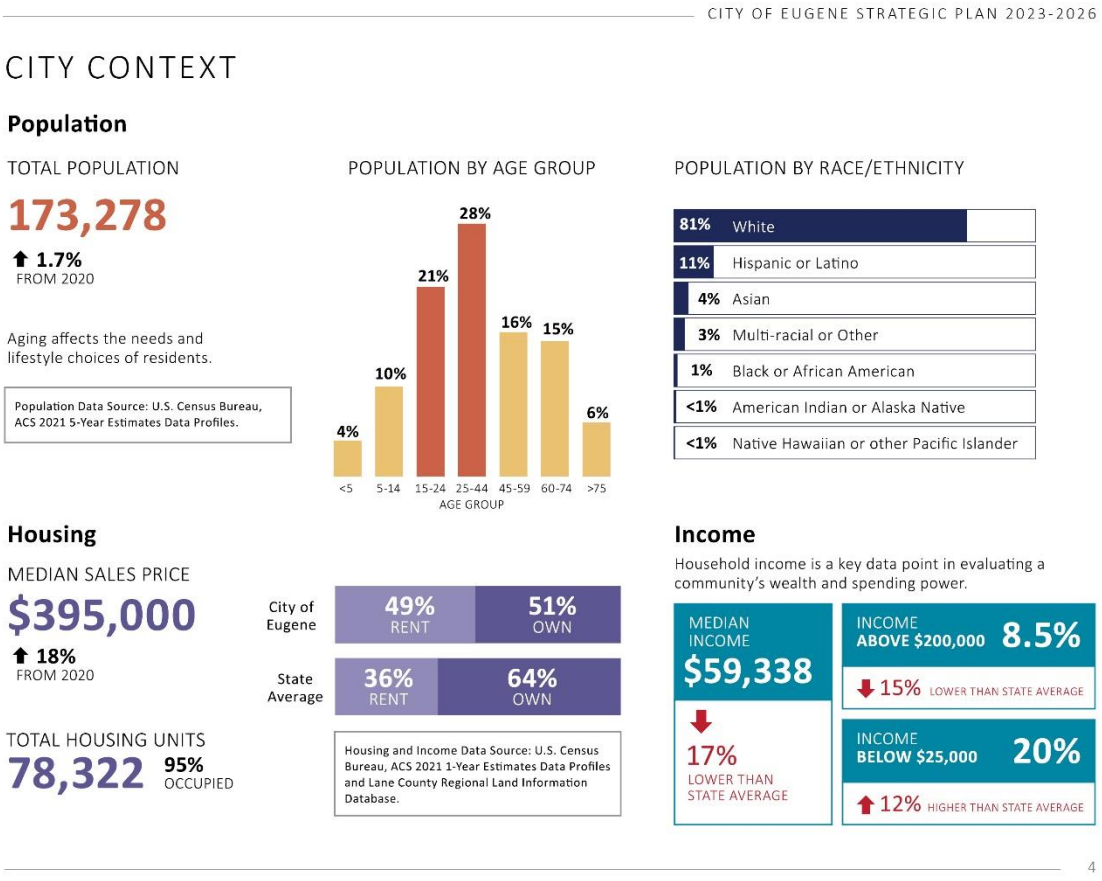
[Source: City of Eugene]

04.02 Jurisdictional Profile and Background

Lane County is the fourth most populous county in Oregon with an estimated population of 383,958 in 2020. The population is dispersed among 12 incorporated cities, the largest of which is the City of Eugene (the county seat), and nearly two dozen unincorporated communities. The City of Eugene is the second largest city in Oregon just ahead of Salem, the state capital per US Census June of 2024. Eugene has a land area of 44.18 square miles with a population of 3,998 per square mile.

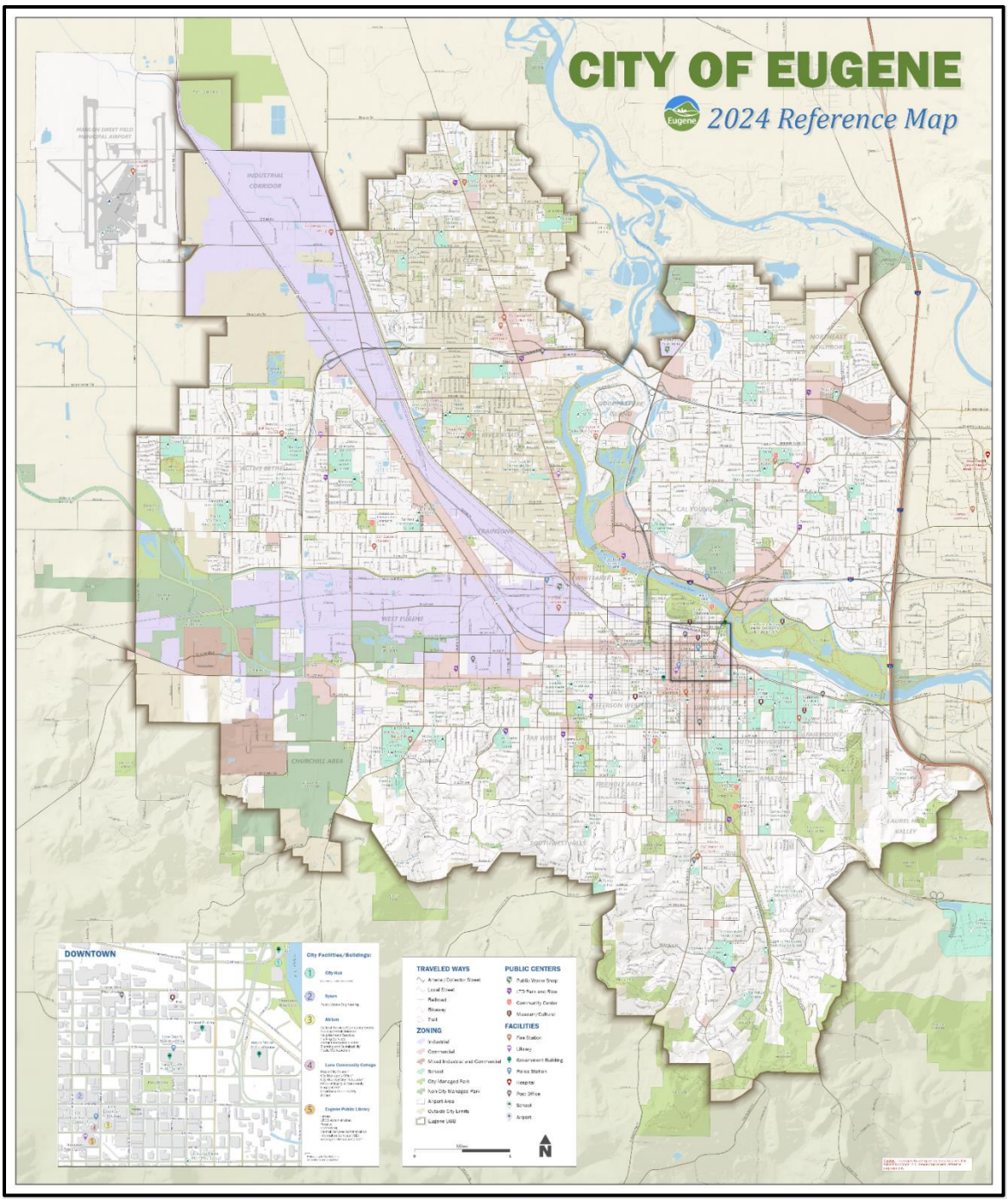
Figure 4.9.2 provides an overview of Eugene's population demographics as outlined in the City Strategic Plan 2023 – 2026.

Figure 4.9. 2: City of Eugene Population Demographics



[Source: City of Eugene Strategic Plan]

Map 4.8. 1: City of Eugene 2024 Reference Map



[Source: City of Eugene]

Eugene is a full-service city with some community lifeline services provided by other agencies as described in the following table.

Lifeline	Service	Provider	Description
	Electricity	Eugene Water and Electric Board (EWEB)	EWEB is governed by an elected board and is chartered by the City of Eugene and supplies electric service within the city limits and to certain areas outside the city limits.
	Fire and Emergency Medical Services	Eugene Springfield Fire Department (ES Fire)*	ES Fire is a functionally merged department comprised of the employees, facilities, and equipment from each city, being managed and operated as a single department.
	K-12 Education	Bethel School District (BSD) and Eugene School District 4J (4J)	BSD and 4J have district boundaries within and beyond Eugene city limits.
	Parks and Recreation	River Road Park & Recreation District (RRPRD)	RRPRD provides community centers, parks, and recreation to City of Eugene and unincorporated residents in River Road and Santa Clara.
	Potable Water	Eugene Water and Electric Board (EWEB)	EWEB is governed by an elected boards and is chartered by the City of Eugene and supplies water service within the city limits and to certain areas outside the city limits.
	Public Transportation	Lane Transit District (LTD)	LTD provides transit services throughout much of Lane County
	Solid Waste	Sanipac and Lane Apex	Sanipac and Lane Apex provide solid waste management services within Eugene city limits
	Wastewater	Metropolitan Wastewater Management Commission (MWMC)*	MWMC provides wastewater conveyance from more than one jurisdiction and wastewater treatment and disposal at the regional wastewater treatment plant located in COE.

**Indicates Mitigation Action Items may be included in the COE annex.*

04.03 MJNHMP Renewal Process, Participation and Adoption

City of Eugene and City of Springfield regularly collaborated with varying agencies and community groups as they developed their prior MJNHMP's. These same collaborators continued to support these efforts as each of the entities transitioned to the County's plan. Collaborators included: advocates for business/commerce, access and functional need community members, community services, schools, utility service providers, public safety, healthcare and local government.

The process followed FEMA's *Local Mitigation Planning Policy Guide*, effective April 19, 2023, for organizing resources, identifying hazards, evaluating risk, identifying mitigation actions, and prioritizing mitigation projects.

4.3.1 COE Participating Departments and Staff

The city had a robust group of departments and staff participate in the renewal process. The Emergency Management Division assigned one staff person to act as the coordinator throughout the renewal process to support these efforts.

Table 4.7. 2: COE MJNHMP Participating Departments/Staff

City of Eugene Participating Departments – Staff Positions	
Department	**Title**
Central Services	Facilities Manager
Central Services	Emergency Manager
Central Services	MJNHMP Project Coordinator
Central Services	Senior Program Coordinator - Outreach
Central Services	Public Information Officer
Central Services	Neighborhood Services Program Coord.
Central Services	Equity and Access Planner
Eugene Springfield Fire	Deputy Chief Fire Marshal
Eugene Springfield Fire	Deputy Fire Marshal
Planning & Development	GIS Mgmt. Analyst
Planning & Development	Senior Planner
Planning and Development	Community Development Block Grants (CDBG) Program Manager
Public Works	Maintenance Director
Public Works	Operations Manager
Public Works	Floodplain Manager
Public Works	Engineer
Public Works	Civil Engineer
Public Works	Principal Civil Engineer
Public Works	Data Services Manager
Public Works	GIS Technical Specialist
Public Works	Water Resources Manager
Public Works	Public Information Officer

4.3.2 County MJNHMP Renewal Process 2022 – 2023

The City of Eugene participated as a Cooperator in two (2) of the County's work sessions. The limited participation was due in part to significant staffing turnover in the COE's Emergency Management program limiting their ability to participate further until the end of 2023. The two (2) sessions they participated in were:

- Steering Committee: Risk Assessment Meeting, 11/28/22
- Steering Committee: Mitigation Strategy, 1/23/23

4.3.3 COE/COS Workgroups and Work Sessions Supporting the Renewal/Annex Development Process

Renewal work was spread across an 18-month period from 2023 - 2024. The initial focus was on renewing the joint city MJNHMP but transitioned to a city specific annex to the County MJNHMP. The annex development occurred between May and October 2024. The renewal work was organized into workgroups to support the hazard risk assessment, mitigation strategies, annex plan development, and public engagement campaign.

City staff and area cooperators, supporting the renewal process were assigned to workgroups that most aligned with their agency/division purpose. Workplans were developed for each of the workgroups to outline roles, timelines, tasks and planned outcomes. Workgroups included: base/annex plan, hazard risk assessment, mitigation action items, and public engagement.

Reference Information for the following tables:

- # = Number of meeting participants
- COE/COS MJNHMP = City of Eugene & Springfield Multi-Jurisdictional Natural Hazard Mitigation Committee
- Lane MJNHMP = Lane County Multi-Jurisdictional Natural Hazard Mitigation Committee

Table 4.7. 3: COE/COS MJNHMP Committee Meeting Summary

COE/COS MJNHMP Committee Meeting Summary, 2022 - 2024		
Date – Length	**Purpose**	**#**
01/24/22 – 1.5hrs	Quarterly MJNHMP Meeting – Standard discussion items, ***2025 plan renewal kickoff***	7
05/23/22 – 1.5hrs	Quarterly MJNHMP Meeting – Standard discussion items, FEMA local mitigation planning policy overview	8
10/24/22 – 1.5hrs	Quarterly MJNHMP Meeting – Standard discussion items, plan renewal schedule update, hazard inclusion update.	13
01/23/23 – 1.5hrs	Quarterly MJNHMP Meeting – Standard discussion items, FEMA preliminary NFIP maps available for public comment, COS new MAI – drought/heat planting in underserved/economically disadvantaged neighborhoods.	5
04/24/23 – 2hrs	Quarterly MJNHMP Meeting – Standard discussion items, discuss different hazard risk assessment options for plan renewal.	5
08/28/23 – 2hrs	Quarterly MJNHMP Meeting – Standard discussion items, begin plan renewal discussions – hazard risk assessment, mitigation action item tracking, base plan section updates, initial public event planning.	12
10/23/23 – 2hrs	Quarterly MJNHMP Meeting – Standard discussion items, plan renewal update, introduction of new MJNHMP planner, and assessment of current membership/discipline representation.	13
02/05/24 – 2hrs	Quarterly MJNHMP Meeting – Additional members added from varying disciplines (other utilities, academia, non-profit, business, community advocates, additional city departments), status update of plan renewal: timeline, table of contents, goals survey summary, implemented workgroups.	16
04/29/24 – 2hrs	Quarterly MJNHMP Meeting – Status update of plan renewal: initial status summary of 2020 MAI's, first draft of updated hazard risk assessment, review public engagement campaign schedule.	24

07/22/24 – 2hrs	Quarterly MJNHMP Meeting – Discuss annex plans transition, public engagement campaign, retire COE/COS MJNHMP Committee and transition to Lane MJNHMP Committee process.	11

Table 4.7. 4: Workgroup -Annex Plan Collaboration Meetings Summary

Workgroup – Annex Plan Collaboration Meetings Summary			
A renewal progress report was created to track the progress of each of the annex plan holders and city departments as noted below. MJNHMP Coordinator met in person initially with each of the agencies/departments then continued to update progress virtually through end of renewal cycle. Participation and progress tracked: participation of the COE/COS MJNHMP Committee and activities, other workgroup activities, MJNHMP training, updates to mitigation action items.			
Date-Length	**Agency**	**Purpose**	**#**
03/13/24 – 1.5hr	COS EM/PW	Collaboration and initial check in meeting held: - Annex plan holders: EWEB, RWD, SUB, WPR - City Departments of Eugene: Individual meetings with Public Works, Floodplain Management, Planning, Emergency Management - City of Springfield: Group Meetings with Public Works, Floodplain Management, Planning, Emergency Management - Eugene Springfield Fire	10
03/13/24 – 1hr	COE PW		10
03/06/24 – 1hr	EWEB		2
03/29/24 – 1hr	RWD		2
03/26/24 – 1hr	SUB		2
03/04/24 – 1hr	WPRD		2
03/25/24 – 1hr	COE/COS Fire		4
05/10 & 06/05 – 1hr each	COE, COS & Co. EM Reps	Transition to County MJNHMP Planning Sessions	3/10
06/17/24 – 1.5hr	COE & COS EM's	Collaborate on county annex template, information we can jointly carry over to our individual templates, which maps may be supporting of new annex, how prior hazard narratives relate to County and what new areas could be included.	2
07/24/24 – N/A	COE	Final review/feedback of COE Annex Plan with COE internal departmental MJNHMP representatives: EM, PW, Fire, Planning, Facilities	9
08/15/24	COE & COS EM's	Review and align final draft COE and COS annexes	2

Table 4.7. 5: Workgroup-Hazard Risk Assessment (HRA) Meeting Summary

Workgroup - Hazard Risk Assessment (HRA) Meeting Summary		
Date–Length	**Purpose**	**#**
03/21/24 – 2hrs	COE/COS Plan participants – Briefing of County 2023 HRA, review of COE/COS 2020 HRA for updates, discussion of transitioning to state HRA model.	7
04/16/24 – 2hrs	COE/COS Plan participants – Review of initial new HRA methodology (state template), begin assessing individual hazards.	9
04/25/24 – 2hrs	COE/COS Plan participants – Review updates from floodplain management, fire representatives and COS input.	4
06/04/24 – 2hrs	COE transitioned to Lane County MJNHMP. City of Eugene moving forward with Lane County HRA. Reviewed County HRA in relation to COE geographical area, made revisions, and requested additional input from COE Public Works.	6
06/21/24 – N/A	Final Review & Feedback Survey: Distributed to 19 City of Eugene department staff/leadership positions for final HRA adjustments, feedback for modifications. 3 responses received with no request for additional modifications, only clarifying questions.	20

Table 4.7. 6: Workgroup-Mitigation Action Item(s) (MAI) Meeting Summary

Workgroup - Mitigation Action Item(s) Meeting Summary

Meetings were held with each individual agency/city department then collectively reviewed and discussed with the MJNHMP Committee – prior to transition to the County MJNHMP. Meeting discussion points included:

1. Initial review of 2020 mitigation action items, support and completion of 2020 progress.
2. Development of new individual progress report – individualized for MAI to track information from beginning to conclusion of item.
3. Follow-up on remaining 2020 MAI information.
4. Assess, identify any new 2024 MAI's to incorporate and transition to individual MAI progress reports.
5. Summarize each agency, departments listing of MAI's for including in the updated plan and identification of potential funding opportunities.
6. Incorporate updates into agency/department progress report, individual annex plans.

Date-Length	Agency	Purpose (Meeting #, Review Session #)	#
04/04/24 – 1.5hr	COS	Departments: Public Works, Emergency Management, Plans	9
03/13/24 – 1hr	COE	Departments: Public Works/Floodplain Mgmt.	7
03/06/24 – 1hr	EWEB	#1-5 above	2
03/29/24 – 1hr	RWD	#1-5 above	2
03/26/24 – 1hr	SUB	#1-5 above	2
03/04/24 – 1hr	WPR	#1-5 above	2
03/25/24 – 1hr 05/27/24 – 1hr	COE/COS -Fire	#1-5 above	2 2
02/05/24 – 1hr 04/29/24 – 1hr	COE/COS MJNHMP Committee	- Review of MAI timeline & new individual MAI 2024 progress report. - 2020 overall MAI status report presented.	16 24
05/09/24 – N/A 06/21/24 – N/A	COE Internal Departments	Mid-Process Review of MAI's for 2024 plan. Final review of MAI's for 2024 plan.	13 18

Table 4.7. 7: Workgroup-Public Engagement Campaign Meeting Summary

Workgroup - Public Engagement Campaign Meeting Summary		
Date – Length	**Purpose**	**#**
03/19/24 – 2hrs	#01 Full Workgroup – initial planning meeting	14
04/12/24 – 1.5hrs	#02 PIO/EM Team Leads – tactics planning meeting	9
04/22/24 – 1hrs	#03 Full Workgroup – Campaign briefing, feedback request, preparation of MJNHMP Committee briefing for 04/29/24	7
June/July – 8hrs	#04 PIO/EM Team Leads – Finalize strategy for implementation of campaign, scheduling, survey development, logistics, public messaging.	5
08/26/2025- 09/22/2024	Campaign Kick Off Messaging Released - Media Release – Announcements - 2 Presentations - In Person (dates 09/04/2024, 0910/2024) - Public Feedback Survey	N/A 18 27
9/23/2024 – 4hrs	#05 PIO/EM Team Leads – Review results of campaign, summarize results to incorporate into annex plan. - Summary	N/A

04.04 Hazard Quantification

The natural hazards affecting the City of Eugene include but are not limited to, droughts, earthquakes, extreme weather, flooding, landslides, volcanoes, wildfires, windstorms, and winter storms. This plan does not address asteroids or meteors, geomagnetic disturbances (GMD), and pandemics because:

- The risk is very low with extremely costly and limited mitigation activities available, this mitigating the natural hazard is not warranted or is not practical; and/or
- The City of Eugene does not have the authority to mitigate the natural hazard.

Asteroid or Meteor - Mitigating asteroid or meteor strikes is beyond the financial capacity of the City. Mitigation is largely left to the federal government.

Geomagnetic Disturbance – A severe GMD may disrupt communications, the electrical power transmission grid, and long-distance pipelines. Although this hazard was included in the 2020 COE/COS MJNHMP, the City's planning team decided to remove it from this annex as the City does not have the authority to regulate these infrastructure systems or to mitigate the GMD effects upon these systems.

Pandemic - Lane County Public Health Department is the primary agency responsible for mitigating pandemics.

Conducting the hazard analysis as described in this document is a useful early step in planning for hazard mitigation, response, and recovery. This method provides the jurisdiction with a sense of hazard priorities, or relative risk. It "quantifies" the risk of one hazard compared with another, and in doing so allows for the ranking of hazards. By doing this analysis, planning can first be focused where the risk is greatest. Among other things, this hazard analysis will:

- help establish priorities for planning, capability development, and hazard mitigation;
- serve as a tool in the identification of hazard mitigation measures;
- be one tool in conducting a hazard-based needs analysis;

- serve to educate the public and public officials about hazards and vulnerabilities; and
- help communities make objective judgments about acceptable risk.

The City of Eugene utilized the Lane County hazard risk assessment as the base for their individual city assessment. The final scoring is aligned with the County assessment except for Tsunami hazard which does not impact the Eugene area. Table 4.7.9, summarizes hazard quantification results for the City of Eugene and a comparison to the county assessment.

Following the hazard quantification summary table is a brief narrative of the City of Eugene local risk profile for each hazard. The assessment was completed by the core city departments that support the MJNHMP efforts – Public Works, Emergency Management, Plannings, and Fire. The final assessment was then forwarded to city staff for a final review.

4.4.1: State Hazard Risk Assessment Initiatives

Beginning in March 2023, the State of Oregon initiated a project to upgrade the Oregon Natural Hazards Risk Assessment. The risk assessment provides the factual foundation for establishing mitigation goals and identifying and making strategic investments to reduce risks to people, property, and the natural environment from natural hazard events throughout the state. The goals are to:

- Develop and implement a public-facing comprehensive risk assessment tool in a geospatial environment that will respond to FEMA's new requirements for incorporating climate change, social vulnerability, community lifelines, and equity;
- Incorporate additional elements and information that enhance the tool to further Oregon's natural hazards mitigation and climate adaptation aspirations;
- Design the tool in a way that is useful not only for the state, but also for Native American Tribes (Tribes), cities, counties, special districts, and others for natural hazards mitigation planning.

The project encouraged local entities to participate in the process to diversify the input and considerations of application of the new tool at the local level. The City of Eugene intends to use the new tool in their MJNHMP planning efforts when the tool is finalized.

4.4.2: COE Regional Climate and Hazards Vulnerability Assessment

In 2010, the City of Eugene concluded their first climate resiliency plan in the form of the A Community Climate and Energy Action Plan for Eugene plan. Its initial goal was to identify ways to reduce greenhouse gases, community-wide fossil fuel use and strategies for reducing dependency on fossil fuels.

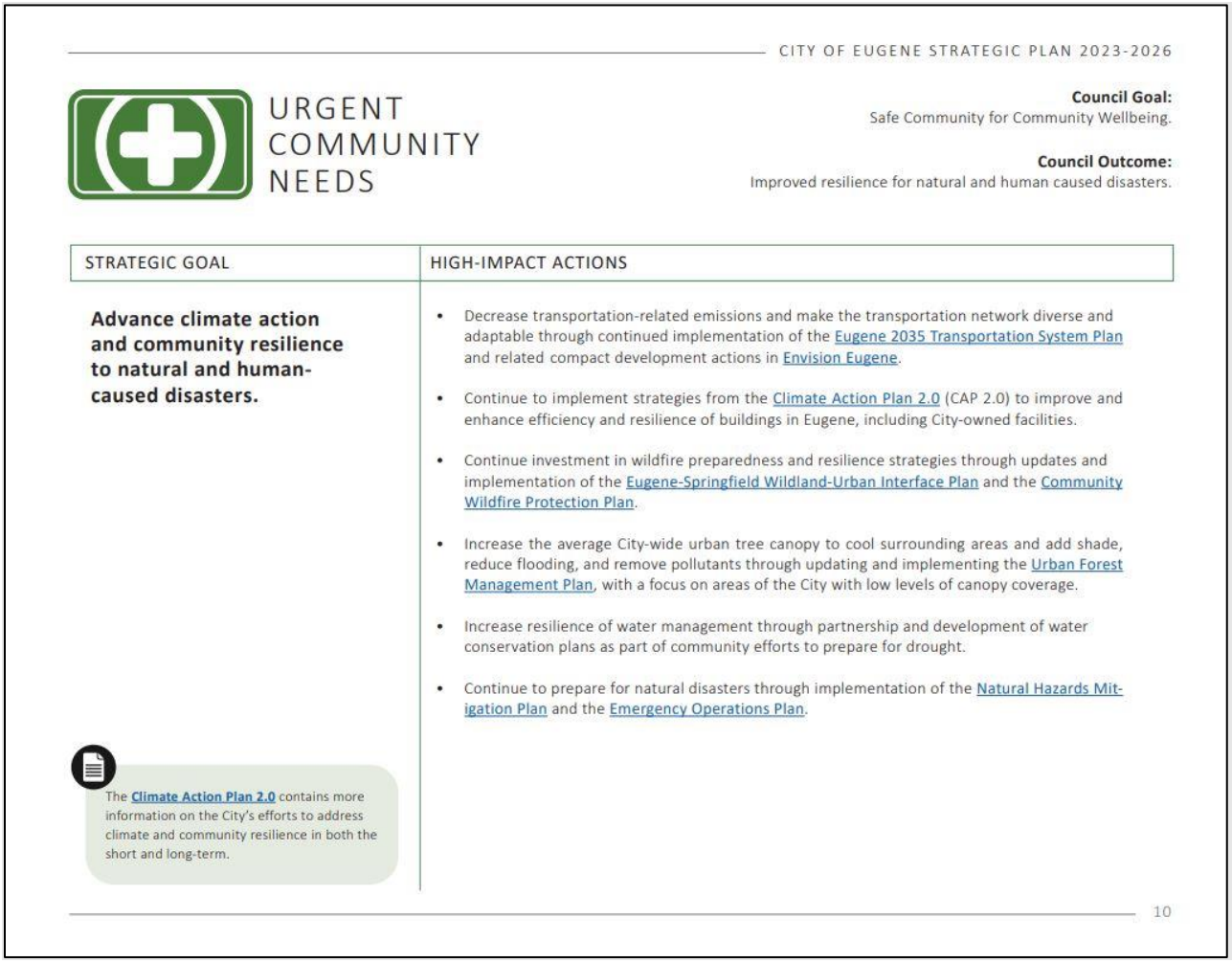
In 2014, the City of Eugene & City of Springfield completed a joint Regional Climate and Hazards Vulnerability Assessment. City of Eugene and City of Springfield staff, with support from Oregon Partnership for Disaster Resilience (OPDR), convened meetings with representatives from various community sectors to solicit information about the adaptive capacity and sensitivity to specific hazards for their communities/service areas. The sector summaries and results of feedback are incorporated within the 2014 assessment.

The assessment was utilized as a reference source within the current COE/COS MJNHMP 2020 plan as well as the new COE County MJNHMP annex. The sector summaries within the assessment describe sensitivities to earthquake, flood, wildfire, winter storm, climate change, and rising fuel prices.

In 2020, the City renewed this plan in the form of a new document "Climate Action Plan 2.0". It was developed as a mitigation and a resiliency plan, focused on understanding how our community can reduce emissions and continue working together to prepare for the impacts of a changing climate.

In 2023, the City, expanded their strategic plan, 2023 – 2026 City Strategic Plan, to incorporate a more comprehensive consideration to climate adaptation, impacts by natural hazards and community resiliency in both short and long term timeframes. The strategic plan is organized into four (4) sectors with Urgent Community Needs identifying the strategic goal of *Advance Climate Action and Community Resiliency to Natural and Human-Caused Disasters*. Figure 4.9.3 outlines the high-impact actions identified by the City Council, Administration and Departments for this strategic goal.

Figure 4.9. 3: City of Eugene Strategic Plan-Climate Action & Community Resiliency



[Source: City of Eugene Strategic Plan]

4.4.3: Natural Hazard Events

The following outlines the historical record of significant natural events that have impacted the City of Eugene. Following the event table are three (3) figures from the National Weather Service – Climate Book for the City of Eugene. The figures provide historical reference to normal/extreme data for temperature, precipitation and wind events recorded in the Eugene area.

Table 4.7. 8: Natural Hazard Events Summary

- * = FEMA Declaration # if applicable
- ** = Estimated Preliminary Damage Assessment Amount

Sources:

- City of Eugene – Public Works
- National Weather Service - NWS-Climate Book
- FEMA – Assigned Federally Declared Disaster Number
- [(1)] Oregon Department of Environmental Quality – Air Quality Trends Report

Event Type	FEMA #*	Year	Timeframe	Damage Amt.**	Additional Event Information
Extreme Heat		2024	JUL 3–8		≥100°+ Consecutive Days - 4
Severe Winter Storm	DR-4768-OR	2024	JAN 12-27	$1.6M	4+ inches of ice in Eugene; Lane Co. Estimated Damage = $35M
Extreme Heat		2023	AUG 13-16		≥100°+ Consecutive Days - 4
Wildfire Smoke[1]		2023	MAY - SEPT		15 days of air quality unhealthy for sensitive groups or worse.
Wildfire Smoke[1]		2022	MAY - SEPT		6 days of air quality unhealthy for sensitive groups or worse.
Extreme Heat		2021	JUN 27		111° - Highest Temp Ever Recorded for COE
Wildfire Smoke[1]		2021	MAY - SEPT		14 days of air quality unhealthy for sensitive groups or worse
Drought		2020			Near record breaking dry spell
Wildfire Smoke[1]		2020	MAY - SEPT		14 days of air quality unhealthy for sensitive groups or worse.
Wildfire/Straight Line Wind Event	DR-4562-OR	2020	SEPT 8-14		2020 Labor Day Fires and Straight-line winds
Flooding		2019			2019 Flooding, middle fork of the Willamette - exceed 1996 flow levels
Severe Winter Storm	DR-4432-OR	2019	FEB 25-MAR 1		Heavy Snow – 9-12in
Wildfire Smoke[1]		2019	MAY - SEPT		5 days of air quality unhealthy for sensitive groups or worse.
Wildfire Smoke[1]		2018	MAY - SEPT		22 days of air quality unhealthy for sensitive groups or worse.
Wildfire Smoke[1]		2017	MAY - SEPT		16 days of air quality unhealthy for sensitive groups or worse
Severe Winter Storm	DR-4269-OR	2016	DEC 15-22	$1.6M	Ice Storm - 20,000 power outages
Windstorm		2016	JAN 16	$15,000	Peak gusts up to 63 mph
Extreme Heat		2015	JUL 29-AUG 1		≥100°+ Consecutive Days
Wildfire Smoke[1]		2015	MAY - SEPT		3 days of air quality unhealthy for sensitive groups or worse.
Windstorm		2015	DEC 10	$260,000	Peak gusts up to 47 mph, widespread power outages
Severe Winter Storm	DR-4169-OR	2014	FEB 6-24	$1.7M	Heavy Snow/Freezing Rain - 0.75 inches of ice, 10,000 power outages

Event Type	FEMA #*	Year	Timeframe	Damage Amt.**	Additional Event Information
Wildfire Smoke[1]		2014	MAY - SEPT		1 days of air quality unhealthy for sensitive groups or worse.
Extreme Cold		2013	DEC 7-11		≤ 10° Consecutive Days - 5
Extreme Cold		2013	DEC 7-9		≤ 0° Consecutive Days - 3
Severe Winter Storm		2013	Jan 10		Freezing Temps, de-icing incident
Severe Winter Storm		2013	DEC 4-13		Heavy Snow/Extreme Cold - 8-9in
Wildfire Smoke[1]		2013	MAY - SEPT		10 days of air quality unhealthy for sensitive groups or worse.
Severe Winter Storm		2012	MAR 21-26	$317,612	
Severe Winter Storm	DR-4055-OR	2012	JAN 17-21		Snow/Ice - 2,000 power outages
Windstorm		2011	MAR 13 - 16		
Severe Winter Storm		2010	DEC 27-29		Ice Incident
Severe Winter Storm		2010	NOV 23-24		Heavy Snow
Extreme Heat		2009	JUL 27-29		≥100°+ Consecutive Days
Extreme Heat		2009	JUL 28		106°
Severe Winter Storm		2008	DEC 27-29		Heavy Snow/Ice Incident
Extreme Heat		2006	JUL 22-24		≥100°+ Consecutive Days
Windstorm		2006	FEB 3-4	$300,000	Peak gusts of 46 mph, 3500 without power in County
Windstorm		2006	MAY	$5,000	13,000 without power
Windstorm	DR-1405-DR	2002	FEB 7-8	$6M	Peak gusts up to 70 mph
Windstorm		2001	MAR 13		Peak gusts of 60 mph, 25,000 power outages in County, trees toppled, and buildings damaged
Severe Winter Storm		1998	DEC-FEB		Heavy Snow – one of the snowiest winters in Oregon history
1996 Floods	1160, 1149, 1099	1996	FEV, NOV, DEC		Severe storms and flooding
Windstorm	1107-DR-OR	1995	DEC		Peak gusts up to 49 mph, 62 mph in Willamette Valley; saturated soils compounded damage
Severe Winter Storm		1993	FEB 18-19		Heavy Snow - 6 to 12 in
Severe Winter Storm		1992	DEC 16-17		Heavy Snow
Severe Winter Storm		1990	FEB 11-16		Heavy Snow – Avg. 8 in
Extreme Cold		1989	FEB 2-9		≤ 20° Consecutive Days - 8

Event Type	FEMA #*	Year	Timeframe	Damage Amt.**	Additional Event Information
Extreme Cold		1989	FEB 3-8		≤ 10° Consecutive Days - 6
Extreme Heat Event		1981	AUG 7-10		≥100°+ Consecutive Days, 108°
Extreme Cold		1972	DEC 8		-12°
Extreme Cold		1972	DEC 4-14		≤ 20° Consecutive Days - 11
Extreme Cold		1972	DEC 7-11		≤ 0° Consecutive Days - 5
Snow		1969	January		Largest recorded snow accumulation 47.1 in
Flood	184	1964	DEC		Largest recorded flood in City/County history
Severe Windstorm	136	1962	OCT 12-16		Wind Gusts 86mph
Windstorm		1961	JAN 7-8		Highest Sustained Wind – 58mph/Gust – 78mph
Extreme Cold		1950	FEB 2-3		≤ 0° Consecutive Days - 2
Extreme Cold		1924	DEC 17-27		≤ 20° Consecutive Days - 11
Extreme Cold		1924	DEC 23-25		≤ 0° Consecutive Days – 3

Figure 4.9. 4: NWS Extreme Temperatures-City of Eugene 1892-2023

Eugene: Extremes Temperatures *(1892-2023)*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Warmest	69°	78°	80°	89°	95°	111°	106°	108°	103°	94°	76°	68°
date	27th 1931	26th 1932	29th 1923	28th 1926	17th 2008	27th 2021	28th 2009	9th 1981	2nd 1988	2nd 1980	3rd 1975	17th 1979
Coldest	-4°	-3°	18°	25°	28°	32°	38°	35°	30°	17°	12°	-12°
date	27th 1957	3rd 1950	25th 1913	1st 1936	1st 1954	13th 1976	3rd 2018	5th 1914	24th 1926	31st 2006	13th 1978	8th 1972

Warmest Recorded Temperature 111° **on 27 Jun 2021**
Coldest Recorded Temperature -12° **on 8 Dec 1972**

[Source: NWS Climate Book Eugene]

Figure 4.9. 5: NWS Precipitation Normal/Extremes-City of Eugene 1890-April 2024

Eugene: Monthly Precipitation Normals/Extremes[1]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Normal Rain	6.05	4.67	4.64	3.32	2.46	1.23	0.32	0.39	1.39	3.17	5.98	7.21	40.83
Wettest	15.36	16.89	12.46	7.85	6.92	5.57	3.38	5.79	7.08	12.66	20.48	20.99	76.51
Year	*1995*	*1996*	*1974*	*1993*	*1993*	*1937*	*1916*	*1968*	*2013*	*1950*	*1973*	*1964*	*1996*
Driest	0.31	0.10	0.40	0.35	0.14	T	0.00	0.00	0.00	T	0.25	1.24	21.19
Year	*1985*	*1920*	*1926*	*2021*	*1992*	*1951*	*2018[2]*	*2006[3]*	*1999*	*1895*	*1890*	*1976*	*2013*
Normal Snow[4]	3.1	0.9	0.2	T	0	0	0	0	0	0	0.2	1.7	6.1"
1893-2023 AVG[4]	*2.4*	*1.7*	*0.8*	*T*	*0*	*0*	*0*	*0*	*0*	*0*	*0.2*	*1.4*	*6.5*
Snowiest	47.1	22.7	15.7	2.0	0	0	0	0	0	1.0	6.0	10.2	48.8
Year	*1969*	*1917*	*1916*	*1911*	-	-	-	-	-	*1935*	*1955*	*1964*	*1916*

[1] **Normals are the 30-year NCDC Climatic Normals (1991-2020). Extremes October 1890 to Apr 2024. Units are inches.**
[2] July 2018, 2013, 2003, 1967, 1933, 1931, 1926, 1922, 1921, 1914, and 1906 each recorded no rainfall.
[3] August 2006, 1967, 1931, 1928, 1911, 1909, 1893 and 1892 each recorded no rainfall.
[4]Normal Snow are the values from the 1961-1990 (last set of normals with 'reliable snow observations). These are more representative than the more recent 1991-2020 normals, which have many years with snow data measurements (snow data between 2000 to 2017 was very being intermittent due to use of ASOS rather than in-person observations).

[Source: NWS Climate Book Eugene]

Figure 4.9. 6: NWS Wind Normal/Extremes-City of Eugene 1954-April 2024

Monthly Normal and Extreme Wind Data (*mph*)

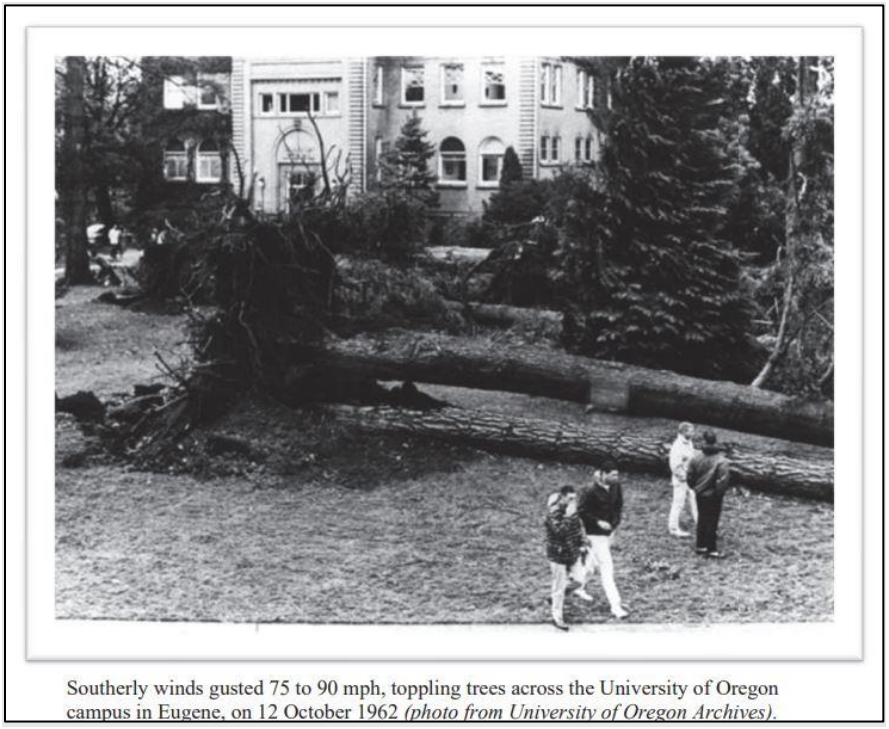
Eugene Mahlon Sweet Field (Airport) ***1954-Apr 2024***

	Averages[1]		Windiest		Highest Sustained[2]			Highest Gust[2]		
	dir.	*mph*	*avg.*	*year*	*dir.*	*mph*	*date*	*dir.*	*mph*	*year*
Jan	S (180°)	6.9	11.2	1954	S	58	7 Jan 1961	S	75	7 Jan 1961
Feb	S (180°)	7.1	11.3	1961	S	60	7 Feb 2002	S	79	7 Feb 2002
Mar	S (180°)	7.3	10.5	1961	S	48	27 Mar 1963	S	75	27 Mar 1963
Apr	S (180°)	7.1	10.0	1961	S	44	7 Apr 1972	S	53	7 Apr 1972
May	N (360°)	6.5	9.4	1961	W	46	1 May 1961	SW	55	1 May 1961
Jun	N (360°)	7.0	9.3	1972	SW	33	26 Jun 2019	W	41	2 Jun 1988
Jul	N (360°)	7.4	9.8	1994	NW	37	4 Jul 1986	NW	48	4 Jul 1986
Aug	N (360°)	7.2	9.2	1960	E	32	21 Aug 1979[3]	NE	46	10 Aug 2014
Sep	N (360°)	6.8	9.4	1971	SW	37	23 Sep 2020	S	44	4 Sep 1959
Oct	S (180°)	6.4	9.0	1961	S	63	12 Oct 1962	S	86	12 Oct 1962
Nov	S (180°)	6.9	10.2	1988	SW	46	13 Nov 1957	S	58	14 Nov 1981
Dec	S (180°)	7.0	10.0	1971	SW	44	14 Dec 2006	S	70	4 Dec 1951
Year	----	**7.0**	**9.1**	**1961**	**South 63 mph**		**12 Oct 1962**	**South 86 mph**		**12 Oct 1962**

[1]Normal are the 1991-2020 climate 30-year data normals. Listed is average direction, with the average wind speed. Note, the speed is average of all winds, not just those of the direction listed as the average.
[2]Sustained wind listed as the fastest mile speed in a minute, while gusts are instantaneous, usually2 to 3 seconds.

[Source: NWS Climate Book Eugene]

Figure 4.9. 7: University of Oregon, 1962, Windstorm



Southerly winds gusted 75 to 90 mph, toppling trees across the University of Oregon campus in Eugene, on 12 October 1962 *(photo from University of Oregon Archives).*

[Source: NWS Climate Book Eugene]

4.4.4 Scoring Summary Introduction

This section describes the scoring results from the Eugene Climate and Hazards Vulnerability Assessment. The results are intended to be used to inform the prioritization of infrastructure improvements, hazard mitigation actions, or climate adaptation strategies. Ultimately, the results should help establish a course towards adaptive local and regional networks, and a more resilient community. The following findings highlight the major takeaways from the scoring component of the Eugene/Springfield Climate and Hazards Vulnerability Assessment.

Table 4.7. 9: City of Eugene Hazard Quantification Results Summary

	Scoring	
Hazard Risk Assessment Summary: City of Eugene **Assessment Conducted:** March – July 2024 **Assessment Tool:** State of Oregon – Hazard Analysis Methodology **Assessment Conducted by:** COE Depts. EM, PW, Planning, Fire, Floodplain Mgmt. **Assessment Comparison:** County of Lane, Oregon **Assessment Reviewed by:** -Departmental Representatives – PW, EM, Plans, Fire, 06/18/24 -Lane County Emergency Management –09/09/2024	**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 Eugene Rating	2023 County Rating
Winter Storm	20	70	40	70	**200**	**1**	**High**	**High**
Wildfire	20	56	40	80	**196**	**2**	**High**	**High**
Windstorm	18	49	40	80	**187**	**3**	**High**	**High**
Flood	16	56	30	80	**182**	**4**	**High**	**High**
Earthquake	6	28	45	80	**179**	**5**	**High**	**High**
Extreme Weather	16	63	30	100	**179**	**6**	**High**	**High**
Landslide	20	56	40	40	**156**	**7**	**Moderate**	**Moderate**
Drought	16	56	10	80	**102**	**8**	**Moderate**	**Moderate**
Volcano	4	14	10	20	**68**	**9**	**Low**	**Low**
Tsunami	0	0	0	0	**0**	**N/A**	**N/A**	**High**

[Source: COE Hazard Risk Assessment Workgroup]

HISTORY (weight factor for category = 2)

History is the record of previous occurrences. Events to include in assessing history of a hazard in your jurisdiction are events for which the following types of activities were required:

- The EOC or alternate EOC was activated;
- Three or more EOP functions were implemented, e.g., alert & warning, evacuation, shelter, etc.;
- An extraordinary multi-jurisdictional response was required; and/or
- A Local or Tribal Emergency was declared.

LOW – score at 1 to 3 points based on…	0 - 1 event past 100 years
MEDIUM – score at 4 to 7 points based on…	2 - 3 events past100 years
HIGH – score at 8 to 10 points based on…	4 + events past100 years

VULNERABILITY (weight factor for category = 5)

Vulnerability is the percentage of population and property likely to be affected under an "average" occurrence of the hazard.

LOW – score at 1 to 3 points based on…	< 1% affected
MEDIUM – score at 4 to 7 points based on…	1 - 10% affected
HIGH – score at 8 to 10 points based on…	> 10% affected

MAXIMUM THREAT (weight factor for category = 10)

Maximum threat is the highest percentage of population and property that could be impacted under a worst-case scenario.

LOW – score at 1 to 3 points based on…	< 5% affected
MEDIUM – score at 4 to 7 points based on…	5 - 25% affected
HIGH – score at 8 to 10 points based on…	> 25% affected

PROBABILITY (weight factor for category = 7)

Probability is the likelihood of future occurrence within a specified period of time.

LOW – score at 1 to 3 points based on…	one incident likely within 75 to 100 years
MEDIUM – score at 4 to 7 points based on…	one incident likely within 35 to 75 years
HIGH – score at 8 to 10 points based on…	one incident likely within 10 to 35 years

4.4.5 New Data Development

Several new data elements were identified during the annex plan renewal cycle. The following outlines the data element, source agency and anticipated timeframe of release:

Table 4.7. 10: New Development in Hazard Areas

Data Element	Originating Agency	Description/Purpose	Data Release Timeframe
Earthquake Loss Study	Oregon Department of Geology and Mineral Industries (DOGAMI)	M 9.0 Cascadia earthquake loss estimate study for the Eugene/Springfield-Coburg area	September 2024
Wildfire Risk Maps	Oregon Department of Forestry (ODF)	New/Updated Wildfire Hazard and Wildland-Urban Interface Maps	October of 2024
Floodplain Map	Federal Emergency Management Agency (FEMA)	Updated floodplain maps for Eugene area.	Fall of 2024
Earthquake – Cascadia	National Science Foundation	Comprehensive mapping of sub-duction fault line; will help fine tune projections.	Summer 2024
Climate Action Plan 2.0	City of Eugene	The goal of the CAP 2.0 is to work towards creating a livable and equitable Eugene for everyone in our community now and in the future.	On-going
Community Wildfire Protection Plan (CWPP)	City Eugene	Development of agency specific CWPP as an annex to the County CWPP. New plan will identify additional mitigation strategies to be incorporated into the Eugene MJNHMP mitigation action item section.	2026
Hazard Risk Assessment Methodology	Oregon Department of Land Conservation and Development	Update current risk model to a more comprehensive model that can be utilized state-wide, all levels of government and disciplines	2025

4.4.6 Individual Hazard Discussions

The City of Eugene identified nine (9) of the ten (10) natural hazards evaluated in the County's MJNHMP base plan, Volume I, that pose some degree of risk to the City of Eugene with the exception being tsunami. An expanded narrative for each of the hazards from the Cities Hazard Quantification Assessment, Table 4.7.9, in order from highest to lowest risk is included in this subsection. The hazard events, when discussed, may represent both the Eugene and Springfield geographical hazard areas. The two cities are separated by Interstate 5 and share a population that migrates between the two cities for work, recreation and daily activities. In addition, the two cities share several community lifeline infrastructure interdependencies, including but not limited to transportation, systems, fuel, electrical energy, drinking water, wastewater, stormwater, communications, education, food, water, and shelter.

4.4.6.1 Winter Storm [Rating #1 – Score 200 out of possible 240, High Rating]

Winter storms are characterized by ice accumulation and freezing rain, heavy snowfall, and/or extreme cold and wind chill conditions. These hazard events typically create disruption of regional systems such as public utilities, telecommunications, and transportation routes.

As Table 4.7.9 indicates, winter storms occur with relative frequency. Probability is considered high that patterns of previous occurrences will continue. Damage typically results from storms that deliver a combination of heavy, wet snow, ice and/or wind. While these types of events may not be severe enough to trigger a disaster declaration, most all require a direct response from the City of Eugene Public Works Department as a Departmental Operations Center (DOC) to effectively manage clearing of transportation routes and removal of debris/snow.

Damage impacts often include downed poles, wires, transformers, broken cross-arms and tree-related damage. Depending on the severity of the event, anywhere from 5000 – 20,000 homes and businesses can be impacted with power loss with full restoration taking upwards of two weeks.

Overall population impact by winter storm events are moderate since effects are not geographically contained. Transportation and roadways are vulnerable to closure during winter storms. Vulnerable populations will be impacted by extended winter storms and cold weather events, creating the need for community resources to address cold weather sheltering. Maximum threat is high due to the high threat of disruption of utility and transportation routes for the public directly related to winter weather (cold, snow, ice, and wind).

The January 2024 ice storm caused over 38,000 power outages, including loss of power to critical infrastructure such as communication towers and the water treatment plant. Widespread winter storms can strain mutual aid support and availability of contract crews, further delaying service restoration. The frequency of winter storm events and the high potential for costly damage remains a threat.

The city rated Winter Storm events as high the same as the county scoring of high.

4.4.6.2 Wildfire [Rating #2 – Score 196 out of possible 240, High Rating]

The Eugene/Springfield area is bordered by grassland, agricultural land, and forest. The wildfire hazard is primarily located in the south hills of Eugene where forested areas interface directly with homes, businesses, and infrastructure.

Global climate change is expected to increase the length and severity of summer drought along with an increase in summer high and low temperatures. By 2030, climate change is expected to result in:

- Average annual temperature increases of 2-4°F;
- Reduced precipitation in spring, summer and fall; and
- An increase in extreme heat events.

Eugene Springfield Fire routinely responds to small wildfires (also known as vegetation or brush fires), but to date has been able to keep the majority of the fires given rapid response times to properties within the cities and aggressive firefighting. As discussed above, climate change is expected to increase temperatures, reduce precipitation, and increase heat events. Lower vegetation moisture from reduced precipitation and increased heat combined will result in the ability for wildfires to grow quickly and be more established at the time the fire department can begin to engage in suppression of the fires. This sets the stage for larger wildfires within the Eugene area.

Over the past four (4) years the State of Oregon, Oregon Department of Forestry, have been working to update the state-wide wildfire risk maps. The most recent maps are anticipated to be released by October of 2024. The new maps are anticipated to demonstrate higher risk in the general Willamette Valley area but may not increase the risk within the Eugene metro area due in part to the extent of urban development in the city.

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 city infrastructure, the city must make operational adjustments to protect workers from prolonged exposure to poor air quality and support the efforts of Lane County Public Health to protect the public.
Wildfire was rated as high due to:

- Frequency of smaller wildfires (also known as brush and vegetation fires).
- Significant residential development in the south hills of Eugene in areas with significant slopes, dead end roads, and high fuel loads that have seen little management in past years.
  Increased potential for rapid fire growth due to lower fuel moistures and higher temperatures associated with climate change.

Capacity to respond to and recover from a wildfire is moderate for both Eugene and Springfield. This is due to the number of available resources as well as an established conflagration process within the State of Oregon instituted through the Office of the State Fire Marshal.

Eugene Springfield Fire is in the process of developing an agency specific Community Wildfire Protection Plan (CWPP) to better understand specific areas or risk and opportunities to mitigate risk. Once finalized, the CWPP will function as an annex to the County CWPP.

The city rated Wildfire events as high the same as the county scoring of high.

4.4.6.3 Windstorm [Rating #3 – Score 187 out of possible 240, High Rating]

Windstorms are storms with damaging "straight-line" winds. The term "straight-line" is used to differentiate from wind damage caused by tornadoes. Windstorms are relatively common for the Eugene area and can occur any time of the year but are more typical during winter months. They typically produce sustained gusts of over 40 mph as part of a winter or heavy rainstorm event.

Destructive winds are generally from the southwest and associated with cyclone storms that move in from the Pacific Ocean. Winds from the west are generally slowed by the Coast Range mountains before reaching the Willamette Valley.

Windstorm damage generally consists of fallen trees and power outages. Damage may be worse if the ground is heavily saturated with water increasing the likelihood of trees falling. Property damage concerns are significant with windstorms. These events, due to their large coverage area, could affect almost all residential, commercial, industrial and common areas within the Eugene/Springfield area. The area's capacity to respond to, and recover from, these events is high which is largely due to the frequency in which these storms occur as well as the resources available to respond to them.

The city rated Windstorm events as high the same as the county scoring of high.

4.4.6.4 Flood [Rating #4 – Score 182 out of possible 240, High Rating]

The Eugene/Springfield area considers two (2) primary flood hazard categories: riverine flooding and stormwater (urban) flooding. Riverine flooding occurs when water overtops the banks of a naturally occurring waterway, while urban flooding is most often caused by inadequate stormwater drainage systems or maintenance.

The Eugene/Springfield area is subject to flooding from several sources, including:

- Riverine flooding from the Middle Fork of the Willamette River, the Willamette River, and the McKenzie River;
- Riverine flooding from numerous smaller creeks and sloughs; and
- Local stormwater drainage system flooding.

Flooding in Eugene and Springfield typically occurs in December and January. Incidents are usually associated with La Niña conditions, which result in prolonged rain and rapid snowmelt on saturated or frozen ground. This sudden influx of water causes rivers to swell, forcing tributary streams to back up and flood. The impacts of frequent riverine flooding in are largely mitigated by eight (8) upstream flood control dams in operated by the US Army Corps of Engineers in the McKenzie and Willamette River watersheds.

FEMA Flood Insurance Rate Maps (FIRMs) are the most comprehensive resource for identifying flooding risk in the Eugene area. The Eugene area's FIRMs became effective on June 2, 1999, and are currently being updated by FEMA to incorporate more advance survey technology, LiDAR data, and updated hydrology and hydraulic modeling.

The probability of riverine flooding in Eugene is moderate and the probability of stormwater flooding is high. The City of Eugene have been working to reduce the impact of both type of events by:

- Participating in the National Flood Insurance Program (NFIP), which enables property and business owners to qualify for federally underwritten flood insurance.
- Participating in the NFIP's Community Rating System (CRS) program. Eugene has a CRS rating of 7 at the time of this plan, which shows the work the community does to reduce flooding and provides property owners with an 15% discount on NFIP flood insurance policies.
- Developing and maintaining Stormwater Basin Master Plans; the goal of these plans is to evaluate the existing system and identify capital improvement project needs to protect public and private property from urban flooding through planning for and building adequate stormwater systems.
- Developing and implementing mitigation measures as identified in both the 2020 and 2024Natural Hazard Mitigation Plans.

National Flood Insurance Program (NFIP) - The City of Eugene is a NFIP participant in good standing and considers continued participation as integral to future flood mitigation efforts. Participation consists of adoption FIRMs that define the regulatory floodplains or Special Flood Hazard Areas (SFHAs) as the areas with the highest risk of riverine flooding and maintenance of an ordinance regulating future development in SFHAs. FIRM Community Number for City of Eugene is 410122. Compliance with the program is pursuant to the City of Eugene floodplain ordinance.

Statistics for Eugene as reported by FEMA on the NFIP Community Information System (CIS) as of June 2, 2024, are as follows:

Table 4.7. 11: National Flood Insurance Policy Data

NFIP Policies in Force	Definitions
• Policies in Force: 509 • Insurance in Force: $167,819,000 • Premium in Force: $366,684	• **Policies in Force** – Policies in force on the "as of" date of the report. • **Insurance in Force** – The coverage amounts for policies in force. • **Premium in Force** – The premium paid for policies in force.
Insurance Claim Data	
• Closed Losses: 19 • Open Losses: 0 • CWOP Losses: 0 • Total Losses: 19 • Total Payments: $110,745	• **Closed Losses** – Losses that have been paid. • **Open Losses** – Losses that have not been paid in full. • **CWOP Losses** – Losses that have been closed without payment. • **Total Losses** – All losses submitted regardless of the status. • **Total Payments** – Total amount paid on losses.

[Source: FEMA CIS, as of 06/02/2024]

The city rated Flooding events as high the same as the county scoring of high.

4.4.6.5 Earthquake [Rating #5 – Score 179 out of possible 240, High Rating]

The City of Eugene is exposed to earthquakes from two (2) sources as outlined in the Lane County MJNHMP base plan, Volume 1, section 2.2.2 Earthquakes.

- On-Shore Crustal Earthquakes: These exist throughout western Oregon that can produce earthquakes strong enough to impact buildings and endanger people's safety. More often, these earthquakes are less intense.
- Off-Shore Subduction Earthquakes: The primary subduction fault in the proximity of Oregon is the Cascadia Subduction Zone (CSZ).

Earthquakes are somewhat unique as they occur much less frequently than other hazards but have the potential for significant damage and disruption. From a geographic standpoint, an earthquake will impact the entire city uniformly. Both residents, visitors, commuters, businesses, and public infrastructure will all be impacted at the same time and varying degrees of damage based on the building/structure type and vulnerability to seismic activity.

Even though no major damages have been reported in recent years for crustal earthquake events near the city, they are a reminder that the Cascadia earthquake is not the only threat the area faces. A local crustal earthquake is not as likely to cause widespread impacts – magnitude ranges are generally in the range of 3 to 5. A Cascadia event is on a different order of magnitude, in the range of 8.0 to 9.0, and will result in a tremendous amount of destruction, and cause significant disruptions to the entire community and the state. A Cascadia event is not an average occurrence of earthquake in the region; however, it cannot be discounted due to the fact it has been over 300 years since the last rupture occurred on January 26, 1700.

The City of Eugene has a history of conducting seismic assessments and implementing mitigation projects to strengthen city infrastructure from earthquake events. This is demonstrated in section 4.5 Mitigation Action Items of this annex plan by the nine (9) projects in 2020 and five (5) in the 2024 annex for the City of Eugene. Eugene is also recognized for collaborating with area infrastructure partners on the importance for increasing the resiliency of the community lifelines that support the daily needs of the public. Public education and awareness of the need for residential and business seismic retrofitting of buildings is also a common theme among area local governments and utilities. Public education and awareness of the need for residential and business seismic retrofitting of buildings is also a common theme among area local governments and utilities.

Oregon Department of Geology and Mineral Industries (DOGAMI) provides a software tool, HAZVU, to assess the risk of geological hazards in Oregon. HAZVU is open to the public and is widely utilized by planners for development of mitigation and response plans. Geohazards include 100-year flooding; Cascadia Subduction Zone earthquake shaking and tsunami; coastal erosion; volcano; active faults; earthquake soft soil; landslide; and more. Assets include state-owned/leased facilities and public buildings such as schools, police and fire stations, and hospitals, as well as links to seismic assessment reports for these public buildings. The City of Eugene regularly utilizes this geohazards viewer for planning for both crustal and Cascadia events.

In the fall of 2024 DOGAMIU is expected to release an updated earthquake impact analysis for the greater Eugene/Springfield area. This analysis will provide a more accurate assessment of the damages caused by the Cascadia Subduction Zone event.

The city rated Earthquake events as high the same as the county scoring of high.

4.4.6.6 Extreme Weather [Rating #6 –Score 179 out of possible 240, High Rating]

Eugene area has had documented occurrences of all four (4) of these meteorological hazards though they tend to be infrequent resulting in little to no damage. It is possible more damaging incidents could occur in the future.

Climate change will affect all four (4) of these weather type hazards, although the extent and severity of these impacts are unknown. Climate change is expected to increase summertime temperatures, thereby reducing the natural cooling of homes, buildings, and heat absorbing surfaces such as concrete and asphalt. Recent and historical review of events in Eugene can be reviewed in Table(s) 4.7.8 Event History and 4.9.4 NWS Record of Extreme Temperatures of this annex plan.

Many Eugene residents lack mechanical cooling systems, putting them at greater risk of heat illnesses during extreme heat events. Those with financial resources are incorporating mechanical cooling systems into their homes and businesses but those with limited financial resources are not. However, the State of Oregon initiated a program to support the most vulnerable populations in Oregon with provisions of a free air conditioning unit for their homes. This project began in 2022 and continues while funds remain available. The City of Eugene supports this program by communicating, where and when appropriate, the access points for this free service by the State of Oregon.

The probability of experiencing an extreme weather incident is moderate for the Eugene/Springfield area. It is likely at least one (1) of the hail, lighting, tornado type event will happen on a scale severe enough to cause property damage or threaten life within the next 35 to 75 years. However, due to the increased frequency and severity of extreme heat events the probability is rated at high

The city rated Extreme Weather events as high the same as the county scoring of high.

4.4.6.7 Landslide [Rating #7 – Score 156 out of possible 240, Moderate Rating]

Landslides can occur during any season in the Eugene area. Given local development patterns, residential and public land use is most likely to be impacted by landslides. In Oregon, residential development is explicitly prohibited or restricted in areas with steep slopes. Specifically, Chapter 197 of the Oregon Revised Statute in the Oregon Administrative Rules provides for needed housing "…suitable, available and necessary for residential uses." Lands "(c) [having] slopes of 25 percent or greater" are not considered "suitable and available" under the buildable land definition.

In 2018, the Oregon Department of Geology and Mineral Industries (DOGAMI) released a new analysis of landslides in the Eugene/Springfield area titled *IMS-60, Landslide Hazard and Risk Study of Eugene/Springfield and Lane County, Oregon* (IMS-60). The IMS-60 study included updating the inventory of historic (<150 years) and prehistoric (>150 years) landslides in the Eugene/Springfield area utilizing LIDAR and records provided by the Cities and Lane County. The inventory identified over 700

existing landslides covering about 6% of the 230 square mile study area, more than three (3) times the previous number of inventoried landslides.

The Eugene area is susceptible to four (4) types of landslides which may occur as either shallow or deep landslides:

- **Rockfalls** are abrupt movements of masses of material (rocks and soils) detached from steep slopes or cliffs. Movement occurs by free-fall, bouncing, and/or rolling. Falls are strongly influenced by gravity, weathering, undercutting, and/or erosion.
- **Rotational slides** are those in which the rupture surface is curved concavely upwards, and the slide movement is rotational about an axis parallel to the slope. Rotational slides usually have a steep scarp at the upslope end and a bulging "toe" comprised of the slope material at the bottom of the slide (Figure 2-8). Roads constructed by cut and fill along the side of a slope are prone to slumping on the fill side of the road. Rotational slides may creep slowly or move large distances suddenly.
- **Translational slides** are those in which the moving material slides along a flat surface. Translational slides occur on surfaces of weaknesses, such as faults and bedding planes or at the contact between firm rock and overlying loose soils. Translational slides may creep slowly or move large distances suddenly.
- **Flows** are plastic or liquid in nature and the slide material breaks up and flows during movement. This type of landslide occurs when a landslide moves downslope as a semi-fluid mass, scouring or partially scouring rock and soil from the slope along its path. A flow landslide is typically rapid-moving and tends to increase in volume as it moves downslope as it scours out its channel.

Though immediate damage is limited to where the slide occurs, landslides can have far reaching repercussions if infrastructure or water ways are impacted. Historic landslides (within the past 150 years) in Eugene tend to be smaller slides or slumps near waterways or slides related to development activity. The potential for larger slides exists primarily in the south hills of Eugene. Rockfall incidents are primarily limited to quarry sites where rock has been exposed (e.g., the west face of Skinner's Butte).

The primary factors affecting or increasing the likelihood of landslides in Eugene are:

- Natural conditions and processes including the geology of the site, rainfall, water action, seismic activity, and volcanic activity.
- Excavation and grading on slopes for homes, roads, and other structures.
- Natural or human-caused drainage and groundwater alterations can trigger landslides. Human activities such as broken or leaking water or sewer lines, water retention facilities, irrigation, stream alterations, ineffective stormwater management, and excess runoff due to increased impervious surfaces.
- Change or removal of vegetation on very steep slopes due to timber harvesting, land clearing, and wildfire.
- The water content of soils/rock is a major factor in determining the likelihood of sliding for any given slide-prone location. Thus, most landslides happen during rainy months, when soils are saturated with water. Winter storms with intense rainfalls are a common trigger for landslides in the Eugene area.
- Earthquakes can trigger landslides as well. The IMS-60 study identified the south hills of Eugene as being susceptible to earth quake induced landslides.

In Eugene mitigation of the landslide hazard is accomplished through land use and development regulations. Both require geotechnical analysis of steep slopes prior to development to determine whether a development is appropriate for the area.

No new information has been released since the 2018 DOGAMI Landslide Hazard Risk Study, IMS-60, for the areas of Eugene and Springfield. Based upon the original 2018 report and no new information being presented the risk for landslides remains at moderate the same as the county rating of moderate.

4.4.6.8 Drought [Rating #8 – Score 102 out of possible 240, Moderate Rating]

Drought in western Oregon has been neither life threatening nor presents a direct risk to structures but does involve potential for significant disruption if dramatic water shortages were to develop. Drought can exacerbate wildfire risk as related hazards, and a water shortage could impact the entire city uniformly. Average annual rainfall is 40.83 inches per year (NWS Eugene Climate Book, pg. 69). Long-term, below average rainfall years could impact the water supply used in the Eugene/Springfield area. The Eugene's water source is thew McKenzie River, with its intake located in Springfield.

moderate due to the City's reliance on the McKenzie River as its sole source. In addition, potable water can be shared between the two cities through water system interties between EWEB, SUB and Rainbow Water District. Should a long duration drought of severe or exceptional intensity impact the region, it may potentially impact most of the population.

Three (3) severe droughts have occurred in Lane County since 2000. In addition, on September 30, 2015, some of the nation's top water scientists, lawyers, and policymakers convened in Eugene, to discuss the severe drought the area was experiencing. They concluded droughts in Oregon are likely to become more frequent and severe, largely due to climate change. Based upon these recent events, the probability for future severe droughts is high.

The probability of drought in the Eugene/Springfield area is high and the vulnerability and capacity to deal with a drought are also high.

Based on these factors, the Eugene/Springfield area's risk to this hazard is categorized a moderate the same as the county rating of moderate.

4.4.6.9 Volcano [Rating #9 – Score 68 out of possible 240, Low Rating]

The types of volcanic activity impacting Eugene would be in the form of volcanic ash fallout and possible lahar flowing down the McKenzie River. There are no known damages, due to volcanoes, for Eugene in recorded history.

Ash falls result when explosive eruptions blast rock fragments into the air. Such blasts may include tephra (solid and molten rock fragments). The largest rock fragments (sometimes called "bombs") generally fall within two (2) miles of the eruption vent. Smaller ash fragments (less than about 0.1 inch) typically rise into the area forming a huge eruption column. In very large eruptions, ash falls may total many feet in depth near the vent and extend for hundreds or even thousands of miles downwind.

It is recognized that the same preparedness and mitigation efforts for wildfire smoke are the same techniques and education principals that would be utilized for volcanic ash, though depending on volcanic activity the ash may present with additional health effects than standard wildfire smoke.

Hazard zone maps for the Three Sisters volcanoes show landslides, debris flows, and lahars from an eruption could enter the McKenzie River. This could cause flooding on the McKenzie River possibly extending to the Thurston area on the east side of Springfield. Lahars running through the McKenzie River could also lead to temporary damming of the river or high turbidity in the water.

The city rated Volcanic events as low the same as the county scoring of low.

4.4.7 Land Use and Development Trends

Development in the City of Eugene has continued in the same trajectory identified in the 2020 COE/COS MJNHMP Appendix F. Updates and changes to the associated figured and information are anticipated in 2026 as part of the update to the Envision Eugene Comprehensive Plan.

04.05 Mitigation Action Items (MAI)

This section describes mitigation projects identified by the City of Eugene during the planning process and is divided into two (2) timeframes. See Section 4 of Volume 1 for additional information regarding mitigation action items methodology and prioritization.

- 2024-2028 Planned Mitigation Action Items Summary [Lane Co MJNHMP City of Eugene Annex]
- 2020-2024 Mitigation Action Item Review Summary [City Eugene/Springfield MJNHMP]

The City of Eugene had twenty-seven (27) action items at the beginning of the 2020 plan cycle. Seventeen (18) of those were selected to carry over to the 2024 plan, one (1) project restructured into two (2) individual projects and five (5) new items added for a total of twenty-three (24) for the 2024-2028 planning cycle.

The action items are distributed among four (4) city departments: Central Services (Emergency Management program), Facilities, Public Works (6 divisions), Eugene Springfield Fire.

The Cities of Eugene and Springfield are jointly served by two agencies that are comprised of the two cities. The Eugene Springfield Fire Department is a functionally merged department comprised of the employees, facilities, and equipment from each city, being managed and operated as a single department. The Metropolitan Wastewater Management Commission (MWMC) provides joint wastewater conveyance, treatment, and disposal services.

Mitigation Action Items (MAIs) for these two agencies may be included in each City's annex, depending on the location where the MAIs will be implemented, i.e. if an MAI will be implemented in only one city, it is included in that city's annex, whereas if it will be implemented in both cities, it is included in both cities' annexes.

2024 – 2028 Mitigation Action Item Summary

The following provides a summary of the selected 2024 – 2028 action items. The COE MJNHMP supporting departments: Emergency Management, Facilities, Public Works (6 divisions), Eugene Springfield Fire and Planning department worked individually and as group to select and make final edits to the selected 2024 – 2028 action items. Initial review was initiated on 05/09/24 and final review on 06/21/24.

Table 4.7. 12: 2024-2028 Planned MAI's Summaries

MAI's - Hazards 2024 - 2028		
Hazard	**Primary**	**Secondary**
All Hazards	3	0
Drought	1	0
Earthquake	8	0
Extreme Weather	1	0
Flooding	5	0
Landslide	1	0
Wildfire	4	1
Windstorm	0	2
Winter Storm	1	1
Volcano	0	0
Total	**24**	**4**

MAI's - FEMA Categories 2024 - 2028		
Row Labels	**Total**	**Cost Est.**
Education & Outreach	1	$ -
Natural Systems Protection	7	$ 5,650,000
Plans/Regulations	3	$ 950,000
Structure & Infrastructure	13	$ 116,040,000
Grand Total	**24**	**$ 122,640,000**

Mitigation Action Item (A)	**Database - Unreinforced Masonry Buildings**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene – Eugene Springfield Fire
Implementation Timeframe	2023
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Earthquake

FEMA NHMP Category	Structure & Infrastructure
Comments	Develop a database of unreinforced masonry buildings (URMs) for first responders to utilized for planning and response operations. Areas include Eugene, Springfield, and parts of Lane County (Eugene Springfield Fire's response area).
Progress Since Last Plan	• *Carryover from 2020: Yes;* 2020 Plan ID# (2020.33) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: No significant progress has been made on this project during the reporting period from 2020 to 2024. Despite initial intentions and planning, various unforeseen challenges and resource limitations have prevented this project from advancing this critical initiative. We acknowledge the importance of this database for ensuring the safety and efficiency of our first responders and remain committed to finding ways to prioritize and address this project soon. • Challenges: Funding Limitations: Despite efforts to secure the necessary funding, budget constraints and competing priorities have made it difficult to allocate sufficient resources to this project. Staffing Shortages: The project has faced significant delays due to staffing shortages. With existing personnel fully engaged in ongoing emergency response and other critical duties, dedicating time and expertise to this project has been a considerable challenge. Technical Challenges: Developing a comprehensive and accurate database of URMs involves significant technical complexities, including data collection, validation, and integration with existing systems. These technical challenges have required expertise and resources that were not readily available. COVID-19 Pandemic: The COVID-19 pandemic significantly impacted our operations, shifting priorities to immediate public health and safety responses. This has further delayed progress on long-term projects such as the URM database.

Mitigation Action Item (B)	**Upgrade Public Safety Communications Reliability**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene – Eugene Springfield Fire
Implementation Timeframe	2024 - 2026
Estimated Cost	TBD
Potential Funding Sources	TBD
Hazards Mitigated	All Hazards
FEMA NHMP Category	Structure & Infrastructure
Comments	Work with the LRIG Radio System to develop a public safety grade reliability to the current system.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.33) • *2020 Plan Conclusion Status:* Restructured • Accomplishments: Throughout the reporting period, ESF initiated various CAD updates and response plan revisions. In the fall of 2023, ESF developed and issued an RFP to secure a telecommunications vendor for a comprehensive evaluation of the Radio Communications System (RCS) and large buildings in Eugene and Springfield equipped with Mobile Emergency Responder Radio Coverage (MERRC) systems. The

	contract was awarded in March 2024, and the vendor began the project in April 2024, with an expected completion date of October 2024. • Challenges: Despite initiating various CAD updates and response plan revisions throughout the reporting period, ESF encountered several obstacles and delays. The process of developing and issuing the RFP in the fall of 2023 was time-consuming, leading to a later-than-anticipated contract award in March 2024. Additionally, the vendor continues to face logistical challenges in coordinating with building management and securing access to large buildings in Eugene and Springfield. These issues caused delays in the project's start and progression, impacting the initial timeline.

Mitigation Action Item (C)	**Transition to Oregon Defensible Space Code Plan**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene – Eugene Springfield Fire
Implementation Timeframe	2025
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Wildfire
FEMA NHMP Category	Natural Systems Protection
Comments	Update the Eugene/Springfield WUI plan and address access routes.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.24) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: The progress of the plan has been delayed due to setbacks in the adoption of the Oregon Wildfire Hazard Map by the Oregon Department of the State Fire Marshal and the Oregon Department of Forestry. This map is crucial, as it directly informs the Oregon Defensible Space Code, which is based on the Wildland Urban Interface (WUI) code. The Defensible Space Code cannot be finalized or implemented until the Wildfire Hazard Map is in place. Adoption of the map is now expected by October 2024, after which the State will proceed with finalizing and setting an effective date for the Defensible Space Code. This delay has significant implications for wildfire preparedness and mitigation efforts across the state. • Challenges: **Increased Wildfire Risk:** Delays in implementing the Defensible Space Code could leave communities vulnerable to wildfires, especially as the climate becomes more conducive to fire outbreaks. • **Regulatory Uncertainty:** The postponement creates uncertainty for property owners, developers, and local governments, as they cannot plan or enforce defensible space requirements until the code is finalized. **Funding and Resource Allocation:** State and local agencies may face challenges in allocating resources and funding for wildfire prevention without clear guidelines from the Defensible Space Code, potentially leading to inefficient use of resources. **Increased Costs:** The longer it takes to implement the Defensible Space Code, the more costly it may become to address wildfire risks later, as conditions worsen and mitigation measures become more urgent.

Mitigation Action Item (D)	Plan Update - Community Wildfire Protection (CWPP)
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene – Eugene Springfield Fire
Implementation Timeframe	2022
Estimated Cost	$150,000
Potential Funding Sources	Federal Grant
Hazards Mitigated	Wildfire
FEMA NHMP Category	Plans/Regulations
Comments	Develop the Eugene/Springfield Community wildfire Protection Plan.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.23) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: Funding was awarded, Community Wildfire Risk Reduction (CWRR). RFP was advertised and a consultant was hired to draft the plan. • Challenges: While funding for the plan has been allocated, measures for risk mitigation that are recommended by the plan will need to be funded.

Mitigation Action Item (E)	Reduce Fuels on Public Lands
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene – Eugene Springfield Fire
Implementation Timeframe	TBD
Estimated Cost	$200,000
Potential Funding Sources	$200,000 is from Parks budget. Funding may change pending grant availability to continue to support work.
Hazards Mitigated	Wildfire
FEMA NHMP Category	Natural Systems Protection
Comments	Reduce fuels on public lands focusing on the hillsides in the Southernly portion of both Cities.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.22) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: Eugene Parks and Open Space has been working to reduce fuel loads on their properties. To date, portions of 23 Parks have been treated. • Challenges: Vegetation management is an ongoing process and requires relentless maintenance to ensure continued benefits of treatments. Funding to date has relied primarily on grant sources, of which the future is uncertain. Vegetation management for wildfire risk reduction is not effective when projects are smaller and not connected, ensuring continuity between efforts on public and private lands can be a challenge as cooperation between parties is necessary.

Mitigation Action Item (F)	Implementation of Mitigation Actions from Community Wildfire Protection Plan (CWPP)
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene – Eugene Springfield Fire
Implementation Timeframe	2025 - 2028

Estimated Cost	TBD
Potential Funding Sources	TBD after completion of plan.
Hazards Mitigated	Wildfire
FEMA NHMP Category	Natural Systems Protection
Comments	Develop prioritization list of action items from completed CWPP (2025-26).
Progress Since Last Plan	N/A – New project for 2024 Plan

Mitigation Action Item (G)	**Outreach - Weather Extreme, Winter**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2023
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Extreme Weather Windstorm Winter Storm
FEMA NHMP Category	Education & Outreach
Comments	Research and incorporate extreme weather safety awareness into the Cities' public outreach program.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.13) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: Limited progress; discussions were had between EM staff about different approaches and events that could raise awareness of extreme weather. • Challenges: Several challenges over the past 5 years prevented the Emergency Management programs from implementing this action item: COVID response, wildfire response/support, considerable staffing turnover in the COE Emergency Management Department between 2022 – 2024.

Mitigation Action Item (H)	**Assessment of Facility Infrastructure Improvements**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Facilities
Implementation Timeframe	2023 - 2026
Estimated Cost	$5,000
Potential Funding Sources	Operational
Hazards Mitigated	All Hazards
FEMA NHMP Category	Structure & Infrastructure
Comments	Assess the facility capital improvement projects for applicability for federal hazard mitigation grant eligibility, prioritize project and add identified projects to the COE mitigation action item collection for future consideration.
Progress Since Last Plan	N/A New project for 2024 plan.

Mitigation Action Item (I)	**Collaborate - Class A Recycled Water Demonstration Project**

Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Public Works
Implementation Timeframe	2020
Estimated Cost	$5,000,000
Potential Funding Sources	TBD
Hazards Mitigated	Drought
FEMA NHMP Category	Natural Systems Protection
Comments	Pursue a water reuse partnership with MWMC. The Metropolitan Wastewater Management Commission (MWMC) will add facilities to the wastewater treatment plant to produce the first ever stream of Class A recycled water - the highest quality recycled water class in Oregon, suitable for all water uses except drinking. Initially, 0.5-1.0 million gallons per day of recycled water will be produced for use at local sand and gravel operations, City street tree watering, and 100% of landscape irrigation at the wastewater plant. The Eugene Springfield Fire Training Facility is also being pursued as a demonstration site. Demonstration sites will build community awareness and user familiarity with recycled water to expand uses to more urban greenspace irrigation, industrial users, and other Public Works uses.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.02) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: New fuzzy filters ordered and installed. Multiple construction funding sources pursued. DEQ CWSRF approval of Class A recycled water project. • Challenges: Three federal construction grant funding applications denied. Customer flow meter vault relocated closer to facility (south of Beltline Highway) to relieve Willamette River AE-Floodway Hazard.

Mitigation Action Item (J)	**Evaluate Local Active Transportation Infrastructure**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Public Works
Implementation Timeframe	2025
Estimated Cost	$60,000
Potential Funding Sources	Local System Development Charges and Grants
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Evaluate off-street path bridges crossing over the Willamette River to complete a high-level seismic assessment of all major City bridges.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.03) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: No progress was made towards accomplishing this goal between 2020-2024. In FY2025, the City intends to contract the off-street seismic assessments with a consultant engineering firm. • Challenges: PWE has faced resource constraints with funding, and prioritization for off-street bridges crossing over the Willamette River. The City now has this project budgeted and is in the process of assigning resources to the project.

Mitigation Action Item (K)	Upgrade Seismic Local Transportation Infrastructure (1)
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Public Works
Implementation Timeframe	2025-2026
Estimated Cost	$3,000,000
Potential Funding Sources	Local System Development Charges and Grants
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Complete seismic improvements to two priority transportation structures: Chambers St. Seismic Retrofit and Amazon Creek Bridge at Bailey Hill Road
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.04) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: Two seismic upgrade projects are planned to advertise for construction in FY 2024. The third project was estimated to be more expensive than available transportation funding (planned funding source). The City applied for federal hazard mitigation funding, and was informally identified as a selected project. The City is currently waiting on a formal notification and funding agreement to process to final design and construction. One additional seismic upgrade project is in the preliminary engineering phase and is scheduled to start construction in FY 2027. • Challenges: Increased design and construction costs. During final design of one of the bridges, it was determined that the conceptual retrofit treatment was not sufficient which increased the project costs.

Mitigation Action Item (L)	Upgrade Seismic Local Transportation Infrastructure (2)
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Public Works
Implementation Timeframe	2028
Estimated Cost	$5,300,000
Potential Funding Sources	TBD
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Complete seismic improvements to West 11th Bridge at Amazon Creek, a priority transportation structures. Work includes bank stabilization and shared use path
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.04) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: No progress was made towards accomplishing this goal between 2020-2024. The City applied for federal hazard mitigation funding, but was unsuccessful The City will continue to apply for federal hazard mitigation funding in the future. • Challenges: Finding funding sources which are sufficient to complete the necessary work

Mitigation Action Item (M)	Increase Fuel Capacity
Location	Greater Eugene/Springfield Areas

Coordinating Agencies	City of Eugene - Fleet Services
Implementation Timeframe	2024
Estimated Cost	$7,000,000
Potential Funding Sources	TBD
Hazards Mitigated	All Hazards
FEMA NHMP Category	Structure & Infrastructure
Comments	Research methods to increase fossil fuel capacity around critical facilities such as upgrading generator fuel tanks to high-capacity tanks.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.08) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: Installation of 2500 gal tank at FS 6 (Coburg Rd.) and two oversized tanks connected to generators at two fire stations. • Challenges: Rules/code for installation of dispensers require large covers for storm water protection. This has prevented installation of dispensers for the tanks and limit their use to emergency operations. In addition, space for infrastructure and funding for improvements are proving to be difficult obstacles to overcome.

Mitigation Action Item (N)	**Upgrade/Replace Fleet Facility**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Fleet Services
Implementation Timeframe	2026-2029
Estimated Cost	$35,000,000
Potential Funding Sources	TBD
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Replace the existing Fleet Facility with a seismically designed essential facility.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Deferred • *Carryover to 2024:* Yes • Accomplishments: Minimal progress • Challenges: Staff timing and funding.

Mitigation Action Item (O)	**Upgrade Seismic - Wastewater Pump Stations**
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - MWMC
Implementation Timeframe	2022 - 2026
Estimated Cost	$8,000,000
Potential Funding Sources	TBD
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Retrofit the Pump Stations to meet current seismic standards.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.12.02) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: COE: The Flexible Pipe Connections for Seismic Resiliency project was included in the City of Eugene's FY23-29 CIP

	which was adopted by Council. This included $100K of actual funding in FY25 and $400K of anticipated funding in FY26 (FY26 funds will be allocated in the next iteration of the CIP). Project #900483 was initiated and a Project Manager was assigned from the Wastewater Division and the Engineering Division. • Challenges: None to date.

Mitigation Action Item (P)	Update Floodplain Maps
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Floodplain Management
Implementation Timeframe	2027
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Flooding
FEMA NHMP Category	Plans/Regulations
Comments	Actively seek funding to update the Eugene/Springfield floodplain maps focusing on the Willamette River through Eugene and the Mill Race, Willamette River through Glenwood, and the 42nd Street Levee Seclusion Zone in Springfield.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.14) • *2020 Plan Conclusion Status:* Delayed • Accomplishments: Worked with FEMA over the past several years to update the flood maps. Maps are still in the "preliminary" status with FEMA with estimated finalization Fall of 2026 then adopted by local communities Winter/Spring 2026/2027.

Mitigation Action Item (Q)	Upgrade - Stormwater Improvements
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Engineering
Implementation Timeframe	2023-2029
Estimated Cost	$12,675,000
Potential Funding Sources	TBD
Hazards Mitigated	Flooding
Comments	Projects include culvert replacements and streambank stabilization. Using prioritization criteria, the highest priority stormwater capital projects are selected for inclusion in the Cities' Capital Improvement Programs. Projects prioritization criteria include whether a project addresses a potential risk to life or property (e.g. flooding), and whether it resolves an ongoing repetitive issue.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.17.02) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: COE: Some of the projects that were completed include Catch Basin Bottom Construction, Drywell Elimination Program Corliss and Autumn Areas, and Skinner Butte Parking Lot Water Quality Retrofits. Design for many projects began and is in progress. • Challenges: COE: Typically, the PWE Project Team delivers capital projects, and in the last several years the team has faced resource issues in terms of staff turnover and difficulty hiring civil engineers/project

	managers. Additionally, the stormwater projects tend to have a degree of complexity that is different from other projects.

Mitigation Action Item (R)	Update - Stormwater Master Plan
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Engineering
Implementation Timeframe	2025 - 2027
Estimated Cost	$800,000
Potential Funding Sources	TBD
Hazards Mitigated	Flooding
FEMA NHMP Category	Plans/Regulations
Comments	Update the City of Eugene's 2002 Stormwater Basin Plan, and Springfield's 2008 Stormwater Facility Master Plan, including stormwater-related data, hydraulic modeling of the system, any recommended changes to design standards, and a prioritized list of stormwater capital projects. This plan guides stormwater management in each City's local stormwater basins for the next decade and beyond.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.18.02) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: COE: The Stormwater Basin Master Plan project was funded through the CIP, and a consultant contract was executed. • Challenges: COE: PWE has faced resource issues in terms of staff turnover and difficulty hiring civil engineers/project managers.

Mitigation Action Item (S)	Evaluate - Stormwater and Climate Impacts
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Engineering
Implementation Timeframe	2025 - 2027
Estimated Cost	$250,000
Potential Funding Sources	TBD
Hazards Mitigated	Flooding
FEMA NHMP Category	Natural Systems Protection
Comments	Evaluate stormwater design standards taking into consideration climate change modeling.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.19.02) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: COE: Consultant contract for the Stormwater Basin Master Plan project (Action Item #2020.18.02) was executed and includes updating the stormwater system model and evaluation of design storms for potential updates to address climate change and enhance climate resiliency. The outcome of this contract work will inform future updates to the City's stormwater development standards code requirements for new and redevelopment, and associated Stormwater Management Manual.

	• Challenges: COE: PWE has faced resource constraints in the stormwater planning and development review program areas and issues in terms of staff turnover.

Mitigation Action Item (T)	Perform Defective Tree Maintenance
Location	Greater Eugene/Springfield Areas
Coordinating Agencies	City of Eugene - Green Infrastructure Maintenance
Implementation Timeframe	2022
Estimated Cost	$200,000
Potential Funding Sources	TBD
Hazards Mitigated	Wildfire Windstorm Winter Storm
FEMA NHMP Category	Natural Systems Protection
Comments	Utilizing contract crews, perform maintenance pruning on trees to provide clearance and mitigate defects such as overextended branches prone to failure under increased loads. Unhealthy or structurally unsound trees will be removed and replanted. These projects will focus on major arterials and priority traffic routes.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.26) • *2020 Plan Conclusion Status:* In Progress • Accomplishments: Green Infrastructure Maintenance • Challenges: Limited resources.

Mitigation Action Item (U)	Operations/Administration Building Improvements
Location	City of Eugene Service Area
Coordinating Agencies	City of Eugene – Wastewater- MWMC
Implementation Timeframe	2025-2027
Estimated Cost	$20,000,000
Potential Funding Sources	MEWMC Capital reserves
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	This project will address the Administration/Operations Building workspace needs at the Water Pollution Control Facility. Resulting from the 2019 Resiliency Planning Study, constructing a new MWMC building for immediate occupancy/use after a major natural disaster.
Progress Since Last Plan	N/A New project for 2024 plan

Mitigation Action Item (V)	Aeration Systems Upgrade
Location	Cire of Eugene Service Area
Coordinating Agencies	City of Eugene – Wastewater- MWMC
Implementation Timeframe	2025-2031
Estimated Cost	$5,000,000
Potential Funding Sources	Capital reserves
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure

Comments	In 2020 and 2021, Brown and Caldwell evaluated the existing aeration systems and provided recommendations in January 2022. Per recommendations, this project will implement the design and construction of additional upgrades/changes to the existing aeration systems by year 2026/2027. Upgrades to the westerly existing basins are anticipated after year 2031. Seismic upgrades include installing X bracing in the secondary control building around the new aeration blowers and rebuilding the baffle walls to withstand earthquake forces.
Progress Since Last Plan	N/A New project for 2024 plan
Site Pictures	 

Mitigation Action Item (W)	**Electrical Switchgear and Transformer Replacement**
Location	Cire of Eugene Service Area
Coordinating Agencies	City of Eugene –Wastewater MWMC
Implementation Timeframe	2025-2027
Estimated Cost	$20,000,000
Potential Funding Sources	Capital reserves
Hazards Mitigated	Flood
FEMA NHMP Category	Structure & Infrastructure
Comments	The purpose of the equipment is to take utility power and provide it to various process areas with the use of switches. There is a main breaker to safely isolate the facility from the utility grid, as well as protect the utility from electrical faults at the site. This project will upgrade the existing switchgear and medium voltage transformers. Construction of a building to enclose and raise the new switchgear above potential flood levels is in line with the 2019 Resiliency Planning Study.
Progress Since Last Plan	N/A New project for 2024 plan
Site Pictures	

Mitigation Action Item (X)	**2020 Plan ID# (2020.21.02) - Analyze - Landslide Study, 2018 DOGAMI**
Location	City of Eugene Service Area

Coordinating Agencies	City of Eugene - Engineering
Implementation Timeframe	TBD
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Earthquake Landslide
FEMA NHMP Category	Natural Systems Protection
Comments	Continue to map landslide hazards in GIS system as new geotechnical studies are available to supplement the DOGAMI landslide data from 2018 (IMS-60). Use GIS information to identify areas and buildings at risk from landslides and propose comprehensive land use policies and construction standards accordingly. Using GIS information to identify geotechnical data associate with the scoping of public project and permit requirements for development projects in the hazard area.
Progress Since Last Plan	• *Carryover to 2024:* Yes; 2020 Plan ID# (2020.21.02) • *2020 Plan Conclusion Status:* In progress • Accomplishments: COE hired GeoEngineers to complete a study on landslide susceptibility in the South Hills. A report was finalized in August of 2023. • Challenges: For reasons outside of our control, we had to change geotechnical consultants midway through the project.

2020 – 2024 Mitigation Action Item Summary

The following provides a status summary of each of the 27 planned mitigation action items from the 2020 plan and status of action items not carried over to the 2024-2028

Special consideration should be noted for the impacts to the City of Eugene departments and staff that limited the progress of the mitigation action items during the 2020 – 2024 plan cycle:

- 2+ years of response to the global pandemic – COVID-19
- 2020 Oregon wildfire response and recovery
- 18 months of significant staffing turnover in the city emergency management program

Table 4.7. 13: 2020-2024 MAI's Summaries

MAI's - Hazards 2020 - 2024		
Hazard	**Primary**	**Secondary**
All Hazards	4	0
Drought	2	0
Earthquake	9	1
Extreme Weather	1	2
Flooding	4	2
Landslide	1	2
Wildfire	4	3
Windstorm	1	2
Winter Storm	1	4
Volcano	0	0
Total	**27**	**16**

MAI's 2020 - 2024		
FEMA Categories	**Total**	**%**
Education & Outreach	2	7%
Natural Systems Protection	8	30%
Plans/Regulations	7	26%
Structure & Infrastructure	10	37%
Total	**27**	**100%**

MAI's 2020 - 2024		
MAI Status	**Total**	**%**
Complete	4	15%
Deferred	1	4%
Delayed	7	26%
In Progress	9	33%
Restructured	5	19%
Withdrawn	1	4%
Total	**27**	**100%**

Mitigation Action Item	**2020 Plan ID# (2020.07) - Assessment - Emergency Fuels, Phase II**
Location	Greater Eugene/Springfield Area
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2021 - 2022
Estimated Cost	$45,000
Potential Funding Sources	TBD
Hazards Mitigated	All Hazards
FEMA NHMP Category	Structure & Infrastructure
Comments	Finish phase two of the Emergency Fuels Assessment for Lane County to determine the best allocation and rationing methods for fossil fuels after a catastrophic event such as a Cascadia Subduction Zone (CSZ) earthquake when usable fuel to run emergency response operations will be very limited.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Complete 3/15/2022 • *Carryover to 2024:* No • Accomplishments: Project completed, by contractor, but needs to be re incorporated into EM program elements. • Challenges: Phase II of the project is complete, which was an assessment tool. Agencies outside the City of Eugene found it difficult to use within their systems and cannot be used off-network. The City of Eugene applied for additional funding to improve the quality of the assessment tool, but funding was not successful. Staffing turnover in the EM program has hindered further progress on the project and will be tracked by the EOP/EOC Mitigation/Improvement Tracking moving forward for Phase III.

Mitigation Action Item	2020 Plan ID# (2020.20) - Plan Update - Continuity of Operations Plans
Location	Greater Eugene/Springfield Area
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2024
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	All Hazards
FEMA NHMP Category	Plans/Regulations
Comments	Develop Continuity of Operations Plans (COOP) for the City of Eugene's Public Works, Police, Fire departments, and all Springfield departments.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Withdrawn • *Carryover to 2024:* No • Accomplishments: Participation in the state-wide roll out of the new state provided software, Veoci. EM staff attended and participated in both the state provided training and FEMA independent study courses related to COOP. • Challenges: State roll-out of new software was delayed and was not as user-friendly to use as anticipated. This, along with staffing challenges within the City of Eugene, delayed the implementation of the new software within the city departments.

Mitigation Action Item	2020 Plan ID# (2020.27) - Plan New - Community Sheltering
Location	Greater Eugene/Springfield Area
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2022
Estimated Cost	TBD
Potential Funding Sources	TBD
Hazards Mitigated	Wildfire Extreme Weather Winter Storm
FEMA NHMP Category	Plans/Regulations
Comments	Develop a consolidated plan for community sheltering and associated outreach needs to provide sheltering during large scale events or incidents in which the Red Cross's resources may be diverted to other areas away from the Cities. This will allow the Cities to provide emergency shelters even during events or incidents when the Red Cross may not be able to provide these services to the Cities.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Restructured • *Carryover to 2024:* No • Accomplishments: Significant improvements from 2020 were made at the State level to support the needs of locals related to mass care and sheltering response. These improvements were directly related to the

	COVID and wildfire responses that followed in the Lane County regional area for the next 4 years. • Challenges: Due to the response support of COVID, following wildfires in the surrounding area and the staffing turnover in the COE Emergency Management Division there was minimal planning completed during this cycle.

Mitigation Action Item	2020 Plan ID# (2020.31) - Outreach - Two Weeks Ready Implementation
Location	Greater Eugene/Springfield Area
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2022
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	All Hazards
FEMA NHMP Category	Education & Outreach
Comments	Utilizing relevant vulnerable populations maps developed for the Lane Livability Consortium, develop an outreach plan for vulnerable populations to encourage community members to be two weeks ready with emergency supplies.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Restructured • *Carryover to 2024:* No • Accomplishments: Limited progress: pending State to finalizes their revisions to their new Be Two Weeks Ready program so local programs can implement. • Challenges: Staffing – Eugene had three vacancies, including the Emergency Manager of the program from 2021 to 2024 totaling 21 months, which has prevented continuity of projects for the EM program.

Mitigation Action Item	2020 Plan ID# (2020.34) - Plan Update - Damage Assessment, All Hazards
Location	Greater Eugene/Springfield Area
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2022
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Earthquake Flooding Landslide Extreme Weather Wildfire Windstorm Winter Storm
FEMA NHMP Category	Plans/Regulations
Comments	Finalize the Eugene/Springfield Damage Assessment Plan
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Restructured • *Carryover to 2024:* No • Accomplishments: Limited progress: city departments are familiar with overall damage assessment process.

	• Challenges: Several challenges over the past 5 years prevented the Emergency Management programs from implementing this action item: COVID response, wildfire response/support, considerable staffing turnover in the COE Emergency Management Division between 2022 – 2024.

Mitigation Action Item	2020 Plan ID# (2020.35) - Plan New - Mass Evacuation
Location	Greater Eugene/Springfield Area
Coordinating Agencies	City of Eugene - Emergency Management
Implementation Timeframe	2024
Estimated Cost	$30,000
Potential Funding Sources	TBD
Hazards Mitigated	Earthquake Flooding Landslide Extreme Weather Wildfire
FEMA NHMP Category	Plans/Regulations
Comments	Develop and exercise a full City evacuation plan
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Restructured • *Carryover to 2024:* No • Accomplishments: Limited progress on plan development but funding obtained to develop CWPP and evacuation plan as part of project. • Challenges: Due to the response support of COVID, following wildfires in the surrounding area and the staffing turnover in the COE Emergency Management Division there was minimal planning completed during this cycle.

Mitigation Action Item	2020 Plan ID# (2020.11) - Upgrades Seismic - Finish City Facilities
Location	City of Eugene Service Area
Coordinating Agencies	City of Eugene - Facilities
Implementation Timeframe	2030
Estimated Cost	TBD
Potential Funding Sources	TBD
Hazards Mitigated	Earthquake
FEMA NHMP Category	Structure & Infrastructure
Comments	Finish seismic upgrades to City owned facilities - Fire Station(s) 7, 8, & 13 and new City Hall.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Complete 6/1/2024 • *Carryover to 2024:* No • Accomplishments: Seismic upgrades were made to fire stations 7, 8 and 13. This brought each facility up to current fire, life safety standards. The new City Hall facility also received seismic upgrades which brought it to current Level 2 standards. • Challenges: Project costs exceeded budget estimates, otherwise no issues were encountered.

Mitigation Action Item	2020 Plan ID# (2020.01) - Plan Adoption - Drought Resistant Landscaping Policies
Location	City of Eugene Service Area
Coordinating Agencies	City of Eugene - Parks & Open Space
Implementation Timeframe	2020
Estimated Cost	Staff Time Only
Potential Funding Sources	Operational
Hazards Mitigated	Drought
FEMA NHMP Category	Natural Systems Protection
Comments	Adopt drought resistant landscaping policies.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Complete 9/15/2020 • *Carryover to 2024:* No • Accomplishments: The 2020 update of the Approved Street Tree List and Planting Guide includes tree species that have the ability to withstand changes in climate, including drought conditions. Eugene Parks and Open Space Division is certified by the Oregon non-profit, Salmon-Safe for it's climate resilient maintenance practices, including parks designed and renovated in a way that requires less water, fertilizer and pesticide use for long-term maintenance. • Challenges: N/A - This is an ongoing initiative

Mitigation Action Item	2020 Plan ID# (2020.25.02) - Remove - Species Specific Trees
Location	City of Eugene Service Area
Coordinating Agencies	City of Eugene - Parks & Open Space
Implementation Timeframe	2020
Estimated Cost	$200,000
Potential Funding Sources	TBD
Hazards Mitigated	Wildfire Windstorm Winter Storm
FEMA NHMP Category	Natural Systems Protection
Comments	Identify species with known failure profiles and potential defects remove and replace them with species known to perform well during drought and storms and have little susceptibility to pest and disease. Work with contractors and Friends of Trees (non-profit tree planting organization) to complete this work.
Progress Since Last Plan	• *2020 Plan Conclusion Status:* Complete • *Carryover to 2024:* No • Accomplishments: From FY19 through FY23 – 3,068 unhealthy street trees were assessed for risk and removed to prevent a potential public hazard. FY19: 774, FY20: 996, FY21: 606, FY22: 354, FY23: 338 In 2020, the approved street tree list and planting guide was updated – eliminating

	disease prone and maladapted species for the area's changing climate conditions to increase resiliency of the urban forest. • Challenges: None, this activity is a component of the Urban Forestry's regular maintenance routine.

04.06 Plan Implementation and Maintenance

The City of Eugene has an extensive history of maintaining a natural hazard mitigation plan, initial plan in 2004 with successful FEMA approved renewals every five years after that. Moving forward as an annex plan to the County MJNHMP will be a continuation of the same level of commitment to maintaining the annex plan.

4.6.1: Annex Plan Coordination

The COE MJNHMP annex will continue to be coordinated under the Central Services Department - Emergency Management Program. The Emergency Management Program Manager will delegate the responsibility of coordinating the MJNHMP annex to one of the Emergency Management Analysts as the MJNHMP Coordinator. The coordinator will be responsible for:

- identifying and collaborating with COE staff to support the hazard quantification review, mitigation action update/selection process and plan renewal process
- participating as the lead representative from COE to the County MJNHMP Committee, liaison to County staff and other 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 COE City Council of the annex plan

4.6.2: Annex Plan Coordination Resources

Several resources are in place to support the on-going maintenance and coordination of the renewal cycle for the annex plan:

- MJNHMP Annex Plan Admin Guide:
  - Training requirements for city staff related to MJNHMP
  - Maintenance and renewal cycle tasks
  - County MJNHMP Committee participation
  - City Internal MAI Quarterly Check-In Meetings
- Mitigation Action Items:
  - MAI Individual Progress Report
  - MAI Summary Worksheet
- Presentations:
  - Internal Orientation to COE MJNHMP Annex Plan Coordination for City Departments
  - External Overview for Community Members – Public, Cooperators

4.6.3: Training Requirements

COE will require the following training for COE personnel who support the maintenance and/or renewal of the MJNHMP annex.

Table 4.7. 14: COE MJNHMP Staff 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 MJNHMP activities.	EM MJNHMP Coordinator and any other city staff who participates in the MJNHMP process.
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.	EM MJNHMP Coordinator
FEMA IS-400	Foundations of Climate Science	This course provides fundamental instruction for participants to achieve basic understanding of climate change concepts. Emphasis will be placed on defining common vocabulary and identifying key concepts.	EM MJNHMP Coordinator

Figure 4.9. 8: COE MJNHMP Interrelated

4.6.4: Plan Integration

The City of Eugene MJMJNHMP Annex will continue to be integrated with or collaborate in support of the plan/process for the following critical plans:

- City Strategic Plan
- City Capital Improvement Plan
- City Comprehensive Plan (land use)
- City Floodplain Management Plan
- City Community Wildfire Protection Plan (annex to County plan)
- City Climate Adaptation 2.0
- City Emergency Management Plan

4.6.5: County MJNHMP Committee Participation

The City of Eugene commits to ensuring valued representation and regular attendance at the County MJNHMP meetings and any plan renewal work sessions. Representation will continue to include:

- Emergency Management – MJNHMP Annex Coordinator as COE lead
- Emergency Management – Emergency Manager as alternate
- Public Works – General Services
- Public Works - Floodplain Manager
- COE/COS Fire – Community Risk Reduction and Resiliency
- Planning (Comprehensive Plan – Goal 7)

4.6.6: Public Participation Post Adoption

The City of Eugene commits to participating in the public engagement activities provided by Lane County, as well as to seek other opportunities to engage, such as community events, public presentations, and maintaining a presence on its Emergency Management webpage for its annex plan.

4.6.7: Public Engagement Campaign Summary

The City of Eugene coordinated a collaborative public engagement campaign with the City of Springfield, Rainbow Water District, and Eugene Water & Electric Board. This campaign was sponsored by the City of Eugene in support of the transition to the County MJNHMP, the need to meet the FEMA NHMP required elements, the need to inform the City of Eugene and Springfield community members of the updated annex and transition to the County MJNHMP.

- Campaign Content – Focus Areas:
  - Orientation to MJNHMP purpose and transition to County MJNHMP
  - COE MJNHMP 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 4.7. 15: Public Engagement Campaign Event(s) Summary

Date/Time	Type	Intent	Audience	#
08/26/2024	Media Release	Announce MJNHMP Presentations, Public Feedback Requested, Transition	Public & Cooperators	*
08/20/2024	Public Feedback Survey	Solicit Feedback	Public & Cooperators	27
09/04/2024, 6-8pm	Presentation – In Person	MJNHMP Overview, Transition to County, Solicit Public Feedback	Public & Cooperators	11
09/10/2024, 5:30-7:30pm	Presentation – In Person	MJNHMP Overview, Transition to County, Solicit Public Feedback	Public & Cooperators	7

**Media Release was shared with regional media partners, area cooperators, city social media, city website, city subscribers to city information.*

- Campaign Summary
    - The media release was carried by three (3) local TV stations and one (1) online media outlet, as well as the social media channels of three (3) of the four (4) outlets.
    - City of Eugene posted and/or shared information about the annex plan on two of its social media channels (Facebook, Instagram).
    - 144 individuals viewed the online survey with a total of 59 (41%) submitting survey responses. Twenty-seven (46%) of the survey participants identifying as being from Eugene.

The draft of each participating agency's annex plan was posted on the City of Eugene's website along with information about the in-person public information sessions and a link to the public survey.

A public survey was released for City of Eugene residents as well as Eugene Water & Electric Board (EWEB), City of Springfield, and Rainbow Water District (RWD) residents. The survey was open for four (4) weeks from August 24 through September 22, 2024. City of Eugene along with the other three (3) agencies organized a public engagement campaign to promote the survey and receive feedback for the Natural Hazard Mitigation Plan draft. One hundred and forty-four (144) individuals viewed the online survey with a total of 59 (41%) submitting survey responses. Twenty-seven (27) of the survey participants identifying as being from Eugene. For a detailed version of the responses, see Attachment A.

Survey responses showed that residents were most concerned about smoke, wildfires, and extreme heat. Almost half of the residents were very concerned about earthquakes and winter storms (snow/ice). Approximately a third of residents were concerned about droughts and dam failures. The hazards that respondents showed to be the least concerned about were tsunamis, volcanos, and landslides.

Respondents indicated that in the case of a natural hazard, infrastructure (bridges, utilities, schools, etc.) and economic impacts (business closures and/or job losses) were the two most vulnerable community assets. Approximately half of the respondents rated human loss of life or injuries and environmental damage to be very vulnerable assets. Regarding the most important community assets, hospitals, fire/police stations, and bridges were the highest rated. Approximately half of respondents rated assisted living facilities, small business, and schools to be amongst the next most important assets. Also notable, about half or more of respondents rated major employers, city hall/courthouse, and parks to be somewhat important.

Almost every respondent indicated that networks (hospitals, fire stations) and protecting critical facilities (transportation) were the highest priority when planning for natural hazards. Over half of respondents indicated that reducing damage to utilities and strengthening emergency services were of high priority as well. A little under half of respondents rated protecting historical and cultural landmarks as well as enhancing the function of natural features to be somewhat important when prioritizing for natural hazards.

Overall, residents indicated that they feel City of Eugene is not very prepared to somewhat prepared for most hazards outlined in the Natural Hazard Mitigation Plan. Seven percent (7%) of respondents said that they felt very prepared for tsunamis, extreme heat, and wildfires, which was the highest rating amongst all hazards. About half of respondents indicated that City of Eugene is not very prepared for

smoke and extreme heat. Approximately, a third of respondents believe City of Eugene is not prepared at all for a dam failure or volcanic event.

To gain an understating of participants concerns about natural hazards as compared to their risks as identified in this annex, Table 4.7.16 compares the 2024 Risk Rating for each hazard from Table 4.7.9 City of Eugene Hazard Quantification Results Summary, with the participants' highest scored level of concern of the hazards affecting their community (Survey Question 2). The comparison indicates that most survey participants are concerned about the hazards which have the highest risk of impacting the community.

Table 4.7.16 Comparing Risk Rating to Survey Participant Concerns

Hazard	2024 Eugene Risk Rating	Level of Concern*	No. of Participants	% of Eugene Participants
Winter Storm	**High**	Somewhat	15	55%
Wildfire	**High**	Very	17	63%
Windstorm	**High**	Somewhat	18	67%
Flood	**High**	Somewhat	13	48%
Earthquake	**High**	Somewhat /Very	12/12	89%
Extreme Weather	**High**	Very	15	55%
Landslide	**Moderate**	Not Very	17	63%
Drought	**Moderate**	Somewhat	14	52%
Volcano	**Low**	Not very	14	52%
Tsunami	**N/A**	Not at all	15	55%

*Level of Concern options: Unsure, Not at all, Not very, Somewhat, Very

Survey Question 3 asked "From your perspective, how vulnerable are each of the following community assets?" Considering Mitigation Action Items are identified to mitigate the impact of a hazard on the community, Table 8.B.2 shows the highest scored level of vulnerability of each community asset type and identifies the 2024-2028 Mitigation Action Items intended to reduce the assets' perceived vulnerability directly or indirectly.

vulnerable

Table 4.7.17: Survey Participant Comments & Staff Responses

Survey Participant Comments & Staff Responses	
Participant Comment	**Staff Response**
Time for another FIRE STATION in Eugene—at the least a seasonal brush truck in the south hills. Woo KAISER in to Eugene—help them build a hospital.	The respondent's comments address locations and concerns which are outside of City of Eugene's jurisdiction and/or are related to response activities rather than hazard mitigation. No edits were made to the draft annex in response to these comments.
Money well spent on emergency response plans start with education. All real property owners should educate themselves on potential hazards and implement a risk management process and emergency response for themselves and integrate with city planning as needed.	The City of Eugene provides a number of outreach and educational opportunities for residents and property owners. No edits were made to the draft annex in response to these comments.
County, city and state don't have an active collaborative plan to share resources or prioritize specific area of need. Other stake holders, EWEB, NW Natural Gas, Comcast should be part of the equation in the incident command structure.	The respondent's comments are outside of the scope of the natural hazards mitigation plan as they are focused on response planning. Having said that, the City of Eugene engages with cooperators in a variety of disaster mitigation, planning, and response activities including but not limited to a Multijurisdictional Emergency Operation Plan, Community Wildfire Protection Plan, joining the Lane County MJNHMP. No edits were made to the draft annex plan in response to these comments.
Many of the describes hazards have an overlapping concern. For example, A volcanic event in the Three Sisters would threaten the water supply, create smoke of ash, and likely start wildfires. Other hazards are difficult to prepare for such as a pandemic which could take multiple different forms. Specifically for a pandemic, I believe it would be good to analyse the negative impacts of the COVID-19 efforts in preparation for a future event. I believe the three highest risk hazards in order of likelihood are south hills wildfire,	The natural hazards that this respondent refers to including wildfire, earthquake, and flood each have multiple mitigation action items associated with them in this annex plan. The additional concern about a pandemic is outside of the jurisdiction of the City of Eugene. The respondent's comments about multi-hazard event response planning is outside of the scope of the NMHP as it is response oriented, and it is well taken. There are a 3 all-hazard mitigation action items included in this annex plan and a focus on community lifelines in the hazard

Survey Participant Comments & Staff Responses	
Participant Comment	**Staff Response**
earthquake, flood. I believe we need more finding and training to prepare for fast moving urban wildfire in the style of so many fires we have seen in recent years. It's not unreasonable to assume the city may need to conduct mass sudden evacuations of thousands of homes in south Eugene while also trying to get resources to the event. In the event of Cascadia level earthquake we have two major issues in that a large part of Eugene will be cutoff as bridges either collapse or need safety inspections and both hospitals will be cutoff. A major flood is a significant risk to north Eugene as well as Springfield and will swamp most of the pre-designated assembly areas. Instead of planning for individual hazards, we should plan for the impacts creating a modular system to hands processing incidents and multi-hazard events (e.g. plans for water sources, transportation disruptions, and evacuations that can be implemented either individually or in combination in response to an evolving event).	quantification and risk assessment. No edits were made to the draft annex in response to these comments.
We need a hospital! It would be great if it could be publicly funded so it can't put out & abandon us.	The suggestion of this respondent is outside of the scope of the natural hazards mitigation plan and jurisdiction of the City of Eugene. No edits were made to the draft annex in response to these comments.
Way to long a survey.	No edits were made to the draft annex in response to these comments.