City of Dallas Addendum
to the Polk County NHMP



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Effective March XX, 2024 through March XX, 2029

Prepared for
City of Dallas
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Dallas, OR 97338

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Introduction

Purpose

This is an update to the Dallas addendum to the Polk County Multi-Jurisdictional Natural Hazard Mitigation Plan (MNHMP, NHMP). This addendum supplements information contained in Volume I (Basic Plan), which serves as the NHMP foundation, and Volume II (Appendices), which provide additional information. This addendum meets the following requirements:

- Multi-Jurisdictional **Plan Adoption** §201.6(c)(5),
- Multi-Jurisdictional **Participation** §201.6(a)(3),
- Multi-Jurisdictional **Mitigation Strategy** §201.6(c)(3)(iv) and
- Multi-Jurisdictional **Risk Assessment** §201.6(c)(2)(iii).

Updates to Dallas's addendum are further discussed throughout the NHMP and within Volume II, Appendix B, which provides an overview of alterations to the document that took place during the update process.

Dallas adopted their addendum to the Polk County Multi-jurisdictional NHMP on [date], 2024. FEMA Region X approved the Polk County NHMP on [date], 2024 and the City's addendum on [date], 2024. With approval of this NHMP, the City is now eligible for non-disaster and disaster mitigation project grants through [date-1], 2029.

NHMP Process, Participation, and Adoption

This section of the NHMP addendum addresses 44 CFR 201.6(c)(5), *Plan Adoption* and 44 CFR 201.6(a)(3), *Participation.*

In addition to establishing a comprehensive, city-level mitigation strategy, the Disaster Mitigation Act of 2000 (DMA2K) and the regulations contained in Title 44 CFR Part 201 require that jurisdictions maintain an approved NHMP to receive federal funds for mitigation projects. Local adoption and federal approval of this NHMP ensures that the city will remain eligible for non-disaster and disaster mitigation project grants. Dallas was included as an addendum in the 2017 Polk County NHMP update process.

The Oregon Partnership for Disaster Resilience (OPDR) at the University of Oregon's Institute for Policy Research and Engagement (IPRE) partnered with the Oregon Department of Emergency Management (OEM), Polk County, and Dallas to update and incorporate Dallas's NHMP as an addendum to the County's NHMP. This project is funded through the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Competitive Grant Program. Members of the Dallas NHMP steering committee also participated in the County NHMP update process (Volume II, Appendix B).

By creating a NHMP, locally adopting it, and having it approved by FEMA, Dallas will maintain eligibility for FEMA Hazard Mitigation Assistance grant program funds.

The Polk County NHMP and Dallas addendum are the result of a collaborative effort between residents, public agencies, non-profit organizations, the private sector, and regional organizations. A project steering committee guided the process of developing the NHMP.

Convener and Committee

The Dallas Economic and Community Development Director served as the designated convener of the NHMP update and will take the lead in implementing, maintaining, and updating the addendum to the Polk County NHMP in collaboration with the designated convener of the Polk County NHMP (Emergency Manager).

Representatives from the City of Dallas steering committee met formally and informally, to discuss updates to their addendum (Attachment B). The steering committee reviewed and revised the City's NHMP, with particular focus on the risk assessment and mitigation strategy (action items).

This addendum reflects decisions made at the designated meetings and during subsequent work and communication with Polk County Emergency Management and the OPDR.

The Dallas Steering Committee was comprised of the following representatives:

- Charlie Mitchell, Economic and Community Development Director
- Tom Gilson, Engineering Supervisor, Dallas Public Works
- Chase Ballew, Planner, City of Dallas
- Josh Rogers, Deputy Fire Chief, Dallas Fire Department

Dallas Natural Hazard Mitigation Plan Steering Committee included representatives from City departments associated with preventive measures (Economic and Community Development Director/Building Official), property protection (Floodplain Manager), natural resource protection (Parks & Recreation Planner), emergency services (Fire Department), structural flood control (Public Works), and public information (Economic and Community Development). The Dallas Steering Committee also sent two representatives to the Polk County NHMP Steering Committee (Planner and Economic and Community Development Director).

Steering committee members possessed familiarity with Dallas's community and how it is affected by natural hazard events. The steering committee was closely involved throughout the development of the NHMP and served as the local oversight body for the NHMP's development. The steering committee guided the Dallas update process through several steps including hazard assessment, problem identification, goal confirmation and prioritization, action item review and development, and information sharing, to update the NHMP and to make the NHMP as comprehensive as possible.

Based on their involvement in hazard mitigation projects or planning, and/or their interest as a neighboring jurisdiction, representatives from the following agencies were invited to participate in the NHMP update. Some of these reviewed drafts of the plan and provided feedback by email.

Other Government and Stakeholder Representatives:

- NW Natural Gas
- Pacific Power and Light
- Polk County Fire District No. 1
- Southwestern Polk County Fire District
- Polk County Emergency Services
- Oregon Department of Transportation District No. 2
- Dallas School District
- Mid Willamette Council of Governments

Stakeholders were included in the planning process. Unlike the Steering Committee, stakeholders for the update were not included in all stages of the planning process, but their input was included to inform the Steering Committee and provide additional perspectives from the community.

The residents of Polk County and the City of Dallas were given opportunities to participate in and learn about the NHMP planning process throughout the duration of the project. Responses to an online/in person survey were used to draft action recommendations that address the needs of vulnerable populations.

NHMP Implementation and Maintenance

The City Council will be responsible for adopting the Dallas addendum to the Polk County NHMP. This addendum designates a steering committee and a convener to oversee the development and implementation of action items. Because the City addendum is part of the County's multi-jurisdictional NHMP, the City will look for opportunities to partner with the County. The City's steering committee will convene after re-adoption of the Dallas NHMP addendum on an annual schedule. The County is meeting on a semi-annual basis and will provide opportunities for the cities to report on NHMP implementation and maintenance during their meetings. The City's Economic and Community Development Director will serve as the convener and will be responsible for assembling the steering committee.

The steering committee will be responsible for:

- Reviewing existing action items to determine suitability of funding;
- Reviewing existing and new risk assessment data to identify issues that may not have been identified at NHMP creation;
- Educating and training new steering committee members on the NHMP and mitigation actions in general;
- Assisting in the development of funding proposals for priority action items;
- Discussing methods for continued public involvement;
- Evaluating effectiveness of the NHMP at achieving its purpose and goals (use Table 4-1, Volume I, Section 4, as one tool to help measure effectiveness); and
- Documenting successes and lessons learned during the year.

The convener will also remain active in the County's implementation and maintenance process (Volume I, Section 4).

The steering committee will be responsible for activities outlined in Volume I, Section 4.

The jurisdiction will utilize the same implementation and maintenance process identified in Volume I, Section 4. The jurisdiction will provide continued public participation during the plan maintenance process through periodic presentations to elected officials, public meetings, postings on social media, and/or through interactive content on the jurisdiction's website.

The City will utilize the same action item prioritization process as the County (Volume I, Section 4 and Volume II, Appendix D).

Implementation through Existing Programs

The mitigation actions described herein are intended to be implemented through existing plans and programs within the city. Plans and policies already in existence have support from residents, businesses, and policy makers. Where possible, Dallas will implement the NHMP's recommended actions through existing plans and policies. Many land-use, comprehensive, and strategic plans get updated regularly, allowing them to adapt to changing conditions and needs. Implementing the NHMP's action items through such plans and policies increases their likelihood of being supported and implemented.

Existing Authorities

Hazard mitigation can be executed at a local scale through three (3) methods: integrating hazard mitigation actions into other local planning documents (i.e., plan integration), adopting building codes that account for best practices in structural hardening, and codifying land use regulations and zoning designations that prescribe mitigation into development requirements. The extent to which a municipality or multi-jurisdictional effort leverages these approaches is an indicator of that community's capabilities.

The following provides a brief synopsis of some of the more important coordinating plans and policies of Dallas in the integration of hazard mitigation and long-range planning:

City of Dallas Comprehensive Plan
The Dallas Comprehensive Plan is the guiding policy document for land use and growth-related planning for the City. To properly identify the community's risks, the Natural Hazard Mitigation Plan relies heavily on the Population Element, Land Use Element, Transportation Element, and Regional Plan Element to identify the community's changing demographics, future population growth, and the physical direction of future growth.

Dallas addresses Statewide Planning Goal 7 Natural Hazards as part of their Comprehensive Plan. Section 6.2.6 includes three primary Environmental and Flood Hazard Regulations:

1. All development within the City of Dallas shall comply with applicable state and federal environmental rules, regulations, and standards.
2. Land use regulations will be coordinated and are intended to be consistent with federal and state environmental regulations.
3. The City shall ensure against flood damage to persons and property through the effective implementation of flood plain regulations, consistent with Federal Emergency Management Act (FEMA) standards.

Any update to Goal 7 or the broader comprehensive plan will reflect the current data and analysis about natural hazards impacting Polk County as contained within this Plan.

Land Use Regulations
The Dallas Development Code (DDC) sets forth zoning, land division and environmental protection requirements, and is a chapter of the Dallas City Code. The Development Code was last updated in July 2023. This update included modifications to Chapter 2.7 Flood Hazard Regulations (2023), street standards, and housing standards. The Planning Department (within the Economic and Community Development Department) is responsible for implementing and enforcing the DDC.

The Dallas Economic and Community Development Department is the oversight entity for all matters related to current and long-range land use planning in the city. It is responsible for the administration of

state, county, and local land use policies and regulations as they relate to the preservation and quality development of property lying within the city limits and urban growth boundary (UGB). The Department periodically updates development codes and long-range plans to ensure adequate public facilities are available to serve new development, preserve community livability, and enhance the resilience of Dallas. They work closely with the County and neighboring jurisdictions to ensure plans are aligned.

Structural Building Codes

The Oregon Legislature recently adopted updated building codes for both residential (2023 Oregon Residential Specialty Code) and commercial structures (Building Codes and Standards: Oregon Structural Specialty Code 2022) since the last update of this Plan. These building codes are based on the 2021 version of the International Building Code, International Fire Code, and International Existing Building Code. As a result, both new residential and commercial structures will be required to be built according to the latest seismic and wind hardening standards in addition to requiring fire resistant building materials.

The City of Dallas has adopted the following codes:

- Residential Code: 2021 Oregon Residential Specialty Code
- Building Code: 2022 Oregon Structural Specialty Code
- Mechanical Code: 2022 Oregon Mechanical Specialty Code
- Plumbing Code: 2021 State of Oregon Plumbing Specialty Code
- Fire Code: 2022 Oregon Fire Code
- Electric Code: Provided by Polk County Building Department

Dallas Public Facilities Plan (PFP)

The Dallas Public Facilities Plan (PFP) describes sanitary sewer, water, and storm drainage facilities within the City and the improvements necessary to support the types and levels of development prescribed in the Dallas Comprehensive Plan. The public facilities plan is supported by adopted facilities master plans and sets priorities for facilities construction through the six-year capital improvements program and the City's annual budget. The City Engineering staff also maintains construction specification standards documents which set minimum construction standards for public improvements, such as sewer, water, and streets.

Dallas Stormwater Master Plan

The 2016 Dallas Stormwater Master Plan presents the results of the analysis of the existing stormwater collection and conveyance system, focusing on existing problem areas to identify modifications and additions to correct current deficiencies and address predicted future needs. The Ash Creek Feasibility Study was identified in the Stormwater Master Plan and identifies additional needs to solve stormwater deficiencies and flooding issues.

TMDL Plan (2022-2027)

The City of Dallas is a Designated Management Agency (DMA) as identified by the Department of Environmental Quality (DEQ). As a DMA, the City of Dallas has authority over the sources of pollution entering Rickreall Creek which contributes to water quality issues in the Willamette River. The City must implement Best Management Practices (BMPs) to control pollution in Rickreall Creek and other waterways. The City has developed a Total Maximum Daily Load (TMDL) Implementation Plan according to DEQ regulations, which is updated every five years. This document sets out specific BMPs that will address contributions of mercury to local waterways.

Urban Renewal
The Downtown Dallas Urban Renewal District is an economic development tool serving Downtown Dallas since 2004. The South Dallas Urban Renewal District created in 2022 will facilitate redevelopment of the former Mill Site, addressing the commercial land deficit, address and improve infrastructure in the area, and provide opportunities for economic development. Projects include: Floodway study (Mill site/N. Fork Ash Creek); street, water and sanitary improvements; and Ash Creek improvements.

Housing Needs Analysis, June 2020
This study, which determines the land need for types of housing within the City's Urban Growth Boundary for the next 20 years, identifies and removes development-constrained lands from the long-range land inventory. Development-constrained lands include those severely constrained by natural hazards, with slopes over 25%, or within the 100-year floodplain.

Water Master Plan
The Dallas Water System Master Plan, which was updated and adopted in 2021, includes the new flood map adopted in 2017 and incorporates resilience strategies into maintenance and expansion of water system.

Mercer Reservoir Planning
Although the available storage in Mercer Reservoir remains sufficient for the average watershed yield well beyond 2040, analysis indicates that the City could face a shortfall in the not too many years should a 100-year drought occur. If the City's water demands increase as projected and a 100-year drought occurred, the available storage in Mercer Reservoir would be exhausted by the year 2028. The City is taking a proactive approach and is starting the process to expand their water storage to provide for at least 50 years of projected water demands under drought conditions. Modifications will be designed to safely pass the Probable Maximum Flood and follow current standards for seismic resiliency.

Community Wildfire Protection Plan
The Polk County Community Wildfire Protection Plan (CWPP) will be incorporated into this Plan as a functioning annex. The NHMP will also be integrated into the City's Capital Improvement Plan, to be adopted by March 2024.

National Flood Insurance Program/FEMA Flood Insurance Study
The Floodplain Manager is responsible for administering the day-to-day activities of the city's floodplain program. They are assisted by the Building Official, the Planning Department, and by the City Manager.

Specifically, the floodplain manager:

- maintains and administers Dallas's floodplain regulations;
- reviews and issues floodplain development permits;
- maintains elevation certificates for all new and substantially improved structures (and maintains an extensive database of historic elevation certificates);
- ensures that encroachments do not occur within the regulated floodway;
- implements measures to ensure that new and substantially improved structures are protected from flood losses;
- maintains floodplain studies and maps and makes this information available to the public;
- maintains a flood information website with digital flood insurance rate map (DFIRM) data;
- conducts site visits to assess conditions and provide technical assistance to the public;
- maintains a library of historical flood related information;

- informs the public of flood insurance requirements; and
- conducts outreach and training about flood hazards and development within the floodplain.

In 2022, the Dallas City Council adopted Ordinance 1864, which updated Chapter 2.7 Flood Hazard Regulations to reflect the Oregon State Model Code provided by the Department of Land Conservation and Development. This code still relies upon FIRM maps and the Flood Insurance Study for Polk County and Incorporated Areas that were effective in December 2006.

Public Works
The City of Dallas Public Works Department is responsible for streets, water, sewer, stormwater, parks, and public facilities. Much of their work is associated with the reduction of hazards to the community and the implementation of resilience measures.

City Administration
The City Council of Dallas has the responsibility of developing and adopting the annual city budget. Integrating hazard mitigation goals and projects into the annual budget is key to implementing the plan. The City Council tries to broadly address resilience planning needs while it determines city and departmental priorities and looks for multiple-impact projects wherever possible. They also work with staff to apply for federal and state grant funding to pursue larger projects that are outside of general fund capacity.

Personnel

The following Dallas personnel have assignments related to natural hazard mitigation planning and implementation:

Emergency Management: Tom Simpson, Chief of Police

Public Information Officer: Alyson Roberson, Communications Specialist

Floodplain Manager: Tom Gilson, Engineering Services Supervisor

Grant writing (for Public Works or emergency management): Tom Simpson, Chief of Police

Capital improvement planning: Brian Latta, City Manager

Capital improvement execution: Brian Latta, City Manager

Dallas does not have any employees solely designated to Emergency Management or Mitigation. These personnel integrate hazards and resilience planning into their greater work programs to the best of their abilities. However, there is limited capacity to expand upon their capabilities or workloads.

Capital Resources

The City of Dallas maintains several capital resources that have important roles to play in the implementation of the natural hazard mitigation plan, including:

Communication Towers:

- Private Cellular Tower (224 East Ellendale Avenue)
- Private Cellular Tower (1500 SE Howe)
- Private Cellular Tower (1391 SE Jefferson St)

Critical facilities with power generators for use during emergency blackouts:

- Dallas Police Department (187 SE Court Street)
- Dallas Fire Department (915 SE Shelton Street)
- Dallas Water Treatment Plan (16375 Ellendale Road West)
- Dallas Sewage Plant (1070 Bowersville Road)
- Dallas Aquatic Center (1005 SE La Creole Drive)

Food Pantries:

- Dallas Food Bank (322 Main Street #180, Dallas)

Fuel Storage:

- Dallas City Workshops (536 SE Mill Street)

Findings

Several important findings from this capability assessment informed the design of the Plan's mitigation strategy and aided in prioritizing action items.

Staffing Limitations and Capacity
Dallas staff are assigned hazard mitigation responsibilities as a (small) part of their larger job responsibilities. Limited capacity reduces the breadth of the programming the community can undertake in any year. The city relies upon its relationships with the County and other cities within its region to expand its operations.

Reliance upon outside funding streams and local match requirements
Dallas operates on a limited budget with a small staff. This leaves few opportunities for using local financial resources to implement hazard mitigation work. They lean heavily upon state and federal grant funds as the primary means for securing mitigation funding. Hazard mitigation grants such as HMGP and BRIC require 10-25% local funding match, as well as extra staff capacity and expertise to navigate the application process and manage the funding.

Leveraging Partnerships with Public and Nonprofit Entities
Regional planning displayed in the development of the Community Wildfire Protection Plan demonstrates the City's ability to effectively share information, identify priority needs, and work towards solutions.

Mitigation Plan Mission

The 2023 Dallas Hazard Mitigation Advisory Committee (HMAC) reviewed the previous NHMP Mission and Goals in comparison to the County and State NHMP Goals and determined that they remain relevant and agreed to retain them without modifications.

The NHMP mission states the purpose and defines the primary functions of NHMP. It is intended to be adaptable to any future changes made to the NHMP and need not change unless the community's environment or priorities change.

The mission of the NHMP is to:

> To assist in reducing risk, preventing loss, and protecting life, property, and the environment from future natural hazard events. The plan fosters collaboration and coordinated partnerships among public and private partners. This can be achieved by increasing public awareness and education and identifying activities to guide the county towards building a safer community.

This can be achieved by increasing public awareness, documenting the resources for risk reduction and loss-prevention, and identifying activities to guide the county and its cities towards building a safer, more sustainable community.

Mitigation Plan Goals

Mitigation plan goals are more specific statements of direction that City of Dallas citizens, and public and private partners, can take while working to reduce the city's risk from natural hazards. These statements of direction form a bridge between the broad mission statement and particular action items. The goals listed here serve as checkpoints as agencies and organizations begin implementing mitigation action items.

Meetings with the HMAC, previous hazard event reports, and the previous NHMPs served as methods to obtain input and identify priorities in developing goals for reducing risk and preventing loss from natural hazards.

All the plan goals are important and are listed below in no particular order of priority. Establishing community priorities within action items neither negates nor eliminates any goals, but it establishes which action items to consider implementing first, should funding become available.

GOAL 1: PUBLIC EDUCATION AND AWARENESS

Provide public information and education/awareness to all residents of the city concerning natural hazard areas and mitigation efforts.

GOAL 2: PREVENTIVE AND IMPLEMENTATION

Develop and implement activities to protect human life, commerce, property and natural systems.

GOAL 3: COLLABORATION AND COORDINATION

Strengthen hazard mitigation by increasing collaboration and coordination among citizens, public agencies, non-profit organizations, businesses, and industry.

GOAL 4: FUNDING AND PARTNERSHIPS

Seek partnerships in funding and resources for future mitigation efforts.

GOAL 5: EMERGENCY OPERATIONS

Coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures.

GOAL 6: NATURAL RESOURCES UTILIZATION

Link land use planning, development criteria, codes, and natural resources and watershed planning with natural hazard mitigation.

Mitigation Strategy

This section of the NHMP addendum addresses 44 CFR 201.6(c)(3(iv), *Mitigation Strategy*.

The City's mitigation strategy (action items) was first developed during the 2020 NHMP planning process and revised during subsequent NHMP updates. During these processes, the HMAC assessed the City's risk, identified potential issues, and developed a mitigation strategy (action items).

During the 2023 update process, the City re-evaluated their mitigation strategy (action items). During this process action items were updated, noting if the action is complete, not complete and whether the actions were still relevant; any new action items were identified at this time (see Attachment B for more information on changes to action items).

Mitigation Successes

The City of Dallas has several examples of hazard mitigation including the following projects funded through FEMA Hazard Mitigation Assistance and the Oregon Infrastructure Finance Authority's Seismic Rehabilitation Grant Program.[1]

FEMA Funded Mitigation Successes

- None identified.

Seismic Rehabilitation Grant Program Mitigation Successes

- 2021: Dallas High School Gymnasium ($2,495,005)
- 2020: LaCreole Middle School Gymnasium ($2,046,735)
- 2017: Whitworth Elementary School Gymnasium ($700,160)
- 2016: Whitworth Elementary ($1,492,900)
- 2010: Dallas Fire Station ($887,725)

In addition, the following structures have also had some structural and/ or non-structural seismic retrofitting:

- Whitworth Elementary School (Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, funded per 2009 local school bond (completed in August 2010).
- Lyle Elementary School (Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, funded per 2009 local school bond (completed in August 2010).
- Dallas High School (Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, funded per 2009 local school bond (completed in August 2010).
- Morrison Campus Alternative School (1251 Main St., Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, stadium concrete foundation was installed, dry rot removed and structural upgrades to columns, press box support was engineered and upgraded; funded per2009 local school bond (completed in August 2010, stadium upgrades in September 2011).

Other Recent Mitigation Successes

- Transportation System Plan Update (underway, adoption in 2024/2025)

[1] The Seismic Rehabilitation Grant Program (SRGP) is a state of Oregon competitive grant program that provides funding for the seismic rehabilitation of critical public buildings, particularly public schools, and emergency services facilities.

- Updated Floodplain Development Code (Ordinance No. 1864, 2022)
- Clay Street Reservoir Complex rehabilitation (2023)
- Water Master Plan (2021)

Actions Items

Table DA-1 Action Items documents the title of each action along with the lead organization, partners, timeline, cost, and potential funding resources. The HMAC decided to modify the prioritization of action items in this update to reflect current conditions (risk assessment), needs, and capacity. High priority actions are shown with orange highlight. The City will focus their attention, and resource availability, upon these achievable, high leverage, activities over the next five years. Although this methodology provides a guide for the HMAC in terms of implementation, the HMAC has the option to implement any of the action items at any time. This option to consider all action items for implementation allows the committee to consider mitigation strategies as new opportunities arise, such as capitalizing on funding sources that could pertain to an action item that is not currently listed as the highest priority. Refer to Attachment B for changes to actions since the previous NHMP.

Table DA-1 Action Items

Action Item #	Mitigation Actions	Drought	Earthquake	Extreme Heat	Flood	Landslide	Volcanic Event	Wildfire	Windstorm	Winter Storm	Potential Funding Resources	Lead	Partners	Timeline	Cost
1	Develop and fund capital projects designed to implement the recommendations of the Stormwater Management Plan.	x			x	x					Local Funding Resources, DEQ	Public Works	Planning, Administration	L	H
2	Harden utility headers located along river embankments to mitigate potential flood, debris, and erosion damages.				x	x					Local Funding, Utility funds, PDM	Public Works	DEQ, Utilities, DSL	L	H
3	Cross reference and incorporate mitigation planning provisions into all community planning processes such as comprehensive plan, Public Works construction standards, capital improvement, land use, transportation plans, etc. to demonstrate multi-benefit considerations, facilitate using multiple funding source consideration, and ensure new development addresses hazards.	x	x	x	x	x	x	x	x	x	Local Funding Resources, DLCD	Planning	Public Works	O	L

4	Develop, produce, and distribute information materials concerning mitigation, preparedness, and safety procedures for all natural hazards.	x	x	x	x	x	x	x	x	x	Local Funding Resources, FEMA	Planning	Library	O	L
5	Explore acquisition of portable fuel storage/delivery equipment to refill generators at critical facilities during multi-day hazard events.		x	x	x				x	x	DEQ, FEMA, OEM	Public Works	Police, Water Department	S	M
6	Work with the community to identify warming and cooling shelters, upgrade identified facilities as necessary to meet community needs, and develop an outreach program for community notification and awareness.			x							Local Funding Resources, ODOE, DEQ	Planning	Public Works, community partners, Red Cross, School District	O	S-M
7	**Evaluate critical public facility seismic performance for city hall, fire stations, public works buildings, portable water systems, wastewater systems, electric power systems, and bridges within the jurisdiction.**		**x**								**Local Funding Resources, ODOT, ODOE, DEQ**	**Public Works**	**Planning, Water Department, Utilities**	**S**	**L**
8	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current Building Codes, including City Hall.		x								Local Funding Resources, HMGP, PDM	Public Works	Planning, Fire	M	H
9	Retrofit/replace Godsey Road Bridge.		x		x						Local Funding Resources, ODOT, PDM, HMGP	Public Works	Planning, ODOT, County	M	H

10	Install bank protection such as rock, concrete, asphalt, vegetation, or other armoring or protective materials to provide riverbank protection.				x	x					General Fund, PDM, HMGP, OWEB, DEQ	Public Works	DSL, FEMA	S-M	M
11	Establish flood mitigation priorities for residential and commercial buildings located within the 100-year floodplain using survey elevation date.				x						Local Funding Resources, DLCD, FEMA, ASFPM	Public Works	DLCD, FEMA	S	L
12	Develop an outreach program to educate public concerning NFIP participation benefits, floodplain development, land use regulation, and NFIP flood insurance availability to facilitate continued compliance with the NFIP.				x						Local Funding Resources, FEMA, DLCD	Planning	Public Works	O	L
13	Develop, implement, and enforce erosion and sediment control ordinances.	x			x	x					Local Funding Resources, DEQ	Planning	Public Works	O	L
14	Implement mitigation measures identified by critical facilities' owners, and other facility owners, to protect facilities located within the 100-year floodplain.				x						Local Funding Resources, FEMA, HMGP	Planning	Public Works	M	M
15	Increase size of culverts identified through the Stormwater Management Plan to increase its drainage efficiency.				x	x					Local Funding Resources, FEMA, HMGP	Public Works	DSL, ODOT	H	L

16	Identify and prioritize critical facilities' overhead utilities that could be placed underground to reduce power disruption from windstorm/tree blow down damage.							x	x	x	Utilities, Local Funding Resources	Public Works	Utilities	S-M	L
17	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.								x	x	Utilities, Local Funding Resources	Public Works	Utilities	O	L-M
18	Update or develop, implement, and maintain jurisdictional debris management plans.		x		x	x			x	x	Local Funding Resources	Public Works	Planning	O	L
19	Develop and maintain severe winter storm public outreach program defining mitigation activity benefits through educational outreach aimed at households and businesses while targeting special needs populations.								x	x	Local Funding Resources	Planning	Public Works	O	L
20	Update emergency response planning and develop client focused outreach program for ash fall events affecting river, air, and highway transportation, and industrial facilities and operations.						x				Local Funding Resources	Public Works	Police, Fire, Planning	M	L

21	Evaluate capability of water treatment plant to deal with high turbidity from ash falls, update emergency response plans, and upgrade treatment facilities' physical plant to deal with ash falls.						x				Local Funding Resources, DEQ, HMGP	Public Works	Water Department, DEQ	M	M - H
22	**Participate in the maintenance, implementation, and update of the Polk County Community Wildfire Protection Plan (2024).**							**x**			**Local Funding Resources, ODF, PDM, HMGPWF**	**Fire and Rescue**	**ODF, Public Works, Planning**	**O**	**M**
23	Develop outreach program to educate and encourage fire-safe construction practices for existing and new construction in high-risk areas.							x			Local funding resources, ODF	Fire and Rescue	Planning	O	M
24	Develop outreach program to educate and encourage home landscape cleanup (defensible space) and hazard vegetation management.							x	x	x	Local Funding Resources, Firewise, ODF	Fire and Rescue	HOAs, Oregon Department of Forestry, Planning	O	L

Cost: L – Low (less than $50,000), M - Medium ($50,000-$100,000), H - High (more than $100,000)
Timing: O-Ongoing (continuous), S-Short (1-2 years), M-Medium (3-5 years), L-Long (5 or more years)
Priority Actions: Identified with **bold** text and **orange** highlight

Risk Assessment

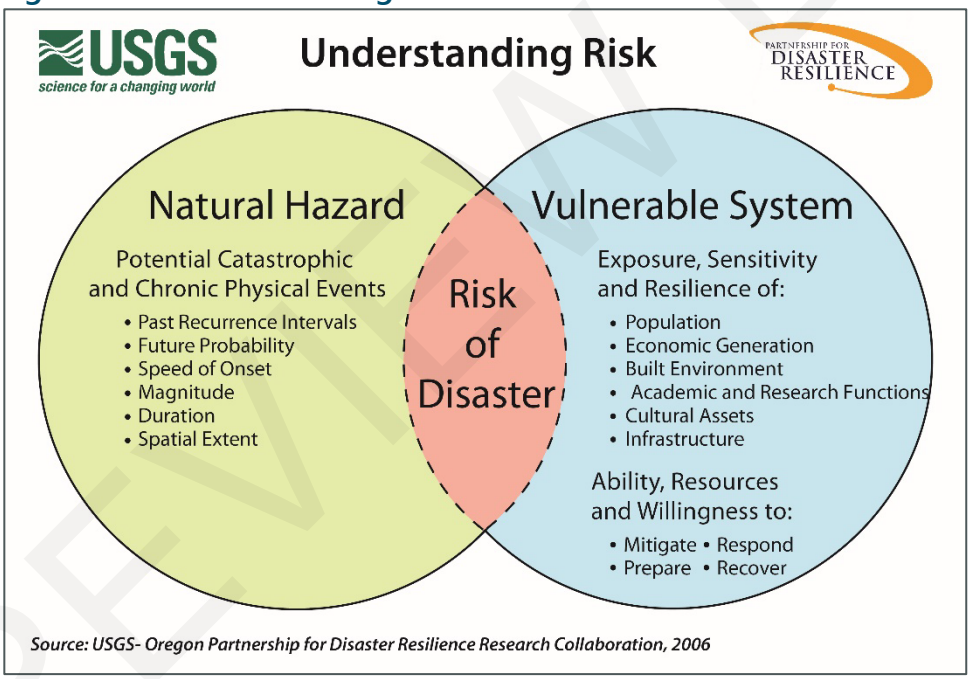
This section of the NHMP addendum addresses 44 CFR 201.6(b)(2) - Risk Assessment. In addition, this chapter can serve as the factual basis for addressing Oregon Statewide Planning Goal 7 – Areas Subject to Natural Hazards.

Assessing natural hazard risk has three phases:

- **Phase 1:** Identify hazards that can impact the jurisdiction. This includes an evaluation of potential hazard impacts – type, location, extent, etc.
- **Phase 2:** Identify important community assets and system vulnerabilities. Example vulnerabilities include people, businesses, homes, roads, historic places, and drinking water sources.
- **Phase 3:** Evaluate the extent to which the identified hazards overlap with, or have an impact on, the important assets identified by the community.

The local level rationale for the identified mitigation strategies (action items) is presented herein and within Polk County NHMP Volume I, Sections 2 and 3. The risk assessment process is graphically depicted in Figure DA-1 below. Ultimately, the goal of hazard mitigation is to reduce the area of risk, where hazards overlap vulnerable systems.

Figure DA-1 Understanding Risk



Hazard Analysis

The Dallas steering committee developed their hazard vulnerability assessment (HVA), using the Polk County's HVA (Polk County NHMP Volume II, Appendix C) as a reference. Changes from the County's HVA were made where appropriate to reflect distinctions in vulnerability and risk from natural hazards unique to Dallas, which are discussed throughout this addendum.

Table DA-2 shows the HVA matrix for Dallas, listing each hazard in order of rank from high to low. For local governments, conducting the hazard analysis is a useful step in planning for hazard mitigation, response, and recovery. The method provides the jurisdiction with a sense of hazard priorities but does not predict the occurrence of a particular hazard.

One catastrophic hazard (Cascadia Subduction Zone earthquake) and two chronic hazards (flood and winter storm) rank as the top hazard threats to the City (Top Tier). Windstorm, wildfire, and extreme heat event comprise the next highest ranked hazards (Middle Tier), while drought, crustal earthquake, landslide, and volcanic event comprise the lowest ranked hazards (Bottom Tier).

Table DA-2 Hazard Analysis Matrix

Hazard	History	Probability	Vulnerability	Maximum Threat	Total Threat Score	Hazard Rank	Tier
Flood	14	30	80	70	194	# 1	*Top Tier*
Winter Storm	20	25	70	70	185	# 2	
Earthquake - Cascadia	2	40	100	35	177	# 3	
Windstorm	12	25	60	70	167	# 4	*Middle Tier*
Wildfire	10	20	80	56	166	# 5	
Extreme Heat Event	16	25	50	70	161	# 6	
Drought	6	20	80	28	134	# 7	*Bottom Tier*
Earthquake - Crustal	2	25	70	21	118	# 8	
Landslide	2	25	40	21	88	# 9	
Volcanic Event	2	15	20	7	44	# 10	

Source: Dallas NHMP Steering Committee, 2023.

Community Characteristics

Table DA-3 and the following section provide information on City specific demographics and characteristics. For additional information on the characteristics of Dallas, in terms of geography, environment, population, demographics, employment, and economics, as well as housing and transportation, see Volume III, Appendix C. Many of these community characteristics can affect how natural hazards impact communities and how communities choose to plan for natural hazard mitigation. Considering the City specific assets during the planning process can assist in identifying appropriate measures for natural hazard mitigation.

Dallas is located on the eastern edge of the Coast Range along Rickreall Creek, about 15 miles west of the city of Salem, at an elevation of 325 feet above sea level. The City was incorporated in 1874 and serves as the Polk County seat.

The City is characterized by relatively flat topography, especially in the vicinity of downtown. Rickreall Creek, providing the City's water supply, flows west-east through the center of the city on the northern edge of the Central Business District. Ash Creek flows along the southern edge of the City. Together the 100-year floodplains for these two waterbodies comprise more than 500 of the City's

3139 acres. The City is within Rickreall watershed, although the southern portion of the city is within the Luckiamete watershed.

Dallas experiences a Mediterranean climate with warm to very warm, dry summers with cool mornings, and cold, rainy winters. Occasionally frigid weather will reach the Willamette Valley due to very cold continental air from Canada being driven over the Cascades by a low-pressure system to the south. However, snowfall is generally very rare, with an annual mean of 4.9 inches. Dallas averages 49 inches of rain per year. Rainfall is generally heavier during the winter months.

Population and Income

The City of Dallas had a population of 16,854 people per the 2020 Census, over an area of 4.91 square miles. Between 2016 and 2021, the City grew by 1,981 people (11%) (see Table DA-3 below). According to the State's official coordinated population forecast, between 2021 and 2040 the City's population is forecasted to increase by 31%.

Most of the population is White/Caucasian (90%) and about 5% of the population is Hispanic or Latino. The poverty rate is 14.5%. Four percent do not have health insurance. The City has a well-educated population, with 93% of residents with high school degrees or higher, and 24% with bachelor's degrees or higher. Approximately 13% of the population lives with a disability. Almost half the population (43%) are either below 18 (19%) or over 65 (24%) years of age.

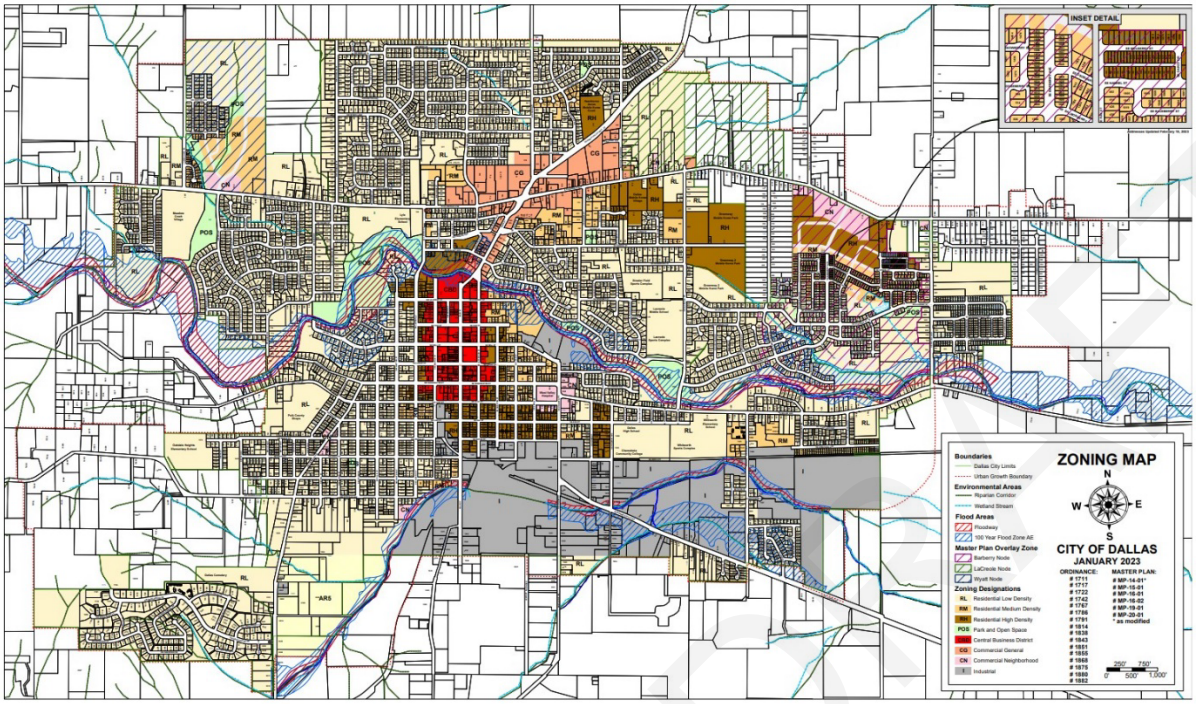
Transportation, Housing, and Infrastructure

In the City of Dallas, transportation has played a major role in shaping the community. The development of the narrow-gauge railroad between 1878-80 secured the position of County Seat for the city. Today, the City of Dallas relies heavily upon its road system. (See Figure DA-2 Dallas Zoning Map (2023).)

Oregon Route 223 is the only state highway that serves the city. It connects the city of Dallas to Oregon Route 22 and Oregon Route 99W, providing Dallas residents with easy access to major shopping centers, employment, and governmental activities in Salem to the east and other cities to the north and south.

Much of Dallas consists of residential parcels, covering approximately 70% of the City's land area. There are over 6600 households within these residential areas, which circle the historic Central Business District. General commercial development centers around the intersection of the Dallas Rickreall Highway (OR 223) and Kings Valley Highway.

Figure DA-2 Dallas Zoning Map (2022)



Source: City of Dallas website (November 2023)

Well over three-quarters of current residents live in single family homes (70%); mobile homes make up 8% of the housing stock. Forty percent (40%) of residences were built before 1980. Sixty-eight percent (69%) of housing units are homeowner occupied. New development has complied with the standards of the Oregon Building Code and the city's development code including their floodplain ordinance.

By far, motor vehicles represent the dominant mode of travel through and within Dallas. The mean travel time for workers (age 16+) is 29 minutes, with many Dallas residents commuting to Salem (in Marion County), which houses state buildings and offices. Seventy-three percent (73%) of workers drive alone to work. Of those who commute to work (in Polk County or Marion County), 73% drove alone, 13% carpooled, 3% walked, and 1% use public transit or bicycles. The remainder (10%) work from home. 74% have two cars available at home.

The City maintains water, sanitary sewer, and stormwater utilities, as well as streets, parks, and public facilities.

Economy

A diverse range of businesses are located in Dallas. Dallas has a high population growth rate and is expected to grow to 25,089 people by 2040. About 45% of the resident population age 16 and over is in the labor force (7,434) and are employed in a variety of occupations, including: management, business, science, and art; service; production, transportation, and material moving; and sales and office occupations.

Table DA-3 Community Characteristics

Population Characteristics		
2016 Population Estimate	15,345	
2021 Population Estimate	17,326	
2040 Population Forecast*	25,089	
Race		
American Indian and Alaska Native		3%
Asian		< 1%
Black/ African American		1%
Native Hawaiian and Other Pacific Islander		< 1%
White		90%
Some Other Race		3%
Two or More Races		4%
Hispanic or Latino/a (of any race)		5%
Limited or No English Spoken	13	< 1%
Vulnerable Age Groups		
Less than 5 Years	1,057	6%
Less than 18 Years	3,165	19%
65 Years and Older	3,941	24%
85 Years and Older	561	3%
Age Dependency Ratio		74
Disability Status (Percent age cohort)		
Total Disabled Population	2,871	14%
Children (Under 18)	95	3%
Working Age (18 to 64)	1,518	16%
Seniors (65 and older)	1,258	33%

Household Characteristics		
Housing Units		
Single-Family (includes duplexes)	4,981	74%
Multi-Family	1,240	18%
Mobile Homes (includes RV, Van, etc.)	546	8%
Household Type		
Family Household	4,283	65%
Married couple (w/ children)	1,249	29%
Single (w/ children)	498	12%
Living Alone 65+	954	14%
Year Structure Built		
Pre-1970	1,478	22%
1970-1989	2,056	30%
1990-2009	2,452	36%
2010 or later	781	12%
Housing Tenure and Vacancy		
Owner-occupied	4,563	67%
Renter-occupied	2,049	30%
Seasonal	0	0%
Vacant	155	2%
Vehicles Available (Occupied Units)		
No Vehicle (owner occupied)	123	3%
Two+ vehicles (owner occupied)	3,381	74%
No Vehicle (renter occupied)	390	19%
Two+ vehicles (renter occupied)	762	37%

Income Characteristics		
Households by Income Category		
Less than $15,000	741	11%
$15,000-$29,999	706	11%
$30,000-$44,999	1,027	16%
$45,000-$59,999	803	12%
$60,000-$74,999	730	11%
$75,000-$99,999	688	10%
$100,000-$199,999	1,635	25%
$200,000 or more	282	4%
Median Household Income		$60,511
Gini Index of Income Inequality		0.48
Poverty Rates (Percent age cohort)		
Total Population	2,351	14%
Children (Under 18)	553	18%
Working Age (18 to 64)	1,242	13%
Seniors (65 and older)	556	15%
Housing Cost Burden (Cost > 30% of household income)		
Owners with a Mortgage	900	20%
Owners without a Mortgage	162	4%
Renters	973	48%

Employment Characteristics		
Labor Force (Population 16+)		
In labor Force (% Total Population)	7,434	45%
Unemployed (% Labor Force)	451	6%
Occupation (Top 5) (Employed 16+)		
Professional and Related Occupations	1,302	19%
Management, Business, and Financial (	829	12%
Construction, Extraction, and Maintena	823	12%
Transportation and Material Moving Oc	674	10%
Office and Administrative Support Occu	646	9%
Health Insurance		
No Health Insurance	635	4%
Public Health Insurance	8,105	50%
Private Health Insurance	11,100	68%
Transportation to Work (Workers 16+)		
Drove Alone	5,037	73%
Carpooled	900	13%
Public Transit	46	1%
Motorcycle	0	0%
Bicycle/Walk	263	4%
Work at Home	671	10%

Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates; Portland State University, Population Research Center, "Annual Population Estimates, Table 4", 2016 and 2021; and"Population Forecasts, Summary Tab", 2022.
Note 1: * = Population forecast within UGB
Note 2: ACS 5-year estimates represent average characteristics from 2017-2021. Sampling error may result in low reliability of data. This information or data is provided with the understanding that conclusions drawn from such information are the responsibility of the user. Refer to the original source documentation to better understand the data sources, results, methodologies and limitations of each dataset presented.

Disadvantaged populations

There are a number of federal and state agencies working to identify and address the qualities that make some communities more disadvantaged than others and reduce their ability to rebound from natural disasters. These issues include disparities within economic, health, environment, housing, and other areas. Polk County contains a number of disadvantaged populations as indicated by the indexes below.

The rural community of Dallas is specifically challenged by persistent poverty levels, lack of health care, and water/wastewater issues. The Oregon Office of Rural Health defines "rural" as any geographic areas in Oregon ten or more miles from the centroid of a population center of 40,000 people or more. In Polk County, Dallas, Falls City, Grand Ronde, and Monmouth qualify as "rural" under this threshold.

Disadvantaged Community

Per FEMA's Grant Equity Threshold Tool, the residents of Dallas are identified as "disadvantaged" due to health concerns and water/wastewater issues. Communities are identified as disadvantaged for HEALTH if they are in census tracts that: ARE at or above the 90th percentile for asthma OR diabetes OR heart disease OR low life expectancy AND are at or above the 65th percentile for low income. Communities are identified as disadvantaged for WATER and WASTEWATER if they are in census tracts that: ARE at or above the 90th percentile for underground storage tanks and releases OR wastewater discharge AND are at or above the 65th percentile for low income. High and/or persistent poverty and limited water and sanitation access and affordability reduce the community's ability to rebound from natural disasters.

Medically Underserved

The Health Resource and Service Administration classifies Dallas as a Medically Underserved Area (MUA), due to its shortage in dental, primary, and mental health care providers.

Community Resilience-Challenged

Polk County is identified as a 43 of 100 on FEMA's Community Resilience Challenges Index due to high numbers of residents with a disability, high numbers of single-parent households, low numbers of medical practitioners and hospitals (0.00 hospitals per 10,000 people), high number of households without a smartphone (13.54%) and high poverty levels (12%).[2] [3]

Economically Distressed

Business Oregon gives priority when funding technical assistance, programs, and projects to geographic areas determined to be economically distressed as prescribed by Oregon law, based on 2016-2020 ACS data. The list is updated annually.

Within Polk County, the cities of **Dallas**, **Falls City**, **Grand Ronde**, **Independence**, **Monmouth**, Salem, and Willamina were identified as being *Economically Distressed* by Business Oregon in 2022.

[2] FEMA, Resilience Analysis and Planning Tool (RAPT) (arcgis.com), accessed December 2023.

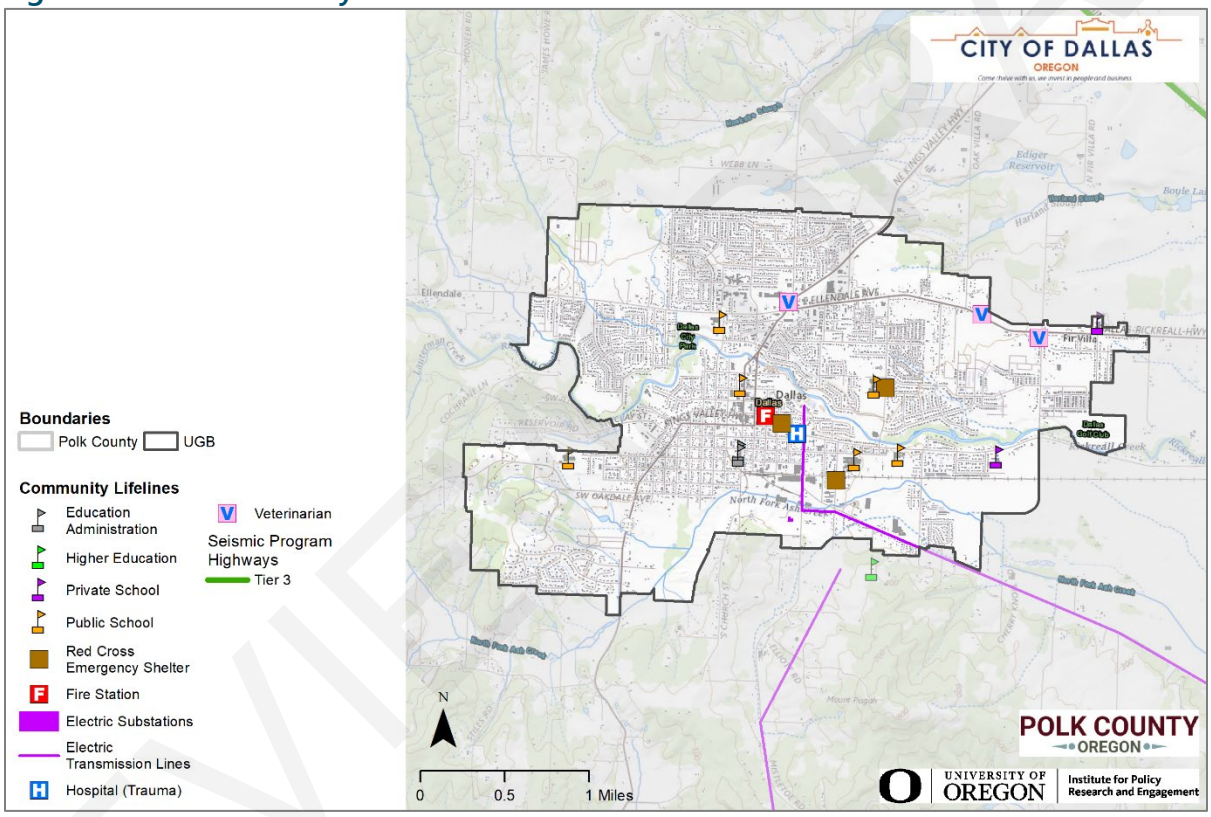
[3] Note: the Salem Health West Valley Hospital is located in Dallas and has six beds.

Community Lifelines

This section outlines the resources, facilities, and infrastructure that, if damaged, could significantly impact public safety, economic conditions, and environmental integrity of Dallas. Community Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Mitigating these facilities will increase the community's resilience.

Community lifelines in Dallas are shown in Figure DA-3 and Table DA-4. This integrated network of assets, services, and capabilities are used day-to-day to support the recurring needs of the community and enable all other aspects of society to function. Decisive intervention (e.g., rapid re-establishment or employment of contingency response solutions) is required to maintain/reestablish these facilities and services following a hazard incident.

Figure DA-3 Community Lifelines



Source: Oregon Partnership for Disaster Resilience, Oregon Department of Geology and Mineral Industries.
Note: To view detail click this link to access Oregon HazVu

Table DA-4 Community Lifelines

Critical Facilities by Community	Flood 1% Annual Chance Exposed	CSZ Earthquake Moderate to Complete Damage >50% Prob.	Turner and Mill Creek Fault Earthquake Moderate to Complete Damage >50% Prob.	Landslide High and Very High Susceptibility Exposed	Wildfire High and Moderate Risk Exposed
Dallas Community Charter	-	-	-	X	-
Dallas Fire Station	-	X	-	-	-
Dallas High School	-	-	-	-	-
Dallas Police Department/City Hall	-	X	-	-	-
Jefferson Lodge Memory Care	-	X	-	-	-
Lacreole Middle School	-	X	-	-	-
Lyle Elementary School	-	-	-	-	-
Morrison Campus Alternative School	-	-	-	-	-
Oakdale Heights Elementary School	-	-	-	X	-
Polk County Emergency Management	-	-	-	-	-
Polk County Jail	-	-	-	-	-
Polk County Public Works	-	-	-	X	-
Polk County Sheriff's Office	-	-	-	-	-
South View Medical Center	-	-	-	-	-
West Valley Community Hospital - Dallas	-	-	-	-	-
West Valley Community Hospital - Physicians and Surgeons Clinic	-	-	-	-	-
Whitworth Elementary School	-	-	-	-	-

Source: Oregon Department of Geology and Mineral Industries, Dallas NHMP Steering Committee

Essential Facilities

Facilities that are essential to the continued delivery of key government services and/or that may significantly impact the public's ability to recover from the emergency may include City buildings such as the Public Services Building, the City Hall, and other public facilities such as schools.

Environmental Facilities

Environmental assets are those parks, green spaces, wetlands, and rivers that provide an aesthetic and functional ecosystem service for the community include: Kingsborough Park, Walnut Park, Roger Jordan Community Park, Dallas City Park, and the Rickreall Creek Trail System.

Vulnerable Populations

Vulnerable populations, including seniors, disabled citizens, women, and children, as well those people living in poverty, often experience the impacts of natural hazards and disasters more acutely. Populations that have special needs or require special consideration include schools, daycare centers, adult care centers, medical facilities, mobile home parks, and senior housing.

Hazardous Materials

Facilities that, if damaged, could cause serious secondary impacts may also be considered "critical." Hazardous materials sites are particularly vulnerable to earthquake, landslide, volcanic event, wildfire, and winter storm hazards. A hazardous material facility is one example of this type of critical facility.

Those sites that store, manufacture, or use potentially hazardous materials include: gas stations, fuel depots, manufacturing facilities, Public Works storage facilities, etc.

Economic Assets/Population Centers

Economic assets include businesses that employ large numbers of people and provide an economic resource to the city of Dallas. If damaged, the loss of these economic assets could significantly affect economic stability, and prosperity. Population Centers usually are aligned with economic centers and are a concern during evacuation/notification during a hazard event include the Central Business District.

Cultural and Historic Assets

The cultural and historic heritage of a community is more than just tourist charm. For families that have lived in the city for generations and new residents alike, it is the unique places, stories, and annual events that make the community an appealing place to live. The cultural and historic assets are both intangible benefits and obvious quality-of-life- enhancing amenities. Because of their role in defining and supporting the community, protecting these resources from the impact of disasters is important.

Hazard Profiles

The following sections briefly describe relevant information for each profiled hazard. More information on Polk County hazards can be found in the Polk County NHMP Volume 1, Section 2 *Risk Assessment.*

Drought

The steering committee determined that the City's probability for drought is **moderate** (which is the same as the County's rating) and that their vulnerability to drought is **moderate** (which is the same as the County's rating). *These ratings have not changed since the previous version of the NHMP.*

Volume I, Section 2 describes the characteristics of drought hazards, history, how they relate to future climate projections (see OCCRI report), as well as the location, extent, and probability of a potential event. Due to the climate of Polk County, past and present weather conditions have shown an increasing potential for drought.

The City of Dallas draws its water from Rickreall Creek and stores water in Mercer Reservoir. The Dallas Public Works department is responsible for the operation and maintenance of the Mercer Reservoir Dam and Intake Facility, Dallas Water Treatment Plant, a water line distribution system, hydrants, pump stations and storage reservoirs. For more information on the future of Dallas's water supply visit their website.

Expansive Soils

The addition of moisture to any soil will cause a change in volume, which is referred to as a shrink-swell characteristic.[2]

According to the previous version of this plan the City of Dallas has critical facilities and infrastructure located within areas of low, moderate, and high risk; see Figure DA-6.

Low risk areas contain approximately 3,490 residential structures (value $414.6M) and 20 non- residential structures (value unknown).

Moderate risk areas contain approximately 3,733 residential structures (value $443.5M), 29 non-residential structures (value unknown), six government facilities (value $4.3M), four emergency response facilities (value $2.3M), seven educational facilities (value $7M), 13 care facilities (value$350K), 14 community facilities (value $7.1M), three bridges (value $2.7M), one transportation facility (value unknown), five utility facilities (value $15M) and two dams (value unknown).

High risk areas contain approximately 3,057 residential structures (value $363.2M), 20 non-residential structures (value unknown), one government facility (value $500K), three education facilities (value $18.3M), eight care facilities (value $350K), seven community facilities (value $5.3M), three bridges (value $5.5M), one transportation facility (value unknown) and two utility facilities (value unknown).[4]

Vulnerability Assessment

A comprehensive risk and vulnerability assessment is not available for the drought hazard. Statewide droughts have historically occurred in Oregon, and as it is a region-wide phenomenon, all residents are equally at risk. Structural damage from drought is not expected; rather the risks are present to humans

[4] Dallas Addendum to Polk County NHMP, October 2017.

and resources. Agriculture, fishing, and timber have historically been impacted, as well as local and regional economies.

Future Projections

According to the Oregon Climate Change Research Institute (OCCRI report) "Future Climate Projections, Polk County,"[5] the incidence, extent, and severity of drought has increased over the last 20 years relative to the twentieth century, and this trend is expected to continue. Seasonal drought conditions are projected to occur more frequently in Polk County by the 2050s. The incidence of related negative physical and mental health outcomes, especially among low income, tribal, rural, and agricultural communities, is likely to increase.

Increasingly frequent droughts will have economic and social impacts upon those who depend upon predictable growing periods (ranches, farms, vineyards, gardeners) as well as upon the price and availability of fresh vegetables. It may also stress local jurisdiction's ability to provide water for irrigation or commercial and household use.

Earthquake (Cascadia)

The steering committee determined that the City's probability for a Cascadia Subduction Zone (CSZ) earthquake is **moderate** (which is the same as the County's rating) and that their vulnerability to a CSZ earthquake is **high** (which is the same as the County's rating). *The probability rating increased, and the vulnerability rating stayed the same since the previous version of the NHMP.*

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year. Scientists have found evidence that 11 large, tsunami-producing earthquakes have occurred off the Pacific Northwest coast in the past 6,000 years. These earthquakes took place roughly between 300 and 5,400 years ago with an average occurrence interval of about 510 years. The most recent of these large earthquakes took place in 1700 A.D.[6]

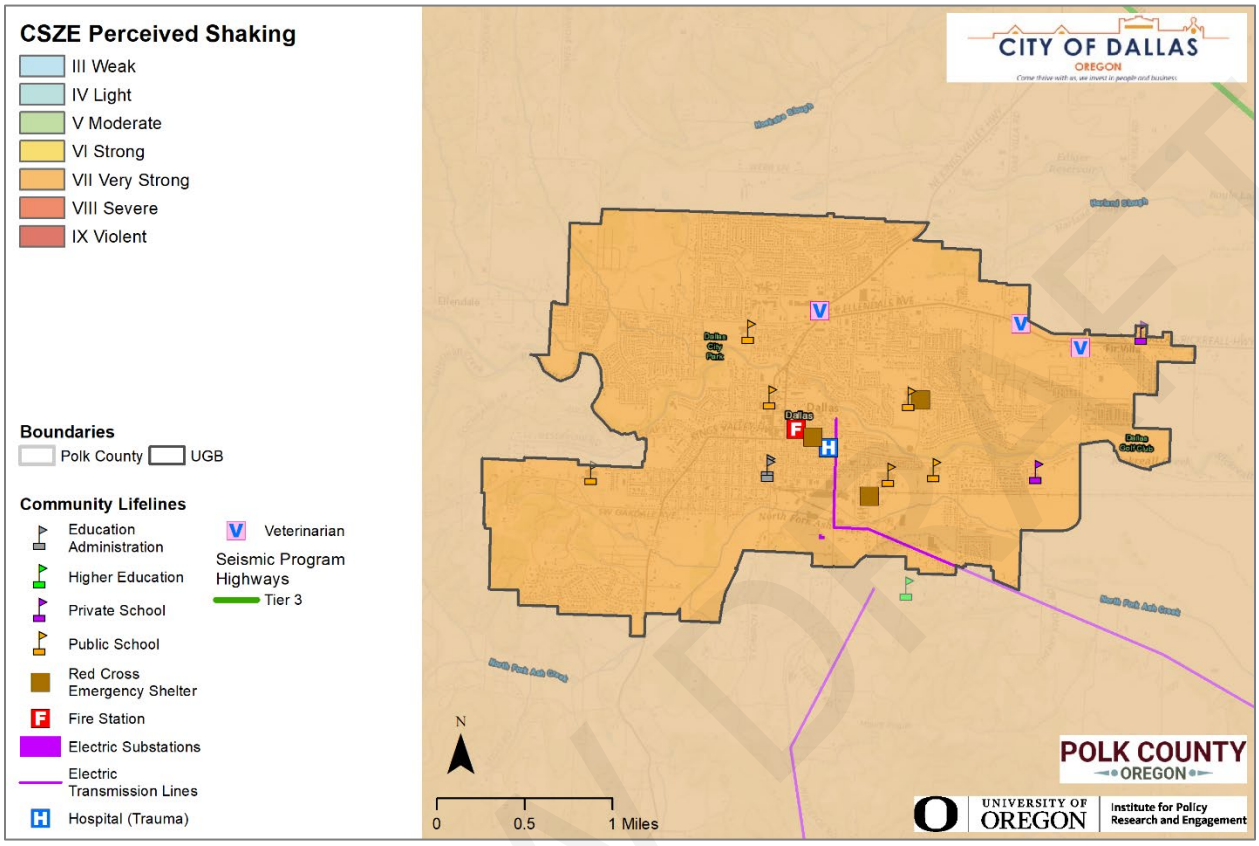
Volume I, Section 2 describes the characteristics of earthquake hazards and their history, as well as the location, extent, and probability of a potential event. Generally, an event that affects the County is likely to affect Dallas as well. The causes and characteristics of an earthquake event are appropriately described within Volume I, Section 2, as well as are the location and extent of potential hazards. Previous occurrences are well documented within Volume I, Section 2. The community impacts described for the County would generally be the same for Dallas.

Figure DA-4 displays perceived shaking hazards from a Cascadia Subduction Zone earthquake event (darker areas represent greater concern).

[5] Oregon Climate Change Research Institute, *Future Climate Projections, Polk County, Oregon*. May 2023.

[6] The Cascadia Region Earthquake Workgroup, 2005. Cascadia Subduction Zone Earthquakes: A magnitude 9.0 earthquake scenario. http://www.crew.org/PDFs/CREWSubductionZoneSmall.pdf

Figure DA-4 Cascadia Subduction Zone Perceived Shaking



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)
Note: To view detail click this link to access Oregon HazVu.

Earthquake (Crustal)

The steering committee determined that the City's probability for a crustal earthquake is **low** (which is the same as the County's rating) and that their vulnerability to crustal earthquake is **moderate** (which is higher than the County's rating). *These ratings have not changed since the previous version of this NHMP.*

Turner and Mill Creek Fault Scenario (Mw 6.6)

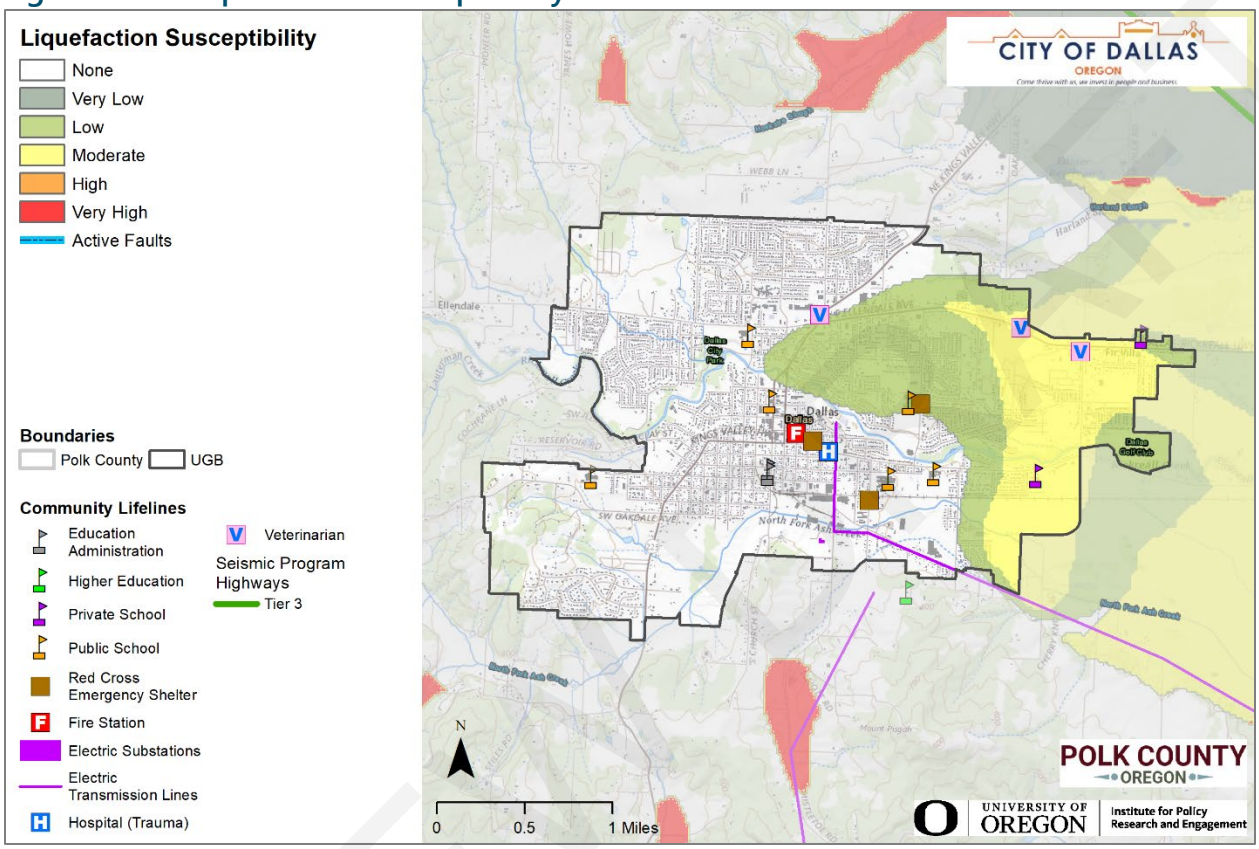
The Turner and Mill Creek Fault, located approximately 8 miles (~13 km) east of Independence and oriented east to west, is an ~11-mile (18 km) Quaternary fault estimated to slip less than 0.2mm/yr. The estimated maximum fault displacement for the Turner and Mill Creek Fault could produce relatively large (Mw-6.6) earthquakes, enough to pose a serious seismic threat to the communities in the vicinity of the eastern portion of Polk County.[7]

Volume I, Section 2 describes the characteristics of earthquake hazards and their history, as well as the location, extent, and probability of a potential event. Generally, an event that affects the county is likely to affect Dallas as well. The causes and characteristics of an earthquake event are appropriately described within Volume I, Section 2, as well as the location and extent of potential hazards. Previous occurrences are well-documented within Volume I, Section 2 and the community impacts described by the County would generally be the same for Dallas.

[7] Multi-Hazard Risk Report for Polk County, DOGAMI, 2024.

Figure DA-5 shows the liquefaction risk to the community lifelines within Dallas. As shown in the figures, the area of greatest concern near the City of Dallas (darker areas) are to the north and south of the city. The eastern portion of the City has a moderate risk of liquefaction.

Figure DA-5 Liquefaction Susceptibility



Source: Oregon Partnership for Disaster Resilience. Oregon Department of Geology and Mineral Industries.
Note: To view detail click this link to access Oregon HazVu.

Vulnerability Assessment

Earthquake-induced damages are difficult to predict and depend on the size, type, and location of the earthquake, as well as site-specific building and soil characteristics. Presently, it is not possible to accurately forecast the location or size of earthquakes, but it is possible to predict the behavior of soil at any site. In many major earthquakes, damages have primarily been caused by the behavior of the soil.

The local faults, the county's proximity to the Cascadia Subduction Zone, potential slope instability, and the prevalence of certain soils subject to liquefaction and amplification combine to give the county a high-risk profile. Due to the expected pattern of damage resulting from a CSZ event, the Oregon Resilience Plan divides the State into four distinct zones and places Polk County predominately within the "Valley Zone" (Valley Zone, from the summit of the Coast Range to the summit of the Cascades). Within the Valley Zone, damage and shaking is expected to be strong and widespread - an event will be disruptive to daily life and commerce and the main priority is expected to be restoring services to business and residents.

As noted in the community profile, approximately 40% of residential buildings in Dallas were built prior to 1980. Prior to the seismic standards, structures are likely inadequate to withstand the impacts of an earthquake. Information on specific public buildings' (schools and public safety) estimated seismic

resistance, determined by DOGAMI in 2007, is shown in Table DA-5; each "X" represents one building within that ranking category. Of the facilities evaluated by DOGAMI using a Rapid Visual Survey (RVS), one building has a very high (100% chance) collapse potential; however, eight (8) buildings have a high (greater than 10% chance) collapse potential. Four of the high collapse potential structures have been mitigated since the last NHMP. *See Mitigation Successes (pg. DA-10) for a list of facilities that have seismic retrofits.*

Table DA-5 Rapid Visual Survey Scores

Facility	Site ID*	Level of Collapse Potential			
		Low (< 1%)	Moderate (>1%)	High (>10%)	Very High (100%)
Schools					
Dallas High (Dallas SD 2) (1250 Holman Ave) - **See Mitigation Successes**	Polk_sch02			X	
LaCreole Middle (Dallas SD 2) (701 SE La Creole Dr) - **See Mitigation Successes**	Polk_sch01	X		X,X	
Lyle Elementary (Dallas SD 2) (185 SW Levens St)	Polk_sch08			X	
Oakdale Heights Elementary (Dallas SD 2) (1275 SW Maple St)	Polk_sch11		X		
Whitworth Elementary (Dallas SD 2) (1151 SW Miller Ave) - **See Mitigation Successes**	Polk_sch12	X		X,X	
Universities/ Colleges					
Chemeketa CC (Dallas Academy) (915 SE Ash)	Polk_sch02			X	
Public Safety					
Dallas Police Department (187 SE Court St)	Polk_pol02		X		X
Polk County Sheriff (850 Main St)	Polk_pol01		X		
Dallas Fire Station (915 SE Shelton St) - **See Mitigation Successes**	Polk_fir03			X	
Hospitals					
West Valley Community Hospital (Salem Health West Valley) (525 SE Washington St)	Polk_hos01	X			

Source: DOGAMI 2007. Open File Report 0-07-02. Statewide Seismic Needs Assessment Using Rapid Visual Assessment. "*" – Site ID is referenced on the RVS Polk County Map.

In addition to building damage, utility (electric power, water, wastewater, natural gas) and transportation systems (bridges, pipelines) are also likely to experience significant damage. There is a low probability that a major earthquake will result in failure of upstream dams.

Utility systems will be significantly damaged, including damaged buildings and damage to utility infrastructure, including water and wastewater treatment plants and equipment at high voltage substations (especially 230 kV or higher which are more vulnerable than lower voltage substations). Buried pipe systems will suffer extensive damage with approximately one break per mile in soft soil areas.

There would be a much lower rate of pipe breaks in other areas. Restoration of utility services will require substantial mutual aid from utilities outside of the affected area.

Natural Hazard Risk Report[8]

In 2024, DOGAMI created a Risk Report (O-24-XX) for Polk County that provides hazard analysis summary tables that identify populations and property that are vulnerable to the earthquake hazard. Identified community lifelines that are exposed to this hazard are shown in Table DA-4. No development changes affected the jurisdiction's overall vulnerability to this hazard. Loss estimates for earthquake events in the city are shown below:

Cascadia Subduction Zone Scenario (Mw 9.0)

The city is expected to experience damage to 206 buildings (5 critical facilities). These structures are expected to experience a potential loss of $72.2 million (a loss ratio of 3.4%). In addition, there is the potential for 76 residents to be displaced (0.4% of the population).

Turner and Mill Creek Fault Scenario (Mw 6.6)

The city is expected to experience damage to 32 buildings (no critical facilities). These structures are expected to experience a potential loss of $18.0 million (a loss ratio of 0.9%). In addition, there is the potential for 12 residents to be displaced (0.1% of the population).

Future Projections

Future development (residential, commercial, or industrial) within the city will be at risk to earthquake impacts, although this risk can be mitigated by the adoption and enforcement of high development and building standards. Reducing risks to vulnerable populations should be considered during the redevelopment of existing properties.

Flood

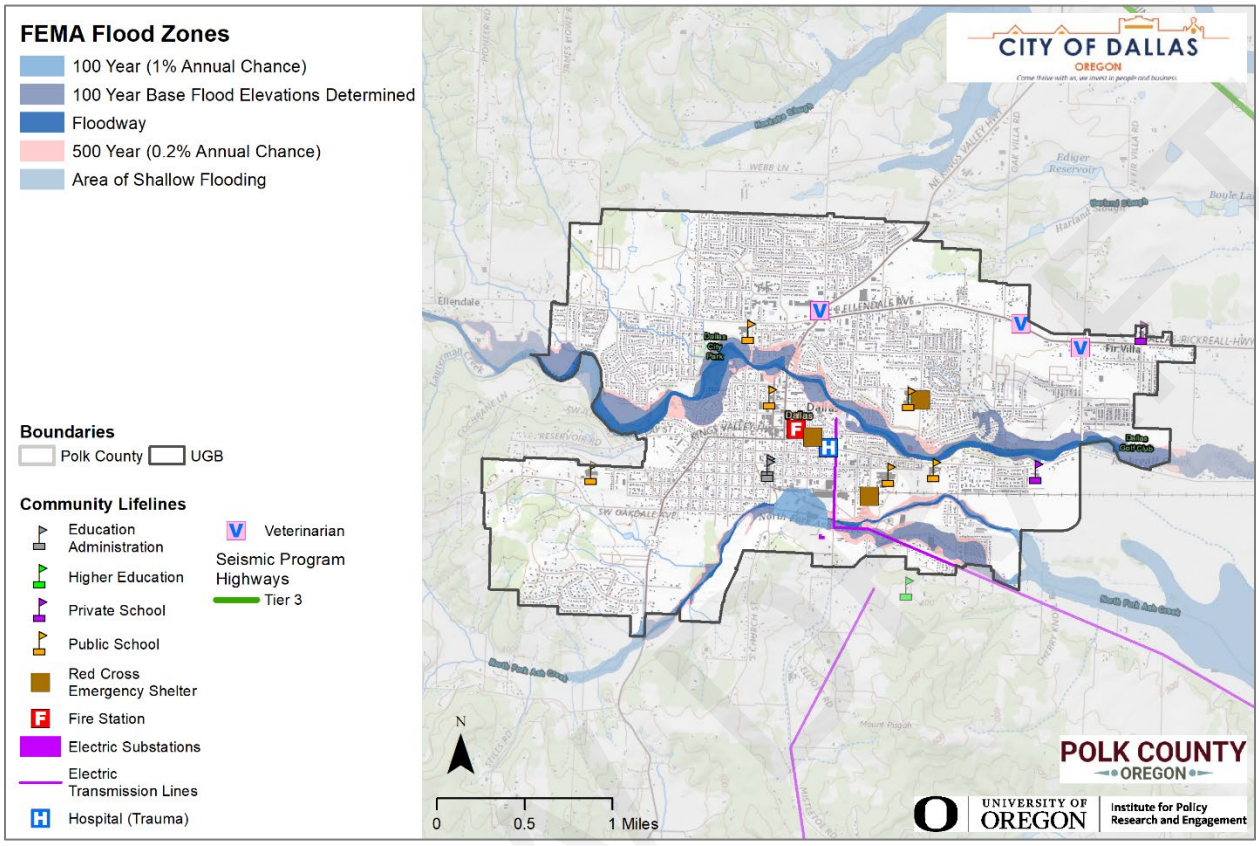
The steering committee determined that the City's probability for flood is **high** (which is the same as the County's rating) and that their vulnerability to flood is **moderate** (which is the same as the County's rating). *These ratings have not changed since the previous version of this NHMP.*

Polk County NHMP Volume I, Section 2 describes the characteristics of flood hazards, history, and how they relate to future climate projections (see OCCRI report), as well as the location, extent, and probability of a potential event. Portions of Dallas have areas of flood plains (special flood hazard areas). These include areas along Rickreall Creek and North Fork Ash Creek (Figure DA-6). Other portions of Dallas, outside of the mapped floodplains, are also subject to significant, repetitive flooding from local storm water drainage. In general, the 100-year floodplain delineates an area of high risk, while the 500-year floodplain delineates an area of moderate risk.

Flooding along the creeks is most frequent from October through April during periods of heavy rain and/or snowmelt. Because the drainage areas of these creeks are small, flash floods may occur where the extent of flooding is influenced by runoff over a short period of time.

[8] DOGAMI, Multi-Hazard Risk Report for Polk County, Oregon (O-24-XX, February 2024), Table A-10.

Figure DA-6 FEMA Flood Zones



Source: Oregon Partnership for Disaster Resilience. Oregon Department of Geology and Mineral Industries.
Note: To view detail click this link to access Oregon HazVu.

Mercer Reservoir

The Rickreall (originally LaCreole) Creek Watershed supplies water for the Dallas Water System. The system has evolved from intakes on Rockhouse Creek, Applegate Creek, and Canyon Creek (tributaries to Rickreall Creek) in 1919, to the present dual intake system, about 3.5 miles west of Dallas. In addition, water is stored behind an earthen dam about 4.5 miles upstream from the intake. Water is released from the dam when the natural stream flow is inadequate to meet the demand for water. The dam was constructed in 1959 to store 760 acre-feet (247 MG) of water. In 1972 the dam was raised to provide a total raw storage of 1,550 acre-feet (505 MG). Construction of flashboards completed in April 2001 added 215 acre-feet (70 MG) of spring/summer storage.

Mercer Reservoir is identified as a High Hazard Potential dam, based on its hazard potential or anticipated downstream consequences in the event of failure or mis-operation. The Oregon Water Resources Department identified Mercer Dam as in Poor condition, as a March 2022 study calculated the Probable Maximum Flood (PMF) would likely overtop the existing dam. A PMF is determined by calculating the highest probable amount of water that could collect and flow out of a drainage. PMFs are required to be used on flood calculations of High Hazard dams and use worst case scenarios for precipitation, temperature, soil absorption and snowpack to calculate the model storm event. This type of event is so unlikely to happen that it is somewhere in the 1 to 15,000-20,000-year probability.

The City is exploring constructing a new dam to provide water storage (4900 Acre/Feet), the volume that has been projected to be needed to serve Dallas at its 2070 population projection during a 100-year drought event.[9]

Vulnerability Assessment

Identified Community Lifelines that are exposed to this hazard are shown in Table DA-4. Note that even if a facility has exposure*, it does not mean there is a high risk (vulnerability).* No development changes affected the jurisdiction's overall vulnerability to this hazard.

The city is at risk from three types of flooding: riverine, urban, and dam failure. Riverine flooding occurs when streams overflow their banks and inundate low-lying areas. This is a natural process that adds sediment and nutrients to fertile floodplain areas. It usually results from prolonged periods of precipitation over a wide geographic area. Low velocity sheets of water generally flood most areas that are prone to flooding. Urban flooding occurs as land is converted to impervious surfaces and hydrologic systems are changed. Precipitation is collected and transmitted to streams at a much faster rate, causing floodwaters that rise rapidly and peak with violent force. During urban flooding, storm drains can back up and cause localized flooding of streets and basements.

Dam failures can also pose a risk to property owners downstream. According to the Bureau of Reclamation, Mercer Dam is a High-Risk Potential. Dam failure could lead to inundation of Dallas. The earthen dam is not seismically retrofitted.

Floods can have a devastating impact on almost every aspect of the community, including private property damage, public infrastructure damage, and economic loss from business interruption. It is important for the City to be aware of flooding impacts and assess its level of risk.

The economic losses due to business closures often total more than the initial property losses that result from flood events. Flood events significantly impact business owners and their employees. Direct damages from flooding are the most common impacts, but indirect damages, such as diminished clientele, can be just as debilitating to a business. No critical or essential facilities are in the floodplain. Currently, there is no financial impact data available of this infrastructure.

If major flooding affected all of the main transportation routes in Dallas, traffic flow in and out of the City would be significantly affected, but all avenues would not be cut off. The amount of property in the floodplain is not a large area but damage could be significant as it would affect residential, commercial, and public property. Floodwaters can affect building foundations, seep into basements or cause damage to the interior, exterior, and contents of buildings, dependent upon the velocity and depth of the water and by the presence of floating debris. The City sewer system can overflow during flood events and cause further property damage. For Dallas, urban flooding due to storm water drainage problems have been minor. The storm water systems are designed to handle more common small- to medium-sized runoff events and allow minor street flooding to carry off stormwater that exceeds the system capacity.

The Polk County Flood Insurance Study (January 19, 2018) has a brief history of flooding in Polk County (Volume I, Section 2). Figure DA-3 shows the location of Critical Facilities throughout Dallas.

For mitigation planning purposes, it is important to recognize that flood risk for a community is not limited only to areas of mapped floodplains. Other portions of Dallas outside of the mapped floodplains

[9] Mercer Reservoir | Dallas Oregon

may also be at relatively high risk from over bank flooding from streams too small to be mapped by FEMA or from local storm water drainage.

Natural Hazard Risk Report[10]

In 2024, DOGAMI created a Risk Report (O-24-XX) for Polk County that provides hazard analysis summary tables that identify populations and property that are vulnerable to the flood hazard. Identified community lifelines that are exposed to this hazard are shown in Table DA-4. No development changes affected the jurisdiction's overall vulnerability to this hazard. Loss estimates for flood events in the city are shown below:

The city is expected to experience damage to 76 buildings (no critical facilities). These structures are expected to experience a potential loss of $3.5 million (a loss ratio of 0.2%). In addition, there is the potential for 197 residents to be displaced (1.1% of the population).

Future Projections

According to the Oregon Climate Change Research Institute (OCCRI report) "Future Climate Projections, Polk County,"[11] winter flood risk at mid- to low elevations in Polk County, where temperatures are near freezing during winter and precipitation is a mix of rain and snow, is projected to increase as winter temperatures increase. The temperature increase will lead to an increase in the percentage of precipitation falling as rain rather than snow. Vulnerable populations adjacent to floodways (including the unhoused, manufactured home communities, and campground occupants) will be more at risk as the winter flood risk increases.

National Flood Insurance Program (NFIP)

FEMA updated the Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) for Polk County and Incorporated areas in 2006 (effective December 2006). The City complies with the NFIP through enforcement of their flood damage prevention ordinance and their floodplain management program. The last Community Assistance Visit (CAV) for the City was in 2021. The City does not participate in the Community Rating System (CRS). In 2022, the Dallas City Council adopted Ordinance 1864, which updated Chapter 2.7 Flood Hazard Regulations to reflect the Oregon State Model Code (provided by the Department of Land Conservation and Development).

The Community Repetitive Loss record for Dallas does not include any Repetitive Loss Properties[12] or Severe Repetitive Loss Properties.[13]

Landslide

The steering committee determined that the City's probability for landslide is **low** (which is lower than the County's rating) and that their vulnerability to landslide is **moderate** (which is higher than the County's

[10] DOGAMI, Multi-Hazard Risk Report for Polk County, Oregon (O-24-XX, February 2024), Table A-10.

[11] Oregon Climate Change Research Institute, *Future Climate Projections, Polk County, Oregon*. May 2023.

[12] A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP.

[13] A Severe Repetitive Loss (SRL) property is a single family property (consisting of 1 to 4 residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which 4 or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding $5,000 and with cumulative amount of such claims payments exceeding $20,000; or for which at least 2 separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.

rating). *The probability rating stayed the same and the vulnerability rating increased since the previous version of the NHMP.*

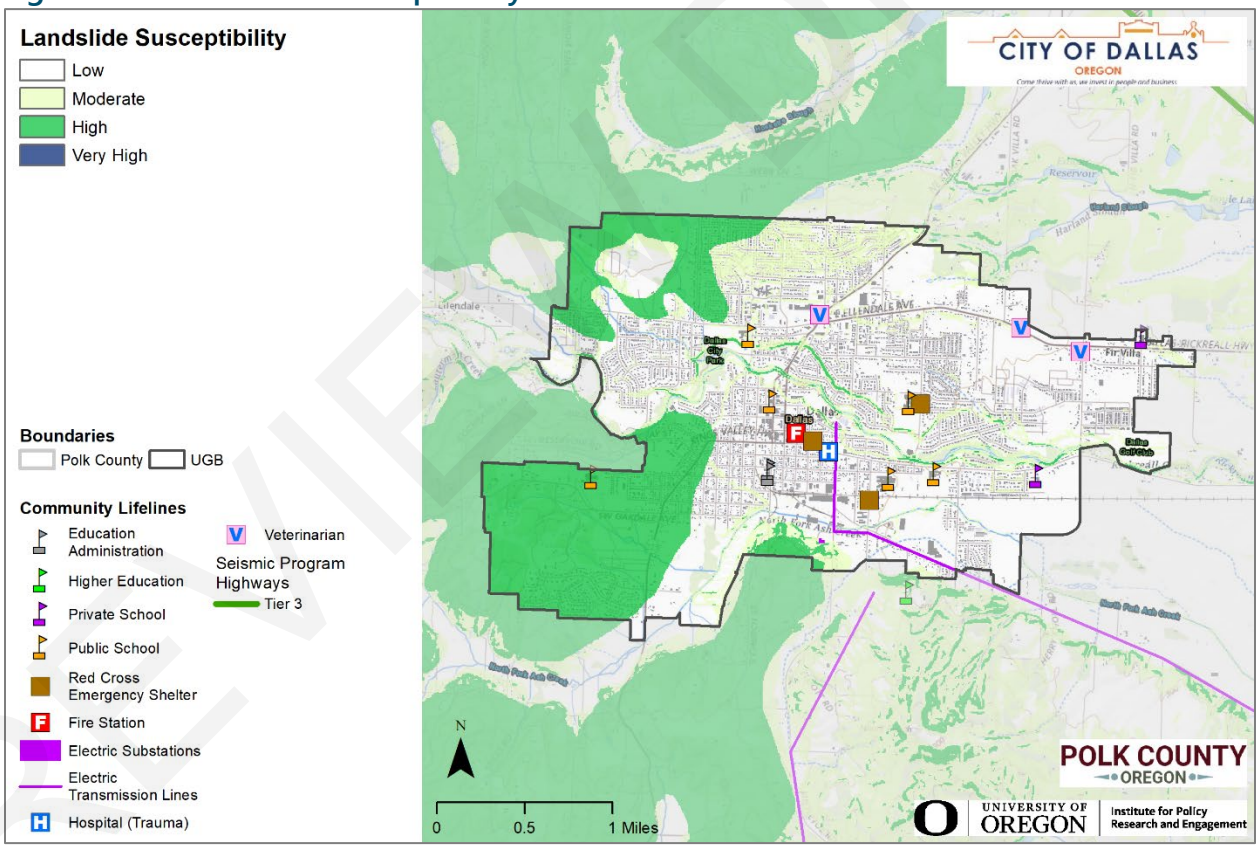
Polk County NHMP Volume I, Section 2 describes the characteristics of landslide hazards, their history within Polk County, and how they relate to future climate projections (see OCCRI report), as well as the location, extent, and probability of a potential event within the region.

The potential for landslide in Dallas is low except for areas to the west near the Dallas Cemetery, to the south near Church Street, and in the hilly area to the north and in the areas immediately adjacent to stream channels.

Sedimentary rock underlies Dallas. Sedimentary rock is primarily conglomerate, claystone, and siltstone with some sandstone toward the west. Sedimentary rock is less resistant to stream action. Landslide susceptibility exposure for Dallas is shown in Figure DA-7.

Dallas demonstrates a mix of low and moderate susceptibility to landslide exposure, with corridors of moderate susceptibility concentrated around the stream banks within the City. The topography of Dallas is predominantly flat with minimal slopes.

Figure DA-7 Landslide Susceptibility



Source: Oregon Partnership for Disaster Resilience. Oregon Department of Geology and Mineral Industries.
Note: To view detail click this link to access Oregon HazVu.

Vulnerability Assessment

DOGAMI completed a statewide landslide susceptibility assessment in 2016 (O-16-02); general findings from that report are provided above.

Identified community lifelines that are exposed to this hazard are shown in Table DA-4. *Note that even if an area has a high percentage of land in a high or very high landslide exposure susceptibility zone, this does not mean there is a high risk (vulnerability), because risk is the intersection of a hazard and assets.*

No development changes affected the jurisdiction's overall vulnerability to this hazard.

Potential landslide-related impacts are adequately described within Volume I, Section 2 and include infrastructural damages, economic impacts (due to isolation and/or arterial road closures), property damages, and obstruction to evacuation routes. Rain-induced landslides and debris flows can potentially occur during any winter in Polk County and thoroughfares beyond City limits are susceptible to obstruction as well.

The most common type of landslides in Polk County are slides caused by erosion. Slides move in contact with the underlying surface, are generally slow moving and can be deep. Rainfall-initiated landslides tend to be smaller; while earthquake induced landslides may be quite large. All soil types can be affected by natural landslide triggering conditions.

Dallas's vulnerability to landslides is limited to a few stream banks that are deeply incised. Possible landslides in these locations would be accurately described as bank failures, which would be very localized and not occur along the length of a stream channel. The threat of loss to life or property and damage to structures, including critical facilities, is minimal. The City's flood protection requirements establish setbacks along the stream corridors and prevent the location of structures within the areas at risk of bank failure.

Natural Hazard Risk Report[14]

In 2024, DOGAMI created a Risk Report (O-24-XX) for Polk County that provides hazard analysis summary tables that identify populations and property that are vulnerable to the landslide hazard. Identified community lifelines that are exposed to this hazard are shown in Table DA-4. No development changes affected the jurisdiction's overall vulnerability to this hazard. Loss estimates for landslide events in the city are shown below:

There are 1,169 buildings (three critical facilities) exposed to the high and very high landslide susceptibility hazard. These structures represent a building replacement value of $305.6 million (14% of total building replacement value). In addition, there is the potential for 3,099 residents to be displaced (17% of the population).

Future Projections

Landslides are often triggered by rainfall when the soil becomes saturated. As a surrogate measure of landslide risk, the Oregon Climate Change Research Institute (OCCRI report) report looks at extreme precipitation. In Polk County, the number of days per year with at least 0.75 inches of precipitation is not projected to change substantially. Nevertheless, by the 2050s, the amount of precipitation on the wettest day and wettest consecutive five days per year is projected to increase by an average of 14% (range 2–33%) and 11% (range 2–22%), respectively, relative to the 1971–2000 historical baselines, under the higher emissions scenario. The number of days per year that exceeded a threshold for landslide risk, which is based on prior 18-day precipitation accumulation, is not projected to change substantially. However, landslide risk depends on multiple factors, and this metric does not reflect all aspects of the hazard.

[14] DOGAMI, Multi-Hazard Risk Report for Polk County, Oregon (O-24-XX, February 2024), Table A-10.

Severe Weather

Severe weather can account for a variety of intense and potentially damaging weather events. These events include extreme heat, windstorms, and winter storms. The following section describes the unique probability and vulnerability of each identified weather hazard.

Extreme Heat Event

The steering committee determined that the City's probability for extreme heat event is **high** (which is the same as the County's Rating) and that their vulnerability to an extreme heat event is **moderate** (which is the same as the County's Rating). *The City did not assess the extreme heat event hazard in the previous version of the NHMP.*

Polk County's NHMP Volume I, Section 2, adequately describes the causes and characteristics of extreme heat, as well as the history, location, extent, and probability of a potential event and how it relates to future climate projections (see OCCRI report). Generally, an event that affects the County is likely to affect the City as well. A severe heat episode or "heat wave" occurs about every two to three years, and typically lasts two to three days but can last as many as five days. A severe heat episode can be defined as consecutive days of temperatures in the high 90s and above 100. Severe heat hazard can be described as the average number of days with temperatures greater than or equal to 90-degrees Fahrenheit.[15]

Extreme heat events can and have occurred in the city. While they typically do not cause loss of life, they are becoming more frequent and have the potential to impact economic activity as well as quality of life and have caused threats to life in some cases. Changes in climate indicate that the area should expect to see more extreme heat events resulting from hazards.

Future Projections

According to the Oregon Climate Change Research Institute (OCCRI report) "Future Climate Projections, Polk County,"[16] the number, duration, and intensity of extreme heat events will increase as temperatures continue to warm. Projected demographic changes in Polk County, such as an increase in the proportion of older adults and the number of children, will increase the number of people in some of the populations that are vulnerable to extreme heat.

Windstorm

The steering committee determined that the City's probability for windstorms is **high** (which is the same as the County's rating) and that their vulnerability to windstorms is **moderate** (which is the same as the County's rating). *The probability rating increased and the vulnerability rating remained the same since the previous version of the NHMP.*

Polk County NHMP Volume I, Section 2 describes the characteristics of windstorm hazards, history, and how they relate to future climate projections (see OCCRI report), as well as the location, extent, and probability of a potential event within the region. Because windstorms typically occur during winter months, they are sometimes accompanied by ice, freezing rain, flooding, and very rarely, snow. Other severe weather events that may accompany windstorms, including thunderstorms, hail, lightning strikes, and tornadoes are generally negligible for Dallas.

[15] DLCD. *Oregon State Natural Hazard Mitigation Plan*. 2020.

[16] Oregon Climate Change Research Institute, *Future Climate Projections, Polk County, Oregon*. May 2023.

Volume I, Section 2 describes the impacts caused by windstorms, including power outages, downed trees, heavy precipitation, building damages, and storm-related debris. Additionally, transportation and economic disruptions result as well. Microbursts also occur in Dallas creating strong winds, particularly from the northeast.

Damage from high winds has resulted in downed utility lines and trees. Electrical power can be out anywhere from a few hours to several days. Outdoor signs have also suffered damage. If the high winds are accompanied by rain (which they often are), blowing leaves and debris clog drainage-ways, which in turn causes localized urban flooding.

Future Projections
According to the Oregon Climate Change Research Institute (OCCRI report) "Future Climate Projections, Polk County,"[17] mean wind speeds in Oregon are projected to decrease slightly, but extreme winter wind speeds may increase, especially in western Oregon. The frequency of strong easterly winds during summer and autumn, however, is projected to decrease slightly.

Winter Storm (Snow/Ice)

The steering committee determined that the City's probability for winter storm is **high** (which is the same as the County's rating) and that their vulnerability to winter storm is **moderate** (which is lower than the County's rating). *These ratings have not changed since the previous version of the NHMP.*

Polk County NHMP Volume I, Section 2 describes the characteristics of winter storm hazards, history, and how they relate to future climate projections (see OCCRI report), as well as the location, extent, and probability of a potential event within the region. Severe winter storms can consist of rain, freezing rain, ice, snow, cold temperatures, and wind. They originate from troughs of low pressure offshore that ride along the jet stream during fall, winter, and early spring months. Severe winter storms affecting the City typically originate in the Gulf of Alaska or in the central Pacific Ocean. These storms are most common from November through March.

Major winter storms can and have occurred in the Dallas area and while they typically do not cause significant damage, they are frequent and have the potential to impact economic activity. The most likely impacts to Dallas from winter storms are road closures limiting access to/from some areas, especially roads to higher elevations, power outages from downed transmission lines, and damages to structures from tree falls.

Future Projections
According to the Oregon Climate Change Research Institute (OCCRI report) "Future Climate Projections, Polk County,"[18] cold extremes will become less frequent and intense as the climate warms. The number of county residents vulnerable to extreme cold is likely to grow, although this increase may be offset somewhat by the decrease in incidence of cold extremes.

Vulnerability Assessment
Due to insufficient data and resources, Dallas is currently unable to perform a quantitative risk assessment, or exposure analysis, for the extreme heat, windstorm, and winter storm hazards. For a list of facilities and infrastructure vulnerable to these hazards see the Community Assets Section.

[17] Ibid.

[18] Oregon Climate Change Research Institute, *Future Climate Projections, Polk County, Oregon*. May 2023.

Volcanic Event

The steering committee determined that the City's probability for a volcanic event is low (which is the same as the County's rating) and that their vulnerability to a volcanic event is low (which is the same as the County's rating). *These ratings have not changed since the previous version of the NHMP.*

Polk County NHMP Volume I, Section 2 describes the characteristics of volcanic hazards and their history, as well as the location, extent, and probability of a potential event within the region. Generally, an event that affects the County is likely to affect Dallas as well. Dallas is very unlikely to experience anything more than volcanic ash during a volcanic event. Though unlikely, the impacts could be significant to the local water supply, create health problems, and collapse roofs of vulnerable structures. There is currently no analysis to determine the numbers and types of buildings, including critical facilities, in the City that would be vulnerable to a volcanic eruption.

Vulnerability Assessment

Due to Dallas' relative distance from volcanoes, the city is unlikely to experience the immediate effects that eruptions have on surrounding areas (i.e., mud and debris flows, or lahars). Depending on wind patterns and which volcano erupts, however, the city may experience ashfall. The eruption of Mount St. Helens in 1980, for example, coated the Willamette Valley with a fine layer of ash. If Mount Hood erupts, however, the city could experience a heavier coating of ash.

Future Projections

Although the science of volcano predictions is improving, it remains challenging to predict a potential volcanic event. Ash fall, which will be the greatest impact, will impact the entire County. Impacts will be felt hardest by property managers (ranches, farmers, etc.) and by those relying upon clean surface water (for drinking water production and irrigation).

Wildfire

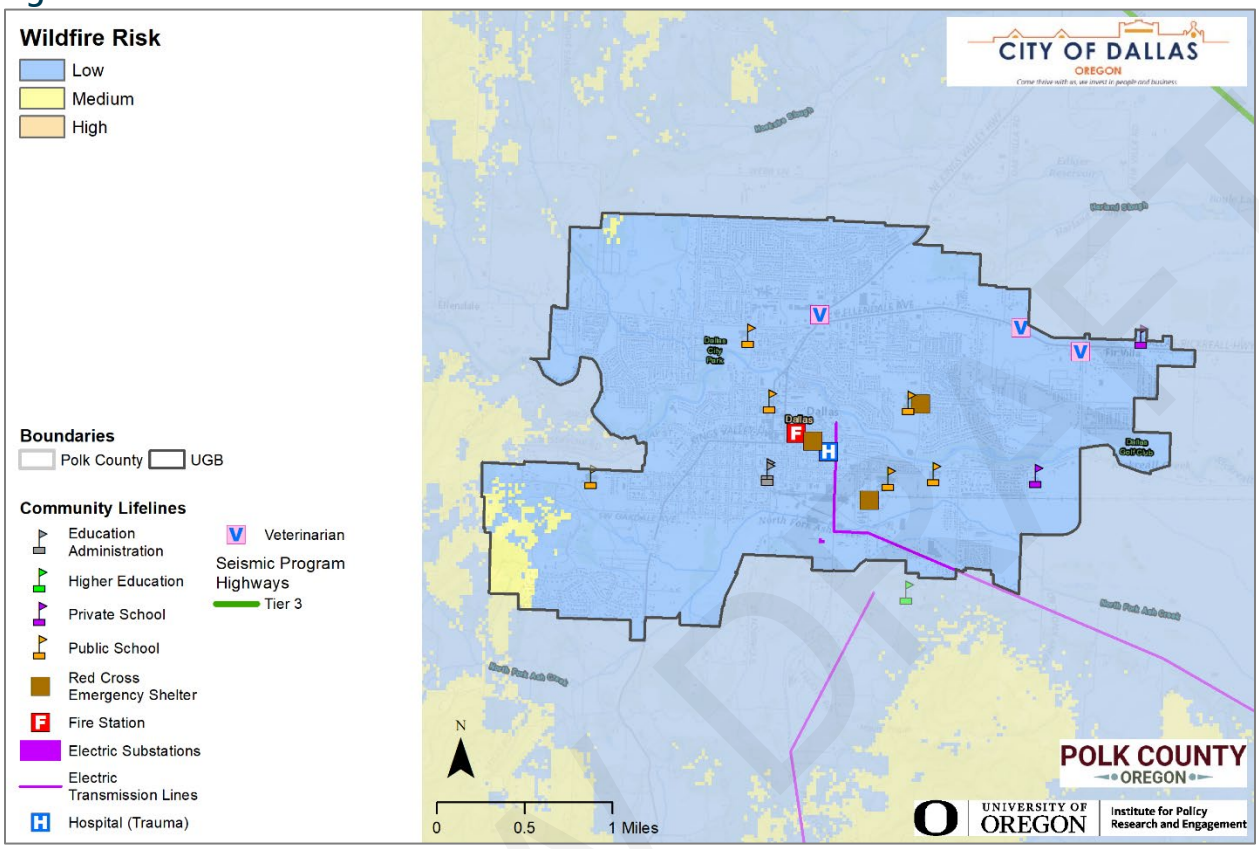
The steering committee determined that the City's probability for wildfire is high (which is the same as the County's rating) and that their vulnerability to wildfire is moderate (which is the same as the County's rating). *These ratings have increased since the previous version of the NHMP.*

Polk County NHMP Volume I, Section 2 describes the characteristics of wildfire hazards, history, and how they relate to future climate projections (see OCCRI report), as well as the location, extent, and probability of a potential event within the region. The location and extent of a potential wildfire vary depending on fuel, topography, and weather conditions. Weather and urbanization conditions are primarily at cause for the hazard level. Wildfires near Dallas are common. Figure DA-9 shows wildfire risk in Dallas.

The potential community impacts and vulnerabilities described in Volume I, Section 2 are generally accurate for the City as well. The Polk County Community Wildfire Protection Plan (CWPP, updated 2017) assesses wildfire risk, maps wildland urban interface areas, and includes actions to mitigate wildfire risk. The City is included in the CWPP and will update the City's wildfire risk assessment if the fire plan presents better data during future updates (an action item is included within Volume I, Section 4 to participate in updates to the integrated fire plan and to continue to maintain and update their CWPP). The City hereby incorporates the CWPP into this addendum by reference to provide greater detail to sensitivity and exposure to the wildfire hazard.

In general, wildfire conditions are greatest in the hilly area surrounding the water treatment plan, Mercer Reservoir (10 miles west of the city), and homes in the southeast portion of the city.

Figure DA-8 Wildfire Risk



Source: Oregon Partnership for Disaster Resilience. USFS Pacific Northwest Region Wildfire Risk Assessment (PNRA)
Note: To view detail click this link to access Oregon Explorer's CWPP Planning Tool.

History:

- 1987 – 5,000 acre fire in the Rickreall Watershed caused sediment damage to the Mercer Reservoir which is the source for Dallas' drinking water supply.[19]
- *August 17, 2013. 200-acre wildfire along Highway 22 burned near a winery close to Dallas. Firefighters from Dallas, Yamhill, Polk County, Sheridan, Willamina, McMinnville, and Depoe Bay were utilized.*

Irrigated agricultural land surrounds much of Dallas, thereby reducing the risk to wildfire to the city.

Property can be damaged or destroyed with one fire as structures, vegetation, and other flammables easily merge to become unpredictable and hard to manage. Other factors that affect ability to effectively respond to a wildfire include access to the location and to water, response time from the fire station, availability of personnel and equipment, and weather (e.g., heat, low humidity, high winds, and drought).

Vulnerability Assessment

Due to insufficient data and resources, Dallas is currently unable to perform a complete quantitative risk assessment, or exposure analysis, for this hazard. Identified community lifelines that are exposed to this hazard are shown in Figure DA-3. Note that even if a facility has exposure*, it does not mean there is a high risk (vulnerability).*

[19] Polk County Community Wildfire Protection Plan (2009).

Ignition sources are generally concentrated along travel corridors and at the edges of urban areas. Debris-burning, equipment use, and even arson contribute to wildlife ignition sources. Dallas is bounded by irrigated rural areas. However, there are several travel corridors that connect the City to these areas, and east-west stream corridors, including the Rickreall, which connect the City to the wildland-urban interface and sources of wildland fires.

In general, wildfire conditions are greatest in the hilly area surrounding the water treatment plan, Mercer Reservoir (10 miles west of the city), and homes in the southwest portion of the city.

Natural Hazard Risk Report[20]

In 2024, DOGAMI created a Risk Report (O-24-XX) for Polk County that provides hazard analysis summary tables that identify populations and property that are vulnerable to the wildfire hazard. Identified community lifelines that are exposed to this hazard are shown in Table DA-4. No development changes affected the jurisdiction's overall vulnerability to this hazard. Loss estimates for wildfire events in the city are shown below:

There are 66 buildings (no critical facilities) exposed to the high and moderate wildfire hazard risk zones. These structures represent a building replacement value of $22.2 million (1.0% of total building replacement value). In addition, there is the potential for 243 residents to be displaced (1.4% of the population).

Future Projections

According to the Oregon Climate Change Research Institute (OCCRI report) "Future Climate Projections, Polk County,"[21] wildfire frequency and intensity and area burned are projected to continue increasing in the Northwest. Wildfire risk, expressed as the average number of days per year on which fire danger is very high, is projected to increase in Polk County by 11 days by the 2050s.

[20] DOGAMI, Multi-Hazard Risk Report for Polk County, Oregon (O-24-XX, February 2024), Table A-10.

[21] Oregon Climate Change Research Institute, *Future Climate Projections, Polk County, Oregon*. May 2023.

Appendix A: Public Involvement Summary

Members of the steering committee provided edits and updates to the NHMP prior to the public review period as reflected in the final document. In addition, a written and online Hazard Awareness survey was distributed that included responses from 144 people (including 52 residents of Dallas) (Volume II, Appendix F).

To provide the public information regarding the draft NHMP addendum, and provide an opportunity for comment, an announcement (see below) was provided from April XX and through the FEMA review period on the City's website. The plan was also posted and announced on the County's website. There were XX [to be updated following public comment period] comments provided. Additional opportunities for stakeholders and the public to be involved in the planning process are addressed in Volume II, Appendix B.

Stakeholder participation was encouraged through one-on-one briefings and interviews. Stakeholder agencies not directly represented on the CAC or NHMP Steering Committee were also included in all meeting follow-ups to provide opportunities to provide comments on draft goals, hazard assessments, mitigation actions, and plan products.

Hazard Survey

Volume I, Appendix F contains the findings, methodology, and full report of a household hazard preparedness survey taken in Polk County in the summer of 2023. Over fifty of the 144 respondents to the survey, which was distributed online and in person at various events around Polk County, were residents of Dallas. Survey findings were reviewed and incorporated into the mitigation strategy by the Steering Committee.

Website Posting

To be provided

Dallas Steering Committee

Dallas convened a Natural Hazard Mitigation Plan Steering Committee, which included representatives from City departments associated with preventive measures (Economic and Community Development Director), property protection (Floodplain Manager), natural resource protection (Parks & Recreation Director), emergency services (Fire Department), structural flood control (Public Works), and public information (Economic and Community Development Director). The Dallas Steering Committee also sent two representatives to the Polk County NHMP Steering Committee (Planner and Economic and Community Development Director).

Steering committee members possessed familiarity with Dallas's community and how it is affected by natural hazard events. The steering committee guided the Dallas update process through several steps including hazard assessment, problem identification, goal confirmation and prioritization, action item review and development, and information sharing, to update the NHMP and to make the NHMP as comprehensive as possible.

Based on their involvement in hazard mitigation projects or planning, and/or their interest as a neighboring jurisdiction, representatives from the following agencies were invited to participate in the NHMP update. Some of these participated at Steering Committee meetings while others reviewed drafts of the plan and provided feedback by email.

Other Government and Stakeholder Representatives:

- NW Natural Gas
- Pacific Power and Light
- Polk County Fire District No. 1
- Southwestern Polk County Fire District
- Polk County Emergency Services
- Oregon Department of Transportation District No. 2
- Dallas School District
- Mid Willamette Council of Governments

Stakeholders were included in the planning process. Unlike the Steering Committee, stakeholders for the update were not included in all stages of the planning process, but their input was included to inform the Steering Committee and provide additional perspectives from the community.

The steering committee met formally on the following date:

Dallas steering committee, August 16, 2023 (via Zoom)
During this meeting, a representative from the steering committee reviewed the previous NHMP, and was provided updates on hazard mitigation planning, the NHMP update process, and project timeline. The steering committee:

- Updated recent history of hazard events in the city.
- Reviewed and confirmed the County NHMP's mission and goals.
- Discussed the NHMP public outreach strategy.
- Reviewed and added to Community Lifelines and list of essential facilities.
- Reviewed and provided feedback on the draft risk assessment update including community vulnerabilities and hazard information.
- Reviewed and updated their existing mitigation strategy (actions).

- Reviewed and updated their implementation and maintenance program.

Meeting Attendees:

- Charlie Mitchell, Economic and Community Development Director
- Tom Gilson, Engineering Supervisor, Dallas Public Works
- Chase Ballew, Planner, City of Dallas
- Josh Rogers, Deputy Fire Chief, Dallas Fire Department

Appendix B: Action Item Changes

Table DA-6 is an accounting of the status (complete or not complete) and major changes to actions since the previous NHMP. All actions were renumbered in this update to be consistent with other jurisdictions that are participating in the multi-jurisdictional NHMP. Actions identified as still relevant are included in the updated action plan (Table DA-1).

Previous NHMP Actions that are Not Complete and No Longer Relevant:
Changed:

Multi-Hazard, Long Term #1, "*Obtain funding and resources to implement high priority mitigation actions items*." No longer relevant. This action is considered part of the implementation of the NHMP and determined not to be mitigation. It has been amended to the current Action #1 – "Develop and fund capital projects designed to implement the recommendations of the Stormwater management Plan."

Deleted:

DR #1: Require building design, engineering, and construction processes that address expansive soil conditions at potentially affected building sites.

DR #2: Require road design, engineering, and construction processes that address expansive soil conditions. Water absorption prevention, impermeable membrane, soil compaction, and drainage methods need to be considered once geologic studies determine soil composition.

Table DA-6 Status of All Hazard Mitigation Actions in the Previous Plan

2020 Action Item	2023 Action Item	Status	Still Relevant? (Yes/No)
Multi-Hazard Mitigation Items			
MH#1	1	Not Complete, modified	Yes
MH #2	2	Not Complete	Yes
MH #3	3	Not Complete, modified	Yes
MH #4	4	Not Complete	Yes
	5	New	Yes
	6	New	Yes
Earthquake Mitigation Items			
EQ #1	7	Not Complete	Yes
EQ #2	8	Not Complete	Yes
	9	New	Yes
Flood Mitigation Items			
FL #1	10	Not Complete	Yes
FL #2	11	Not Complete	Yes
FL #3	12	Not Complete	Yes

2020 Action Item	2023 Action Item	Status	Still Relevant? (Yes/No)
FL #4	13	Not Complete	Yes
FL #5	14	Not Complete	Yes
FL #6	15	Not Complete, modified	Yes
Severe Weather Mitigation Items			
WD #1	16	Not Complete	Yes
WS #1	17	Not Complete	Yes
WS #2	18	Not Complete	Yes
WS #3	19	Not Complete	Yes
VE #1	20	Not Complete	Yes
VE #2	21	Not Complete	Yes
Wildfire Mitigation Items			
WF #1	22	Not Complete	Yes
WF #2		Not Complete	Yes
WF #3	23	Not Complete	Yes
WF #4	24	Not Complete	Yes