

# Siletz Addendum to the Lincoln County Multi-Jurisdictional NHMP



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Effective:

December 17, 2025 through December 16, 2030



**CITY OF  
SILETZ, OREGON**

Prepared for  
City of Siletz  
215 W Buford Avenue  
Siletz, OR 97380

Prepared by  
The University of Oregon  
Institute for Policy Research & Engagement  
School of Planning, Public Policy, and Management



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This Natural Hazard Mitigation Plan was prepared by:



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**FEMA**

March 17, 2026

Stephen Richardson  
State Hazard Mitigation Officer  
Oregon Department of Emergency Management  
3930 Fairview Industrial Dr SE  
Salem, OR 97302

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

Dear Officer Richardson:

In accordance with applicable<sup>1</sup> laws, regulations and policy, the Risk Analysis Branch of FEMA Region 10 Mitigation Division has approved the local mitigation plan for the following jurisdictions:

Lincoln County	City of Depoe Bay	City of Newport
City of Toledo	Beverly Beach Water District	Central Lincoln People's Utility District
Central Oregon Coast FRD	Depoe Bay Fire District	Gleneden Sanitary District
Kernville-Gleneden Beach-Lincoln Beach Water District	North Lincoln Fire and Rescue District	Otter Rock Water District
Panther Creek Water District	Salishan Sanitary District	Seal Rock Water District
Siletz Valley Fire District	SW Lincoln County Water People's Utility District	City of Siletz
Lincoln County School District	City of Lincoln City	

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

Officer Richardson

March 17, 2026

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

The approval period for this plan is from December 17, 2025 through December 16, 2030.

The jurisdictions' plan approval ensures the eligibility for project grants under FEMA's Hazard Mitigation Assistance programs. All requests for funding are evaluated individually according to eligibility and other program requirements. Having an approved mitigation plan does not mean that mitigation grant funding will be awarded. Specific application and eligibility requirements can be found in each FEMA grant program's respective policies and annual Notice of Funding Opportunities, as applicable.

FEMA's approval is for a period of five years, effective the date FEMA received the adoption documentation. For this plan, documentation was received on December 17, 2025 and is considered approved as of then. Prior to December 16, 2030, each jurisdiction must review, revise, and submit their plan to FEMA for approval to maintain eligibility for grant funding. The enclosed plan review tool provides opportunities to incorporate into future updates.

Sincerely,

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

MB:WS

Attachment: Local Mitigation Plan Review Tool

**CITY OF SILETZ  
RESOLUTION 758-25**

**A RESOLUTION ADOPTING THE CITY OF SILETZ REPRESENTATION IN THE UPDATES TO  
THE LINCOLN COUNTY MULTI-JURISDICTIONAL NATURAL HAZARDS MITIGATION PLAN**

**WHEREAS**, the City of Siletz recognizes the threat that natural hazards pose to people, property and infrastructure within our community; and

**WHEREAS**, undertaking hazard mitigation actions will reduce the potential for harm to people, property, and infrastructure from future hazard occurrences; and

**WHEREAS**, an adopted Natural Hazards Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

**WHEREAS**, the City of Siletz has fully participated in the FEMA prescribed mitigation planning process to prepare the *Lincoln County, Multi-Jurisdictional Natural Hazards Mitigation Plan*, which has established a comprehensive, coordinated planning process to eliminate or minimize these vulnerabilities; and

**WHEREAS**, the City of Siletz has identified natural hazard risks and prioritized a number of proposed actions and programs needed to mitigate the vulnerabilities of the City of Siletz to the impacts of future disasters within the *Lincoln County, Multi-Jurisdictional Natural Hazards Mitigation Plan*; and

**WHEREAS**, these proposed projects and programs have been incorporated into the *Lincoln County, Multi-Jurisdictional Natural Hazards Mitigation Plan* that has been prepared and promulgated for consideration and implementation by the participating cities and special districts of Lincoln County; and

**WHEREAS**, the Oregon Department of Emergency Management and Federal Emergency Management Agency, Region X officials have reviewed the *Lincoln County, Multi-Jurisdictional Natural Hazards Mitigation Plan* and pre-approved it contingent upon this official adoption of the participating governments and entities;

**WHEREAS**, the NHMP is in an on-going cycle of development and revision to improve its effectiveness; and

**WHEREAS**, City of Siletz adopts the NHMP and directs the City Recorder to develop, approve, and implement the mitigation strategies and any administrative changes to the NHMP.

**NOW THEREFORE BE IT RESOLVED** that the City of Siletz adopts the *Lincoln County, Multi-Jurisdictional Natural Hazards Mitigation Plan* as an official plan; and

**BE IT FURTHER RESOLVED** that the City of Siletz will submit this Adopted Resolution to the Oregon Department of Emergency Management and federal Emergency Management Agency, Region X officials to enable final approval of the *Lincoln County, Multi-Jurisdictional Natural Hazards Mitigation Plan*.

**Adopted and Approved** by the Siletz City Council on this 24<sup>th</sup> day of November 2025.



Mayor Will Worman

ATTEST:



City Recorder

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# Introduction

## Purpose and Adoption

This is the Siletz addendum to the Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan (NHMP). This addendum is not intended to be a standalone document, rather information contained in Volume I (Basic Plan), which serves as the foundation for this jurisdiction’s addendum and Volume II (Appendices), which provides additional information. This addendum meets all the requirements of Title 44 §201.6 including:

- Multi-jurisdictional **Plan Requirements** §201.6(a)(4),
- Multi-Jurisdictional **Risk Assessment** §201.6(c)(2)(iii),
- Multi-jurisdictional **Mitigation Strategy** §201.6(c)(3)(iv), and
- Multi-jurisdictional **Plan Adoption** §201.6(c)(5).

The City of Siletz’ original addendum to Lincoln County’s NHMP was completed and approved by FEMA in 2009.

For planning purposes, this addendum provides additional information specific to the jurisdiction, with a focus on providing greater details on the risk assessment and mitigation strategy. A description of the jurisdiction specific planning and adoption process follows, along with detailed community specific action items. Information about the jurisdiction’s risk relative to the county’s risk to natural hazards is documented in the addendum’s Hazard Analysis and Issue Identification section. The section considers how the city’s risk differs from or matches that of the county’s; additional information on Risk Assessment is provided within the Lincoln County NHMP’s Section 2 – Risk Assessment.

## Process, Participation, and Adoption

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

The City of Siletz adopted their addendum to the Lincoln County Multi-jurisdictional NHMP on November 24, 2025. FEMA Region X approved the Lincoln County NHMP on December 17, 2025 and the city’s addendum on March 17, 2026. With approval of this NHMP the district is now eligible to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act’s hazard mitigation project grants through December 16, 2030.

In addition to establishing a comprehensive community-level mitigation strategy, the Disaster Mitigation Act of 2000 (DMA2K), and the regulations contained in 44 CFR 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 pre-, and post-disaster mitigation project grants.

The Oregon Partnership for Disaster Resilience (OPDR) at the University of Oregon's Institute for Policy Research and Engagement (IPRE) collaborated with the Oregon Department of Emergency Management (OEM), Lincoln County, and City of Siletz to update their NHMP. Members of the NHMP steering committee also participated in the County NHMP update process (Attachment B and Volume II, Appendix B).

### **Convener and Committee**

The Siletz Public Works Administrator serves as the NHMP addendum convener. The convener of the NHMP will take the lead in implementing, maintaining, and updating the addendum to the Lincoln County NHMP in collaboration with the designated convener of the Lincoln County NHMP.

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

This addendum reflects decisions made at the designated meetings, and during subsequent work, and communication with OPDR. Other documented changes include revisions to the city's risk assessment and mitigation strategies (action items).

The Siletz Steering Committee was comprised of the following representatives:

- Convener, Fisher Kohler, Wastewater Treatment Plant Operator
- Ted Lapine, Wastewater Treatment Plant Lead Operator
- Dave Lapof, Siletz Valley Fire District Chief

## **Implementation and Maintenance**

The City Council will be responsible for adopting the addendum to the Lincoln County NHMP. This addendum designates a steering committee and a convener to oversee the development and implementation of action items. Because the city 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 addendum on an annual schedule; the county is meeting on a quarterly basis and will provide opportunities for participating jurisdictions (cities and special districts) to report on NHMP implementation and maintenance during their meetings. 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.

The city will remain active in the county's implementation and maintenance process and utilize the process internally (Volume I, Section 4).

The city 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

Many of the NHMP's recommendations are consistent with the goals and objectives of the city's existing plans and policies. Where possible, the city will implement the NHMP's recommended actions through existing plans and policies. Plans and policies already in existence have support from residents, businesses, and policy makers. 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.

## Capability Assessment

The Capability Assessment identifies and describes the ability of Siletz to implement the mitigation strategy and associated action items. This is a key component of the NHMP update. Capabilities can be evaluated through an examination of broad categories, including existing authorities, policies, programs, funding, and resources. Information from the 2020 NHMP was not directly integrated into other planning mechanisms, in part due to the impact of the COVID-19 pandemic. However, the city utilizes the NHMP as a tool when implementing the existing authorities referenced herein.

### 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.

### Comprehensive Plan

Oregon's Statewide Planning Goal 7 requires comprehensive planning within every jurisdiction that is designed to reduce risks to people and property from natural hazards. The Siletz Comprehensive plan provides the policy and regulatory foundation for all land use management in the city. It integrates policies and recommendations to meet the Oregon Statewide Planning Goals, including Statewide Planning Goal 7, Natural Hazards.

The [Siletz Comprehensive Plan \(2010\)](#) Chapter 11, Natural Hazards, implements statewide planning goal 7. The stated goal of the chapter is to protect life and property from natural disasters and hazards. The plan includes key findings for the city, including a high susceptibility to flood due to being located on an alluvial floodplain, high risk in a Cascadia subduction zone earthquake due to city preparedness, and vulnerability to wildfire. The city's policies to address these findings are to regulate land use, set a one (1) foot freeboard requirement for all new constructions, and coordinate with county, state, and tribal partners to mitigate risk.

## Land Use Regulations

Existing land use policies that define zoning and address hazardous conditions provide another source of mitigation capability.

### Land Use Codes

Article 17 of the Siletz Municipal Code is the city's zoning ordinance. There are no hazard zones detailed in the zoning ordinance.

Siletz has opted to implement to model order for the FEMA Pre-Implementation Compliance Measures (PICM) as part of their response to the National Marine Fisheries Service Biologic Opinion (BiOp). FEMA is ensuring that all floodplain development in Special Flood Hazard Areas (SFHA) is compliant with the Endangered Species Act (ESA).

### Wildfire Safety

Wildfire measures are not mentioned in the city's zoning ordinance.

New state wildfire defensible space code is scheduled to be completed this December with an effective date announced in 2024. Fire hardening requirements were adopted on October 1, 2022, and effective April 1, 2023.

The [Community Wildfire Protection Plan \(CWPP, 2024\)](#) helps the city communicate its priorities for the protection of life, property, and critical infrastructure in the wildland–urban interface on both public and private land. Local fire service organizations help define issues that may place the county, communities, and/or individual homes at risk. The Siletz Valley Rural Fire Protection District has their own profile in the CWPP, in which issues of concern, collaboration with other fire districts, and areas of response are addressed.

### Structural Building Codes

The Oregon Legislature recently adopted updated building codes for both residential (2021 adoption) and commercial structures (2022) since the last update of the NHMP. These building codes are based on the 2021 version of the International Building Code, International Fire Code, and International Existing Building Code.

Siletz adopts the 1990 edition of the State of Oregon Uniform Building Code as the Siletz Building Code. Title 15 is the city's building code, and chapter 15.12 is the city's Flood Damage Prevention ordinance. Article 1 of this chapter outlines the city's methods of reducing flood losses.



## Policies and Programs

### City Plans

The following are Siletz's existing plans and policies that relate to natural hazards:

**Comprehensive Plan, 1992, last amended 2014:** A document stating the general, long-range policies that will govern a local community's future development.

*Relation to Natural Hazard Mitigation:* Contains city-specific information regarding natural hazards within the city's jurisdictional boundaries.

**Zoning Ordinance, 1987:** Establishes land use zones to regulate the location of building structure and the use of land within the City of Siletz.

*Relation to Natural Hazard Mitigation:* Contains city-specific hazard related requirements for the placement and construction of the buildings and addresses issues such as floodplain development, fire resistant materials, etc. The city's flood damage prevention ordinance was last adopted in 2009 (Chapter 15.12 of the municipal code).

**Emergency Operations Plan, 2014:** All hazards plan describing how Siletz will respond to incidents.

*Relation to Natural Hazard Mitigation:* The plan includes a hazard vulnerability assessment, evaluation of hazards in the community, and demonstrates how the community will respond to natural hazard events.

**Lincoln County Evacuation Plan, 2025:** Siletz has a priority area plan in the county-wide evacuation plan. The purpose of the priority area plan is to help the community prepare for disasters and to help facilitate any needed evacuations. The priority area plan outlines the city's natural disaster risks, the current emergency response system, different evacuation routes, and recommendations

**Water Management and Conservation Plan, 2020:** Guides the development and implementation of water management and conservation programs and policies to ensure sustainable use of water resources.

*Relation to Natural Hazard Mitigation:* Enhances the NHMP risk assessment and includes mitigation actions to reduce risk to drought and flood.

### National Flood Insurance Program (NFIP)

Siletz participates in the [National Flood Insurance Program \(NFIP\)](#). The program is managed by the city's local emergency management services (Public Works). The program makes flood insurance available to all property owners. To maintain eligibility for the NFIP, Siletz has adopted and enforces special building and development restrictions for lands that are subject to flooding.

Siletz is not a Community Rating System (CRS) community. The CRS system is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program.

## Government Structure

The City Council is the policy making body for Siletz. As the elected legislative body in Siletz, the City Council has overall responsibility for the scope, direction and financing of city services. Council members serve four-year terms. Additional departments within the city include the following:

**City Recorder:** The city recorder assures the timely presentation of formal communications from the public, other agencies and city staff to the City Council. The recorder prepares City Council meeting agendas; maintains official city records which reflect the action of the governing body; maintains depository of contracts, agreements and official Council actions and ensures the timely availability of these records to the Council, public, other agencies and staff.

**Public Works Department:** The Public Works Department provides responsive community services related to planning, design, construction, operation, maintenance and management of public infrastructure, including streets, sewer, water treatment, wastewater treatment, public buildings, and other facilities. Services provided by the department contribute to the public health, safety, economic diversity, environmental quality and citizen convenience.

**Land Use Planning:** The city provides services and information to the public regarding all phases of community development and land use planning. Staff implements city ordinances, administers the local comprehensive plan and land use code, and advises the City Council and Planning Commission on all land use and special project matters.

**Fire Department:** The Siletz Valley Fire Department is responsible for responding to fires, providing emergency medical service, and managing the aftermath of disasters for the City of Siletz and the surrounding community.

## Mitigation Successes

This is a list of funding that Siletz has sought out or received, as well as recently completed projects to improve mitigation.

- Siletz Valley Rural Fire District Station 5200 (2015-17, SRGP grant award, \$1,376,475)
- Central Lincoln PUD and Consumers Power Inc. have completed underground of power lines to mitigate against falling trees during wind and winter storms.

## Existing Mitigation Activities

Existing mitigation activities include current mitigation programs and activities that are being implemented by the community to reduce the community's overall risk to natural hazards. Documenting these efforts can assist participating jurisdictions better understand risk and can assist in documenting successes. The following efforts have occurred or are on-going within the City of Siletz:

- The City of Siletz adopted in 2005: Vulnerability Assessment and Emergency Action Plan Siletz Water Treatment Plant (reviewed and revised May 2017).

- The City of Siletz: Vulnerability Assessment and Emergency Action Plan Siletz Wastewater Treatment Plant (reviewed and revised May 2017).
- Water Management and Conservation Plan, curtailment plan (October 2018)
- The City of Siletz adopted in 2007: Emergency Response Planning Template for Public Wastewater System.
- The City of Siletz adopted in 2014: City of Siletz Emergency Operations Plan. Updated contacts list in 2020.
- The Siletz Valley Fire Department participates in practice drills locally and county-wide.
- The City of Siletz maintains emergency preparedness information on its website.
- Floodplain ordinance was updated in mid-2020.

## Mitigation Strategy

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

Siletz follows the mission and hazard mitigation goals described in Volume I.

The city's action items were first developed through a two-stage process during the 2009 NHMP development and revised in 2015 and 2020. In stage one, OPDR facilitated a work session with the steering committee to discuss the city's risk and to identify potential issues. In the second stage, OPDR, working with the local steering committee, developed potential actions based on the hazards and the issues identified by the steering committee. During the 2025 update process OPDR re-evaluated the Action Items with the county and local steering committees and updated actions, noting what accomplishments had been made and if the actions were still relevant; any new action items were identified at this time (Reference source needed presents a list of mitigation actions. The steering committee 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 steering committee in terms of implementation, the steering committee 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.

For additional information see Attachment B.

The steering committee opted to not include mitigation strategies for low vulnerability and low probability hazards including: Crustal earthquake, extreme heat, volcanic event, and tornado. The steering committee will study these hazard further during the implementation and maintenance phase of this NHMP, seeking to identify cost effective actions that might be implemented to reduce community vulnerability.

## Priority Action Items

Reference source needed presents a list of mitigation actions. The steering committee 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 steering committee in terms of implementation, the steering committee 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.

Table SA-1 Action Items

Mitigation Strategies		Impacted Hazard											Implementation and Maintenance				
Action Item #	Statement	Air Quality	Coastal Erosion	Drought	Earthquake	Extreme Heat	Flood	Landslide	Tsunami	Volcanic Event	Wildfire	Windstorm*	Winter Storm	Potential Funding Resources	Lead	Timeline	Cost
1	Implement a year-round public education campaign to increase community preparedness for natural hazards, with an emphasis on drought awareness and water conservation. Activities include creating public service advertisements, distributing seasonal outreach materials with water bills, and placing educational displays in public spaces like libraries. Host public meetings to discuss local hazards such as earthquakes and landslides in Siletz and provide guidance on mitigating damage from these events. Teach children about emergency safety and preparedness through school programs. Promote awareness of windstorm behavior and safety during power outages. Launch a preparedness website and social media campaign and collaborate with local partners to ensure inclusive outreach.	X		X	X	X	X	X		X	X	X	X	Local funding resources, HMA, DLCD, OEM, DOGAMI, OSU Extension	City Council/Mayor or designee	Ongoing	L
2	Implement a comprehensive seismic rehabilitation program to retrofit structurally and non-structurally vulnerable public facilities and critical infrastructure, prioritizing schools, emergency services, and lifeline systems identified in DOGAMI's seismic needs assessment. This proactive mitigation strategy will reduce the probability of collapse during a Cascadia Subduction Zone event, ensuring continuity of government operations, minimizing service disruptions, and enhancing the city's capacity to respond effectively to post-earthquake demands. The program will include detailed inventory assessments, pursuit of retrofit funding, and phased rehabilitation of high-risk assets such as the Siletz Valley School, City Hall, and other essential utilities.				X									Local funding resources Business, SRGP, HMA	City Council/Mayor or designee	L	H to VH
3	Enhance community safety and mobility in the event of an earthquake by identifying and developing alternative transportation and evacuation routes that bypass the bridges over the Siletz River. Collaborate with ODOT to assess and seismically retrofit existing bridges to withstand seismic events. Concurrently, evaluate and designate viable detour routes for emergency access and evacuation in the event of bridge failure. This action ensures continued connectivity and emergency response capability during and after a major seismic event.				X									Local funding resources, HMA, ODOT	City Council/Mayor or designee/ ODOT	M	H to VH

Mitigation Strategies		Impacted Hazard											Implementation and Maintenance				
Action Item #	Statement	Air Quality	Coastal Erosion	Drought	Earthquake	Extreme Heat	Flood	Landslide	Tsunami	Volcanic Event	Wildfire	Windstorm*	Winter Storm	Potential Funding Resources	Lead	Timeline	Cost
4	Enhance community resilience to a Cascadia Subduction Zone earthquake by reviewing and implementing the Siletz Evacuation Plan, and by identifying and establishing strategically located disaster caches throughout the city. These caches will include food, water, medical supplies, and fuel, leveraging existing resources from the Lincoln County School District, Siletz Valley Charter School, CTSI, and the fire district. Priority will be given to locations that support emergency sheltering and regional aid functions, ensuring rapid access and distribution during a disaster.				X		X				X	X	X	Local funding resources, HMA, OREM	City Council/Mayor or designee/ Siletz Valley Charter School	S	M
5	Coordinate with tribal leadership and community stakeholders to enhance resilience through improved water system security, emergency preparedness, and post-disaster recovery planning. This includes developing a framework for water access during disasters, placing emergency supply pods, and forming a recovery management team. Ongoing collaboration and alignment will support long-term hazard mitigation and community recovery.	X		X	X	X	X	X		X	X	X	X	Local funding resources	City Council/Mayor or designee	M	L
6	Create an inventory of structures in the flood zone. An inventory can help determine potential shelter needs due to flood displacement. This inventory can serve as a tool for analysis to determine if current emergency sheltering capacity can cover possible needs. It can also be used to begin planning for mitigating risk to identified properties (including potential building elevation, compensatory storage, building retrofits, etc.).						X							Local funding resources, HMA	City Council/Mayor or designee	S	M
7	Establish regular emergency management meetings among the Siletz Valley Fire District, the City of Siletz, the Siletz Valley School, the Confederated Tribes of Siletz Indians (CTSI) to aid the City in planning and coordination of preparation efforts.	X		X	X	X	X	X		X	X	X	X	Local funding resources	City Council/Mayor or designee/ Fire District, CTSI, Siletz Valley Charter School	S	L

Source: NHMP steering committee, 2025.

Cost: L (less than \$50,000), M (\$50,000-\$499,999), H (\$500,000-\$5 million), VH (more than \$5 million),

Potential Funding Sources: HMA=FEMA's Hazard Mitigation Assistance disaster and non-disaster grant programs

Timing: Ongoing (continuous), Short (1-4 years), Medium (4-10 years), Long (10 or more years)

Priority Actions: Identified with orange highlight

\* - the windstorm hazard includes tornadoes (water spouts)

Dark Grey highlight indicates that the hazard does not impact the jurisdiction.

# 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 Volume I, Section 2, and Volume II, Appendix C.

# Hazard Analysis

The NHMP steering committee updated the city’s previous [hazard analysis](#) to reflect current conditions. Where appropriate, changes were made to distinguish the city’s risks from those in the County’s hazard analysis, as detailed throughout this addendum.

Table SA-2 shows the hazard analysis matrix listing each hazard in rank from high to low. For local governments, conducting 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. See Volume I, Section 2 for methodology details.

Windstorm, winter storm (snow/ice), Cascadia Subduction Zone earthquake, and drought are the **high hazard threats** to the city. Riverine flood, wildfire, air quality/smoke, and landslide are the **moderate hazard threats**. Crustal earthquake, extreme heat events, volcanic events, and tornado are the **low hazard threats**.

The city is not affected by coastal erosion, coastal flood, local tsunami, and distant tsunami as such the hazards are not profiled and not included in their hazard analysis.

**Table SA-2 Hazard Analysis Matrix**

Hazard	Maximum		Total Threat Score	Hazard Rank	Hazard Tiers
	History	Vulnerability			
Windstorm	20	50	100	70	Top Tier
Winter Storm	18	35	80	70	
Earthquake (Cascadia)	2	50	100	49	
Drought	20	30	80	70	
Flood (Riverine)	16	25	70	63	Middle Tier
Wildfire	10	25	70	49	
Air Quality/Smoke	10	10	60	49	
Landslide	10	20	50	35	
Earthquake (Crustal)	10	20	40	21	Bottom Tier
Extreme Heat Event	6	10	30	42	
Volcanic Event	2	5	40	7	
Tornado	2	10	10	7	

Source: City of Siletz NHMP Steering Committee (2025)

## Community Characteristics

Table SA-3, and the following section provide information on city specific demographics and assets. For additional information on the characteristics of the city, in terms of geography, environment, population, demographics, employment, and economics, as well as housing and transportation, see Volume II, 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.

Unless otherwise specified, data in this section comes from: Social Explorer: American Community Survey 5-Year Estimates (2018-2022). U.S. Census Bureau.  
<https://www.socialexplorer.com/explore-tables>.

### Location and environment

The City of Siletz is located on the Siletz River and lies approximately 8 miles inland from the Pacific Ocean, 13 miles from the county seat of Newport and approximately 7 miles north of the City of Toledo. The city is approximately 130 feet above sea level, and city limits cover a land area of approximately 400 acres. The city is situated in the Siletz River Valley, bounded by the Siletz River and coastal mountains.

The climate in Siletz is moderate. Average monthly temperatures range from lows of 39-40° F (December through February) to highs of 65° F (July through September). The driest months are July and August (average about 0.8 inches of precipitation per month) the wettest months are November through January (average more than ten inches of precipitation per month). Siletz has an average annual precipitation of approximately 67.5 inches (71%, 47.6 inches falls November through March).

## **Population, housing, and development**

Between 2019 and 2023 the city's population was stable. According to the State's official coordinated population forecast (preliminary), between 2023 and 2045 the city's population is forecast to grow by 16% to 1,444. Native Americans make up 11% of the city's population, and the city hosts the administration and program building, as well as a recreation center and the tribal community center, for the Confederated Tribes of Siletz Indians. Eighty-eight percent (88%) of Siletz residents 25 years and older hold a high school degree, and 15% have a bachelor's degree or higher. Students attend school in Toledo, Newport, or the Siletz Valley Charter School. As of 2023-24, Siletz High School, Newport High School, Siletz Valley Charter School, and Lincoln County School District have 82%, 93%, 80%, and 82% graduation rates respectively.<sup>1</sup>

Development in Siletz spreads mostly north to south along US-Highway 229, and east along Logsdon Road and local access roads surrounding the town (ODOT Map). The main commercial area is concentrated near the intersection of Highway 229 and Logsdon Road, and surrounding areas consist of residential and commercial development. The Confederated Tribes of Siletz Indians tribal lands are located on the eastern side of town. The city's Comprehensive Plan identifies land use needs within the city and its urban growth boundary. City zoning designations primarily include residential, commercial, and public lands.

## **Economy**

About 58% of the resident population 16 and over is in the labor force (580 people) and 5% are unemployed. Top occupations include service (28%), sales and office (26%), management, professional, and related (24%), and construction, extraction, and maintenance (11%).

Most workers residing in the city (91%, 370 people) travel outside of the city for work primarily to Newport, Siletz, and Corvallis.<sup>2</sup> A significant population of people travel to the city for work, (87% of the workforce, 237 people) primarily from Newport and Lincoln City.

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<sup>1</sup> Lincoln Chronicle, Graduation rate for Lincoln County's class of 2024 improves to 82%, reaching state's average, January 30, 2025.

<sup>2</sup> U.S. Census Bureau. LEHD Origin-Destination Employment Statistics (2002-2017). Longitudinal-Employer Household Dynamics Program, accessed on April 25, 2020 at <https://onthemap.ces.census.gov>.

**Table SA-3 Community Characteristics**

Population Characteristics		Population Growth	
<b>2019 Population Estimate</b>	1,235		
<b>2023 Population Estimate</b>	1,242	1%	
<b>2045 Population Forecast*</b>	1,444	16%	
<b>Race</b>			
American Indian and Alaska Native		11%	
Asian		0%	
Black/ African American		0%	
Native Hawaiian and Other Pacific Islander		< 1%	
White		71%	
Some Other Race		0%	
Two or More Races		12%	
<b>Hispanic or Latino/a (of any race)</b>		6%	
<b>Limited or No English Spoken</b>	2	< 1%	
<b>Vulnerable Age Groups</b>			
Less than 5 Years	57	5%	
Less than 15 Years	154	14%	
65 Years and Older	224	20%	
85 Years and Older	6	1%	
Age Dependency Ratio		0.50	
<b>Disability Status (Percent age cohort)</b>			
Total Disabled Population	270	24%	
Children (Under 18)	0	0%	
Working Age (18 to 64)	148	13%	
Seniors (65 and older)	122	54%	
<b>Income Characteristics</b>			
<b>Households by Income Category</b>			
Less than \$15,000	60	11%	
\$15,000-\$29,999	116	22%	
\$30,000-\$44,999	91	17%	
\$45,000-\$59,999	129	24%	
\$60,000-\$74,999	28	5%	
\$75,000-\$99,999	65	12%	
\$100,000-\$199,999	51	9%	
\$200,000 or more	2	0%	
<b>Gini Index of Income Inequality</b>		0.31	
<b>Poverty Rates (Percent age cohort)</b>			
Total Population	47	4%	
Children (Under 18)	0	0%	
Working Age (18 to 64)	44	6%	
Seniors (65 and older)	3	1%	
<b>Housing Cost Burden (Cost &gt; 30% of household income)</b>			
Owners with a Mortgage		16%	
Owners without a Mortgage		< 1%	
Renters		3%	
<b>Household Characteristics</b>			
<b>Housing Units</b>			
Single-Family (includes duplexes)	262	60%	
Multi-Family	34	8%	
Mobile Homes (includes RV, Van, etc.)	138	32%	
<b>Household Type</b>			
Family Household	95	24%	
Married couple (w/ children)	68	17%	
Single (w/ children)	27	7%	
Living Alone 65+	67	17%	
<b>Year Structure Built</b>			
Pre-1970	70	16%	
1970-1989	160	37%	
1990-2009	201	46%	
2010 or later	3	1%	
<b>Housing Tenure and Vacancy</b>			
Owner-occupied	322	74%	
Renter-occupied	79	18%	
Seasonal	0	0%	
Vacant	33	8%	
<b>Vehicles Available (Occupied Units)</b>			
No Vehicle (owner occupied)	12	3%	
Two+ vehicles (owner occupied)	304	76%	
No Vehicle (renter occupied)	11	14%	
Two+ vehicles (renter occupied)	38	48%	
<b>Employment Characteristics</b>			
<b>Labor Force (Population 16+)</b>			
In labor Force (% Total Population)	569	58%	
Unemployed (% Labor Force)	30	5%	
<b>Occupation (Top 5) (Employed 16+)</b>			
Service	151	28%	
Sales and Office	140	26%	
Management, Professional, and Related	131	24%	
Constr., Extraction, and Maintenance	61	11%	
Product., Transport., & Material Moving	38	7%	
<b>Health Insurance</b>			
No Health Insurance	63	6%	
Public Health Insurance	572	50%	
Private Health Insurance	640	56%	
<b>Transportation to Work (Workers 16+)</b>			
Drove Alone	438	85%	
Carpooled	26	5%	
Public Transit	0	0%	
Motorcycle	0	0%	
Bicycle/Walk	1	< 1%	
Worked at Home	48	9%	

Source: Social Explorer: American Community Survey 5-Year Estimates (2018-2022). U.S. Census Bureau. <https://www.socialexplorer.com/explore-tables>; Population Research Center. (2023, April). *Annual Population Estimates*. Portland State University. <https://www.pdx.edu/population-research/>.

\*Source for 2045 Population Estimate: Population Research Center. (2025, March 15). *Region 3: Central Coast Oregon Results (Proposed) – Lincoln County*. Portland State University Oregon Population Forecast Program. <https://www.pdx.edu/population-research/population-forecasts>.

Note: The U.S. Census Bureau American Community Survey 2018-2022 data used for this analysis has varying levels of reliability depending on geographic area, demographic group, and types of data. These figures are primarily used for estimation and to develop a general understanding of the demographics of a location and should not be mistaken for precise figures.

# Community Assets

This section outlines the resources, facilities, and infrastructure that, if damaged, could significantly impact the public safety, economic conditions, and environmental integrity of the city. Mitigating risk to these facilities will increase the community's resilience.

## Critical Facilities & Infrastructure

Critical facilities are those that support government and first responders' ability to act in an emergency. They are a top priority in any comprehensive hazard mitigation plan. Individual communities should inventory their critical facilities to include locally designated shelters and other essential assets, such as fire stations, and water and wastewater treatment facilities.

Siletz has the following critical facilities (**bold** indicates facility was included in the Risk Report ([DOGAMI, O-20-11](#))):

- City Hall (215 W Buford Ave)
- Water treatment plant (389 NW Park Dr)
- Wastewater treatment plant (1264 NW James Frank Ave)
- Siletz Public library (255 SE Gaither St)
- **Siletz Valley Schools** (245 NW James Frank Ave)
- **Siletz Valley Fire District: Station 5100** (149 W Buford Ave)
- Siletz Valley Fire District: Station 5200 (7751 Logsdan Rd.)
- Post Office (295 N Gaither St.)
- Siletz Tribal Community Center (402 NE Government Hill Dr.)
- Siletz Community Health Clinic (200 Gwee-Shut Rd, not in city limits)
- Siletz Valley Grange (224 N Gaither St.)
- USDA Food Distribution Center (815 Logsdan Rd, not in city limits)
- ATT Cell Tower (Government Hill, not in city limits)
- NW Natural Gas
- Noels Market (180 Gaither St.)
- Siletz Gas & Mini Mart (315 Gaither St.)

## Transportation

Mobility plays an important role in Siletz, and the daily experience of its residents, and businesses. Motor vehicles represent the dominant mode of travel through, and within the city. Siletz is also served by Lincoln County Transit Route 493 with service running Monday through Saturday connecting Newport, Siletz, and Siletz.

### Roads/Seismic lifelines

Seismic lifeline routes help maintain transportation facilities for public safety and resilience in the case of natural disasters. Following a major earthquake, it is important for response and recovery agencies to know which roadways are most prepared for a major seismic event. The

Oregon Department of Transportation has identified lifeline routes to provide a secure lifeline network of streets, highways, and bridges to facilitate emergency services response after a disaster.<sup>3</sup>

System connectivity and key geographical features were used to identify a three-tiered seismic lifeline system. Routes identified as Tier 1 are considered the most significant and necessary to ensure a functioning statewide transportation network. The Tier 2 system provides additional connectivity to the Tier 1 system, it allows for direct access to more locations and increased traffic volume capacity. The Tier 3 lifeline routes provide additional connectivity to the systems provided by Tiers 1 and 2.

The City of Siletz lies adjacent to US-Highway 229. Highway 101 (Tier I) is the major north-south transportation route for the Coast and is located to the west of the city ([ODOT Map](#)). Highway 20 (Tier III), south of the city, is the major east-west transportation route connecting the coast to the Willamette Valley.

### **Bridges**

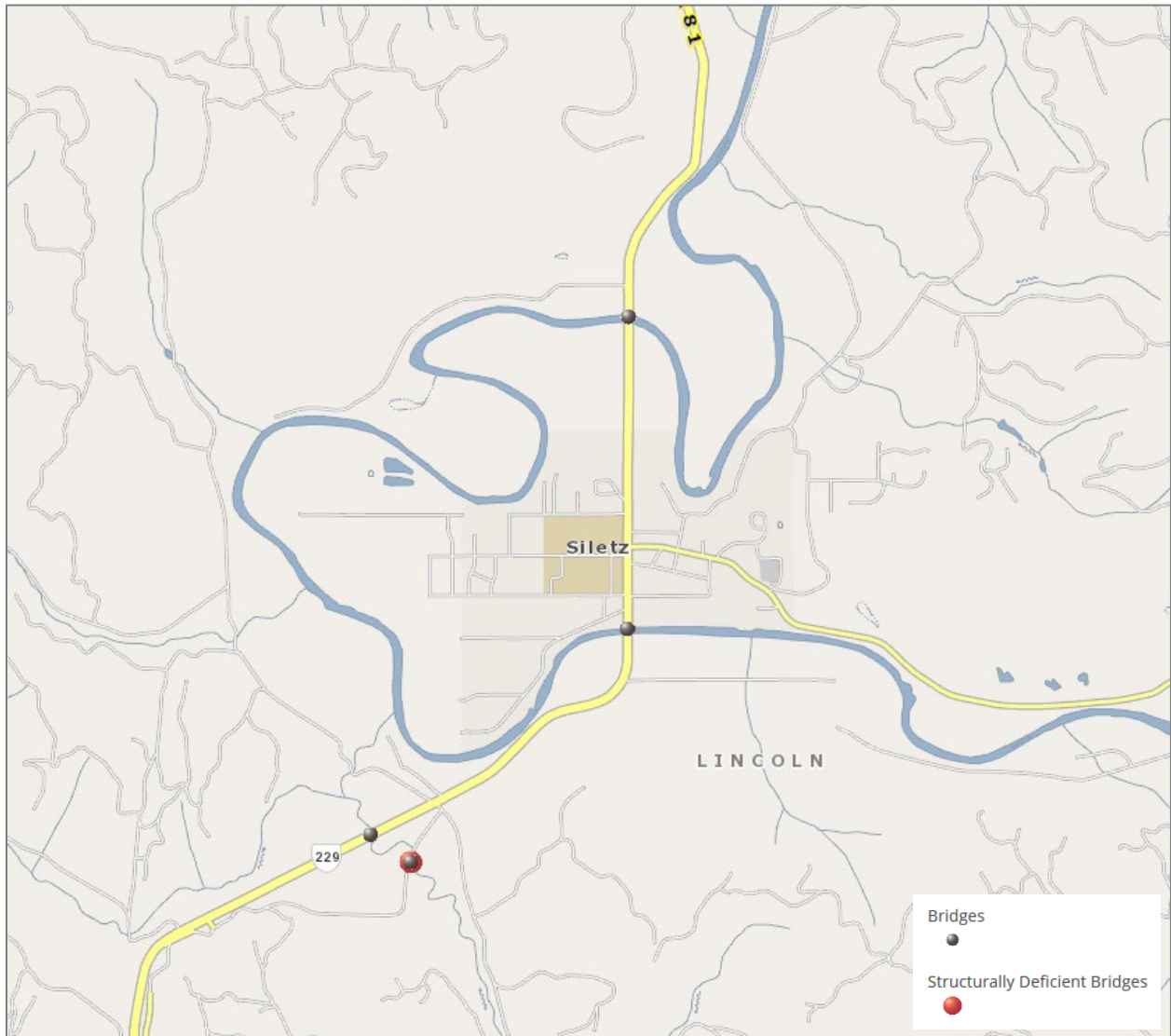
Because of earthquake risk, the seismic vulnerability of the city's bridges is an important issue. Non-functional bridges can disrupt emergency operations, sever lifelines, and disrupt local and freight traffic. These disruptions may exacerbate local economic losses if industries are unable to transport goods. Bridges within the city that are critical or essential include (Map SA-1).

- Siletz River, Hwy 181 at MP 23.10 (Fuller) (Bridge ID 00851A) – northern bridge
- Siletz River, Hwy 181 at MP 24.10 (Bridge ID 00853A) – southern bridge
- Siletz River, Hwy 181 at MP 20.66 (Ojalla) (Bridge ID 00852A) – north of city

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<sup>3</sup> Oregon Department of Transportation. Oregon Seismic Lifeline Evaluation, Vulnerability Synthesis, and Identification, *Oregon Seismic Lifeline Routes*, May 15 2012.

## Map SA-1 Oregon Bridges and Structurally Deficient Bridges



Source: Oregon Department of Transportation, ODOT TransGIS, accessed June 11, 2025

More information on Seismic Design of bridges is on the ODOT website:

<https://www.oregon.gov/odot/Bridge/Pages/Seismic.aspx>

### Railroads

There are no railroads in Siletz.

### Airports

There are no public airports in Siletz. The Newport Municipal Airport is the nearest airport (about 18 miles southwest of the city). The city has no commercial service airports. The nearest commercial airports are in Eugene and Portland.

## Utility Lifelines

Utility lifelines are the resources that the public relies on daily such as, electricity, fuel and communication lines. If these lines fail or are disrupted, the essential functions of the community can become severely impaired. Utility lifelines are closely related to physical infrastructures, like dams and power plants, as they transmit the power generated from these facilities.

Generally, the network of electricity transmission lines running throughout the city is operated by Central Lincoln PUD. The Williams Gas Pipeline provides natural gas that is delivered to customers in the city by Northwest Natural Gas. These lines may be vulnerable as infrequent natural hazards, like earthquakes, could disrupt service to natural gas consumers across the region.

The city water, wastewater, and stormwater (culvert) systems include the following:

### Water Infrastructure

- Water Treatment Plant (Government Hill Road)
  - Raw Water Storage Tank (1.5 MG), built 2010, bolted glass fused steel
  - Treated Water Storage Tank (0.2 MG), built 1973, welded steel
  - Treated Water Storage Tank (0.3 MG), built 1987, welded steel
  - Treated Water Storage Tank (0.5 MG), built 1999, bolted glass fused steel
- Pump Stations (no generator for any facility)
  - Siletz River Pump Station, (350 South Gaither St., Hee Hee Illahee Park)
  - Raw Water Tank Pump Station, (Government Hill Road)
  - Treated Water Clearwell Station

### Wastewater Infrastructure

- Wastewater Treatment Plant (1264 NW James Frank Rd)
- Willow Court Pump Station (Willow Court)

## Cultural and Historic Resources

The City of Siletz has a long and rich history. As reviewed on the city’s website, “The Siletz Reservation is contiguous with Siletz on its east side and lies to the north and southeast of the town as well. The roots of the Siletz peoples lie in some 27 tribes that once populated the coastal areas of Lincoln, Tillamook, and Lane Counties. In 1851 the U.S. Federal Government forced the Indians of Western Oregon onto reservations as a way of reducing conflicts between the Indians and the flood of Euro-American settlers who came for the area’s newly found gold.

Over the years the size of the Siletz reservation has been reduced. A railroad to the coast divided the reservation in two in the late 1860s and large sections of the reservation were opened to White settlement by the federal government. In the next couple of decades parts of the reservation were closed and the Dawes Act of 1887 placed tribal lands into allotments. Those lands that were not eventually allocated to Indians went into the public domain and were sold to settlers. In 1956 the Western Oregon Termination Act declared that the people of the Siletz Tribe were no longer Indians. As a result, more of their land was sold to settlers, and given to the town of Siletz. In 1977 the Siletz Tribe, with the enactment of the Siletz Restoration Act, was again recognized as an Indian tribe. The reservation now includes approximately 39 acres near

town and 3,630 acres of timberland throughout Lincoln County. In 1991 the Tribe built a 13,500 square foot Tribal Health Clinic just outside of the town. The clinic is an asset to the community as it serves tribal members and non-members. Today the Confederated Tribes of Siletz plays an important role in the area.

Native Americans relied on the area's natural resources long before the arrival of Euro-American settlers. At the beginning of the colonial era, native peoples subsisted by fishing, hunting, and gathering. In the more recent past the Siletz Tribe relied on the area's natural resources for their sustenance. They gathered a variety of plants, hooked and trapped lamprey, caught salmon, collected freshwater mussels, and hunted deer. However, recent declines in lamprey and salmon populations have reduced access to these two important traditional food sources. Although the state does not recognize the Tribes coastal fishing rights today, the tribe believes that they are legitimized via treaty rights.

Euro-American settlers continued to enter the Siletz area throughout the latter 1800s. They established general stores in the community. For homesteaders who settled in rural areas outside of town, pack trains brought supplies to them. Siletz was like the rest of Lincoln County as its major industries were logging, lumbering, farming (agricultural and pastoral), rock crushing, reforestation, gathering of native flora, and cascara bark peeling. The town site of Siletz was established in 1910. The city was eventually incorporated in 1946. In the early days travel in the Siletz area was difficult, as most was done by foot or horse. A ferry aided those who crossed the Siletz River. The June 29th, 1939 Lincoln County Leader describes Siletz as a center of trade and logging, as much of the timber headed for California and many eastern ports at that time came from the area.

Historic and cultural resources such as historic structures and landmarks can help to define a community and may also be sources of tourism dollars. Because of their role in defining and supporting the community, protecting these resources from the impact of disasters is important. The National Register of Historic Places lists one historic site within the City of Siletz while the State Historic Preservation Office includes several other properties.<sup>4</sup> The following list includes the one property that is listed on the National Register of Historic Places:

- Siletz Agency Site, c.1856 (eligible/significant)

The following list includes 11 other properties listed on the State Historic Preservation Office website:

- Gomes Property, 534 Logsdan Rd, c.1930 (vicinity) (eligible/significant)
- Shaker Church, c.1923 (eligible/contributing)
- Siletz River Bridge, N Gaither St, 1946 (vicinity) (eligible/contributing)
- Siletz River Bridge, Hwy 181, 1956 (vicinity) (eligible/contributing)
- Government Hill Hospital, Park and Cemetery Way, c.1890 (eligible/contributing)
- Siletz River Covered Bridge, Sams Creek Rd, 1922 (vicinity) (eligible/contributing)
- Siletz River Bridge, Siletz Hwy, 1946 (vicinity) (eligible/contributing)

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<sup>4</sup> Oregon Historic Sites Database, <http://heritagedata.prd.state.or.us/historic/>, accessed July 21, 2020.

- [House], 419 A St, c.1945 (not eligible/noncontributing)
- [House], 465 W Buford, c.1925 (not eligible/noncontributing)
- House, 218 NE Palmer St, c.1930 (not eligible/noncontributing)
- Siletz Cemetery, Park & Cemetery Rd (undetermined/lack of info)

The City of Siletz is surrounded by a rich diversity of natural resources, which attract residents and tourists to the area. The local grange hosts a weekly market that includes fresh produce, plants, arts, crafts, and food. Fishing, boating and kayaking are popular activities as are hiking, birding and wildlife watching. Local public parks allow residents to enjoy the surrounding natural beauty and they also provide areas for sports, swimming, and skateboarding. The Confederated Tribes of Siletz Indians hosts the annual Nesika Illahee Pow Wow held the second weekend of August. The event celebrates with native crafts, food, dancing competitions and the sale of a wide variety of native crafts and products.

## Community Organizations and Programs

Social systems can be defined as community organizations and programs that provide social and community-based services, such as health care or housing assistance, to the public. In planning for natural hazard mitigation, it is important to know what social systems exist within the community because of their existing connections to the public. Often, actions identified by the plan involve communicating with the public or specific subgroups within the population (e.g. elderly, children, low income). The county and cities can use existing social systems as resources for implementing such communication-related activities because these service providers already work directly with the public on several issues, one of which could be natural hazard preparedness and mitigation. The countywide community organizations that are active within the city and county and may be potential partners for implementing mitigation actions can be found in Appendix C: Community Profile.

## Lincoln County School District

The Siletz Valley Schools charter school also serves students in the City of Siletz. Siletz students attend Lincoln County School District schools in Siletz, Toledo, Eddyville, and Newport.

# Hazard Profiles

The following sections briefly describe relevant information for each profiled hazard. More information on Lincoln County hazards and future projections can be found in Volume I, Section 2. Note that these hazards are sorted **alphabetically** and not by hazard tier as determined in the city’s Hazard Analysis Matrix (Table SA-2).

In addition, the city incorporates by reference the Oregon Department of Geology and Mineral Industries (DOGAMI) multi-hazard risk assessment (Risk Report, [DOGAMI, O-20-11](#)) for Lincoln County that includes economic and population loss estimates for coastal erosion, Cascadia Subduction Zone earthquake and tsunami, flood, landslide, and wildfire (summarized herein).

Development forecasts are not expected to increase or decrease the impact of the profiled hazards. However, the population of adults aged 65 and older is increasing within this jurisdiction. As a result, the impact of the air quality and extreme heat hazards may increase.

## Air Quality

The Steering Committee rated the city’s **probability of occurrence for air quality/smoke events as “moderate” and their vulnerability as “low”**. *This hazard was not assessed in the previous version of this NHMP.*

Volume I, Section 2 describes the characteristics of air quality hazards, history, and how they relate to future climate projections as well as the location, extent, and probability of a potential event. Increases in wildfire conditions have shown an increasing potential for air quality hazards. Additional information can be found on the Lincoln County website: <https://www.co.lincoln.or.us/742/Hazards-Air-Quality>.

## Vulnerability Assessment

Lincoln County has limited capacity to monitor air quality. Lincoln County has limited capacity to monitor air quality. No development or population changes affected the jurisdiction’s overall vulnerability to this hazard. The population of adults aged 65 and older is increasing within this jurisdiction. As a result, the impact of this hazard may increase.

## Coastal Erosion

The City of Siletz does not border the Pacific Ocean; as such, coastal erosion is not considered to be a hazard within the community.

## Drought

The Steering Committee rated the city’s **probability of occurrence for drought events as “high” and their vulnerability as “moderate”**. *The vulnerability rating decreased since the previous NHMP.*

Volume I, Section 2 of Lincoln County’s NHMP adequately describes the causes and characteristics of drought hazards, as well as the history, location, extent, and probability of a potential event. Due to a cool, wet climate, past and present weather conditions have generally spared coastal communities from the effects of a drought. However, the City of Siletz is concerned about water supply on an annual basis and only has capacity for a 12-day supply of water.

The city maintains two water sources. The Siletz River is a direct-flow water source that can have short periods of high turbidity during winter storms that is a potential threat to water supply. Landslides could potentially occur above the Siletz River water-intake and threaten the city’s water supply. The city’s secondary water source is from the Tangerman Creek Reservoir. The water quality from the reservoir is poorer and has not been used in recent history. If needed it would likely be used during periods of winter storm/flooding when turbidity is too high in the Siletz. The city has two interconnections with the Confederated Tribes of Siletz Indians and the Siletz Mobile Park Water System. The city has about 426 water connections (residential/business) within the city, 190 (residential/business) with the Confederated Tribes of Siletz Indians, and 32 residential water connections outside city limits (Camp 12) for a total of 648 service connections. There are about 2,000 residents within the Siletz Water Service Area. Major upgrades to the city’s water treatment plant and system occurred in 1999. Upgrades included a 0.5 MG Treated Water Storage Tank (increasing storage capacity to 1.0 MG), new treatment system, and replacement of about 60% of the water distribution system.

Water from the city reservoirs is treated at the water treatment facility that can treat up to 4.0 million gallons per day (mgd). Following treatment water flows via 8-inch water transmission mains to three water storage tanks (total capacity of 1 million treated gallons) located at the site of the Water Treatment Plant (outside of the flood hazard zone). The city has an additional 1.5 million gallons of untreated water available that enables the city to turn off water river pumps during periods of high turbidity for 10-12 days before refilling. In 2013, the Confederated Tribes of Siletz Indians constructed a new 0.5 MG water storage tank to increase the storage capacity of their water supply system and meet increasing demands of the community. This difference results from draw-down and pressure needs throughout the city. The city has approximately 8.3 miles of transmission pipeline ranging from 2-inch to 12-inch and about 2.4 miles of distribution pipeline. The city has enough capacity to meet current and anticipated future demand. The city has a Water Management and Conservation Plan that includes water curtailment measures that will go into effect in the event of a drought.

#### **Future Climate Projection:**

According to OCCRI report “*Future Climate Projections: Lincoln County*” ([Link](#)) the probability of future drought conditions (low summer soil moisture, low spring snowpack, low summer runoff, low summer precipitation, and high summer evaporation) is expected to be more frequent by the 2050s.

## Vulnerability Assessment

No development or population changes affected the jurisdiction's overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

Due to insufficient data and resources, a quantitative risk assessment or exposure analysis for this hazard cannot currently be performed. State-wide 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 apply to humans and resources.

The city's existing water supply is most vulnerable to wildfire which may impact the city's watershed and is increased during periods of drought. The city's storage, water transmission, and distribution lines are vulnerable to seismic activity that could cause them to crack. Additionally, in the event of a fire or turbidity problems, the water supply could be significantly reduced. Storage capacity is limited, and the city's steering committee believes that increased storage capacity may assist in mitigating the impact of a severe drought event.

## Earthquake

The Steering Committee rated the city's **probability of occurrence for Cascadia Subduction Zone (CSZ) Earthquake events as "moderate" and their vulnerability as "high"**. *These ratings have not changed since the previous NHMP.*

The Steering Committee rated the city's **probability of occurrence for crustal earthquake events as "low" and their vulnerability as "moderate"**. *These ratings have not changed since the previous NHMP.*

Volume I, Section 2 of Lincoln County's NHMP adequately describes the causes and characteristics of earthquake hazards, as well as the history, location, extent, and probability of a potential event. 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.

Additional information can be found on the Lincoln County website:  
<https://www.co.lincoln.or.us/749/Hazards-Earthquake>

The Pacific Northwest experienced a subduction zone earthquake estimated at magnitude 9 on January 26, 1700. The earthquake generated a tsunami that caused damage as far away as Japan. Cascadia subduction zone earthquakes and associated tsunamis have occurred on average every 500 years over the last 3,500 years in the Pacific Northwest. The time between events has been as short as 100 to 200 years and as long as 1,000 years. The geologic record indicates that over the last 10,000 years approximately 42 tsunamis have been generated off the

Oregon Coast in connection to ruptures of the CSZ (19 of the events were full-margin ruptures and arrived approximately 15-20 minutes after the earthquake).<sup>5</sup>

The Oregon Department of Geology and Mineral Industries (DOGAMI), in partnership with other state and federal agencies, has undertaken a rigorous program in Oregon to identify seismic hazards, including active fault identification, bedrock shaking, tsunami inundation zones, ground motion amplification, liquefaction, and earthquake induced landslides.

The city faces several earthquake-related risks, including soft soil and liquefaction hazards (Map SA-2) and a moderate to very high probability over the next 50 years of experiencing shaking strong enough to damage weak buildings (Map SA-3).

- Liquefaction risk is highest where soft, wet soils can lose strength during shaking.
- Damaging shaking—strong enough to affect weak buildings—is more likely near river areas.
- Inland areas generally face lower liquefaction risk.

## Vulnerability Assessment

No development or population changes affected the jurisdiction’s overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

The city’s concentrated population and resources, as well as the soil characteristics and relative earthquake hazards described above are cause for significant effort toward mitigating the earthquake hazard.

The city’s infrastructure is highly vulnerable to a severe earthquake event. Sewer lines, water lines, power lines, and water tanks were identified by the steering committee as vulnerable assets. The city’s steering committee additionally identified the following earthquake-related vulnerabilities: steeper topography around the outskirts of town would likely be vulnerable to earthquake-induced landslides; in the event of a magnitude (M) 9 event, the city could be isolated from larger cities in the Willamette Valley, as well as coastal communities. As such, post-disaster self-reliance will be essential, and post-disaster communication may be hindered. The city would also expect damage to roads following a CSZ event, as well as deaths and severe injuries region wide. Education and outreach regarding the CSZ are on-going endeavors in Siletz.

To help communities better prepare for earthquakes, DOGAMI released the Oregon Seismic Hazard Database in 2021.<sup>6</sup> This resource includes maps showing where earthquake-related hazards like ground shaking and ground movement are most likely. The data includes representations of the strongest shaking and damage that could happen in rare (1-in-2,475-year event) but severe earthquakes (Map SA-4), expected shaking and damage from large Cascadia

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<sup>5</sup> DLCD. *Oregon State Natural Hazard Mitigation Plan*. 2020 (Draft).

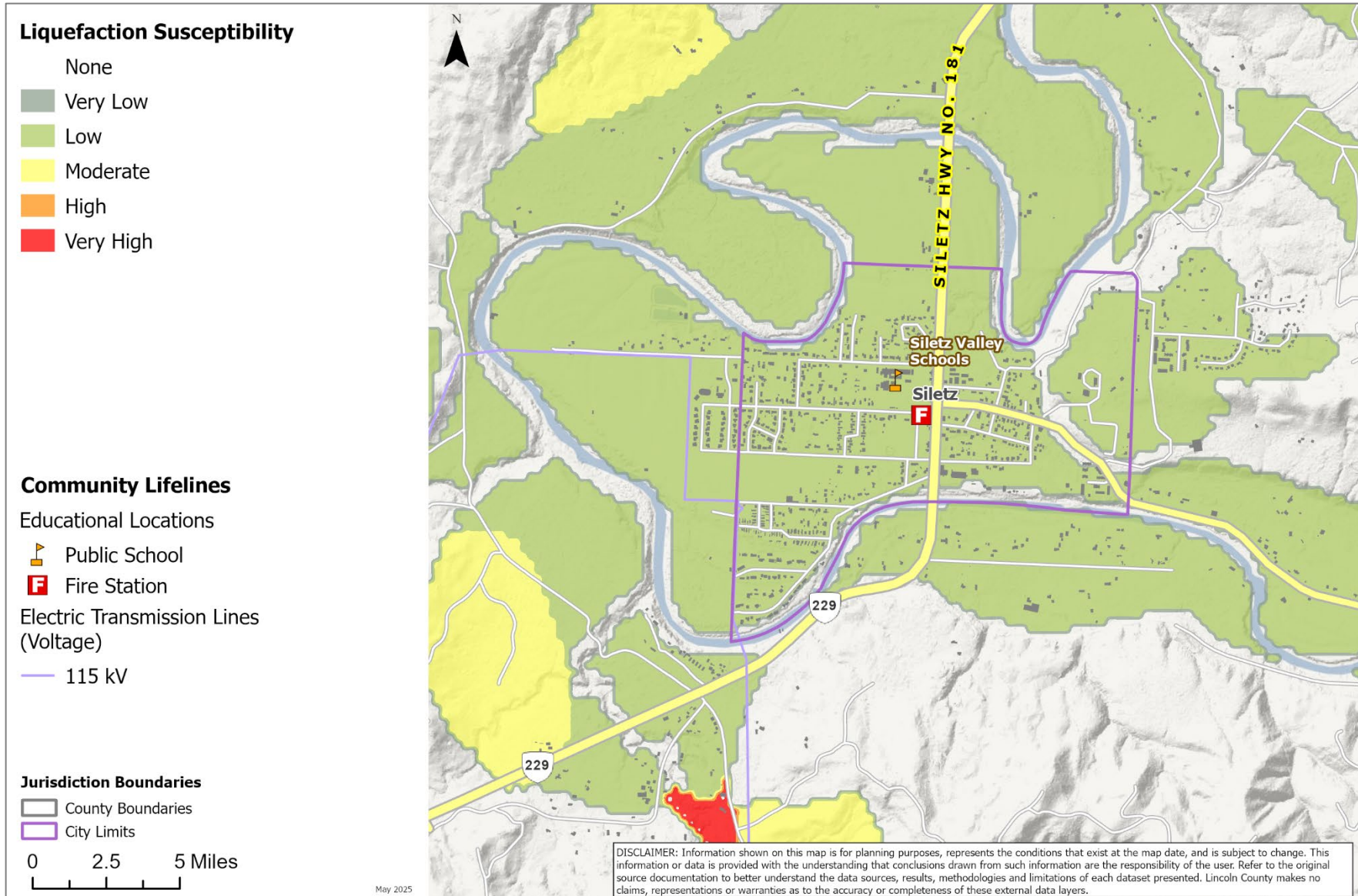
<sup>6</sup> Oregon Department of Geology and Mineral Industries (DOGAMI). (2021). *Oregon Seismic Hazard Database, Release 1.0* (OSHD-1). By Ian P. Madin, Jon J. Franczyk, John M. Bauer, and Carlie J.M. Azzopardi. Available at: <https://pubs.oregon.gov/dogami/dds/p-OSHD-1.htm>

subduction zone earthquakes (Map SA-5), and the chance of experiencing shaking strong enough to damage buildings (Map SA-3)

### **2007 Rapid Visual Survey**

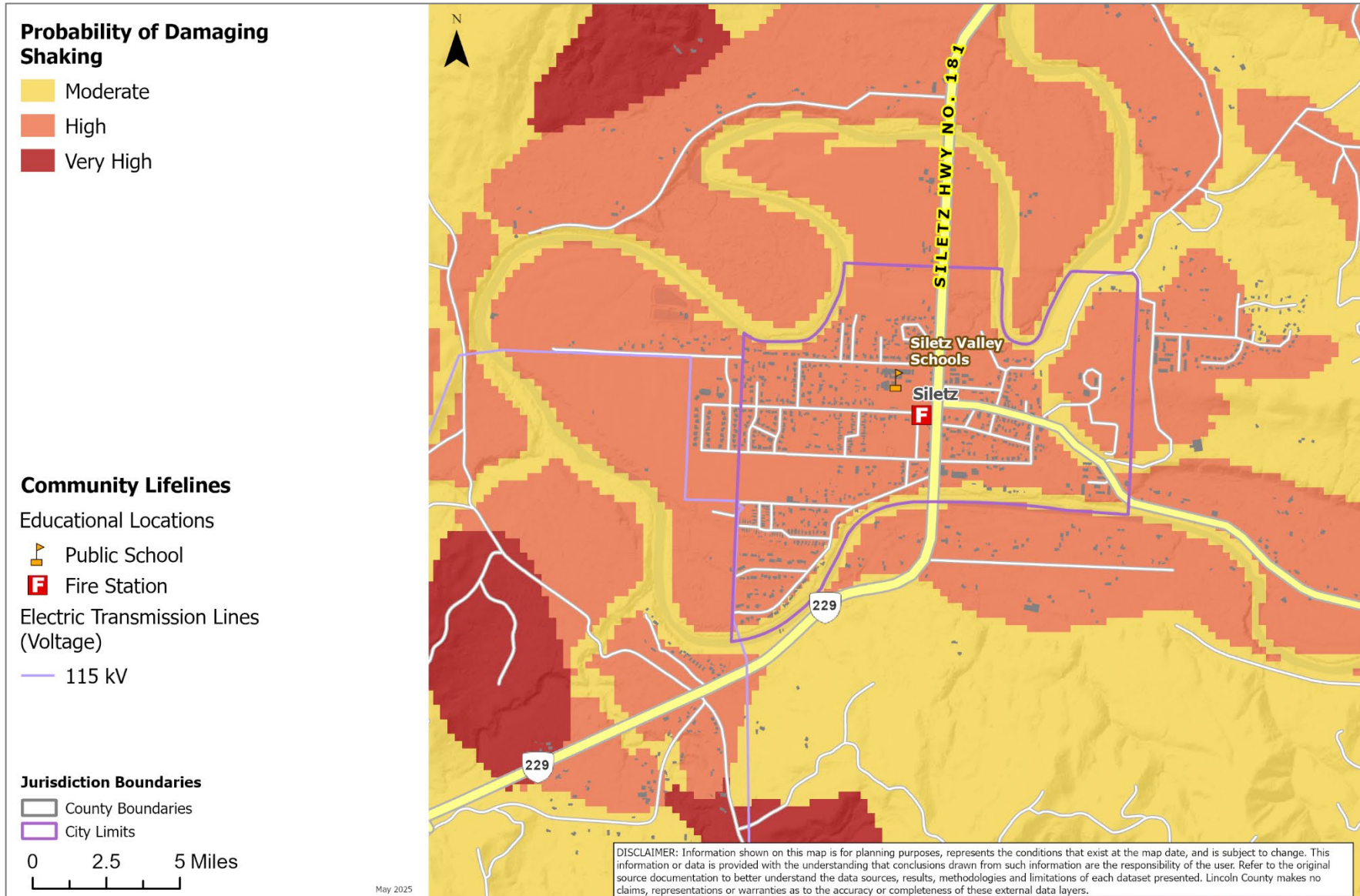
Building codes were implemented in Oregon in the 1970s, however, stricter standards did not take effect until 1991 and early 2000s. As noted in the community characteristics section (Table SA-3), approximately 53% of residential buildings were built prior to 1990, which increases the city's vulnerability to the earthquake hazard. Information on specific public buildings' (schools and public safety) estimated seismic resistance was determined for Lincoln County by DOGAMI in 2007. For more information click this link [O-07-02](#).

## Map SA-2 Earthquake Liquefaction (Soft Soil) Hazard and Active Faults



Source: [Oregon Explorer: Map Viewer](#) – To view map detail click hyperlink to left..

### Map SA-3 Probability of Damaging Shaking



Source: [Oregon Explorer: Map Viewer](#) – To view map detail click hyperlink to left...

## Natural Hazard Risk Report for Lincoln County

The Risk Report ([DOGAMI, O-20-11](#)) provides hazard analysis summary tables that identify populations and property within Lincoln County that are vulnerable to earthquake. The Risk Report provides a distinct profile for Siletz.

According to the Risk Report the following resident population and property (public and private) within the study area may be impacted by the profiled magnitude 9.0 Cascadia Subduction Zone (CSZ) event. Siletz does not have any direct risk from the related tsunami.

The Risk Report performed an analysis of buildings, including critical facilities, to determine exposure for each community. According to the Risk Report the following resident population and property (public and private) within Siletz may be impacted by the profiled earthquake scenarios (Table SA-4).

Approximately 29% of the city’s population (328 people) may be displaced by a magnitude 9.0 CSZ earthquake event. Earthquakes will impact every building in the city, to some degree, by a CSZ magnitude 9.0 earthquake and tsunami. Buildings reported as “damaged” include yellow tagged (extensive, limited habitability) and red tagged (complete, uninhabitable) buildings. The city has 322 buildings that are expected to be damaged by the CSZ earthquake, including two critical facilities (Siletz Valley Charter School and Siletz Valley Fire Station 52). The value of building damage losses is \$10.6 million. *Note the fire station was seismically retrofitted following a successful SRGP grant in 2017 (see [Mitigation Successes](#))*

**Table SA-4 Potentially Displaced Residents and Exposed Buildings, Earthquake**

Community Overview: Siletz						
Population		Buildings		Critical Facilities	Total Building Value (\$)	
1,149		716		2	31,647,000	
Exposure Analysis: Earthquake CSZ M9.0 (Deterministic) Scenario						
Potentially Displaced Residents		Damaged Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Loss Estimate (\$)	Loss Ratio
328	28.5%	322	45.0%	2	10,591,000	33.5%

Source: IPRE. Data adapted from DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-18. Note: city population based on the 2010 Census population.

The Risk Report estimated losses show that the age of the building stock is the primary metric of earthquake vulnerability. Communities with older building stock are expected to have higher losses. However, if buildings were retrofitted to at least “moderate code” standards the impact of the event would be reduced. The Risk Report concludes that loss estimates for the city drop from 33% to 19% (\$4.7 million decrease in loss) when all buildings are upgraded to at least

moderate code level.<sup>7</sup> *Note: earthquake vulnerability retrofit benefits are minimized in areas of liquefaction and landslide where additional geotechnical mitigation would be needed.*

### **Critical Facility Vulnerability<sup>8</sup>**

- Siletz Valley Schools
- Siletz Valley Fire District, Station 5200 (*Note: the fire district received a grant award from the SRGP to seismically retrofit this station, and the seismic upgrades have been successfully completed*)

The following vulnerable critical facilities are owned by the Confederated Tribes of Siletz Indians and are within the city limits of Siletz:

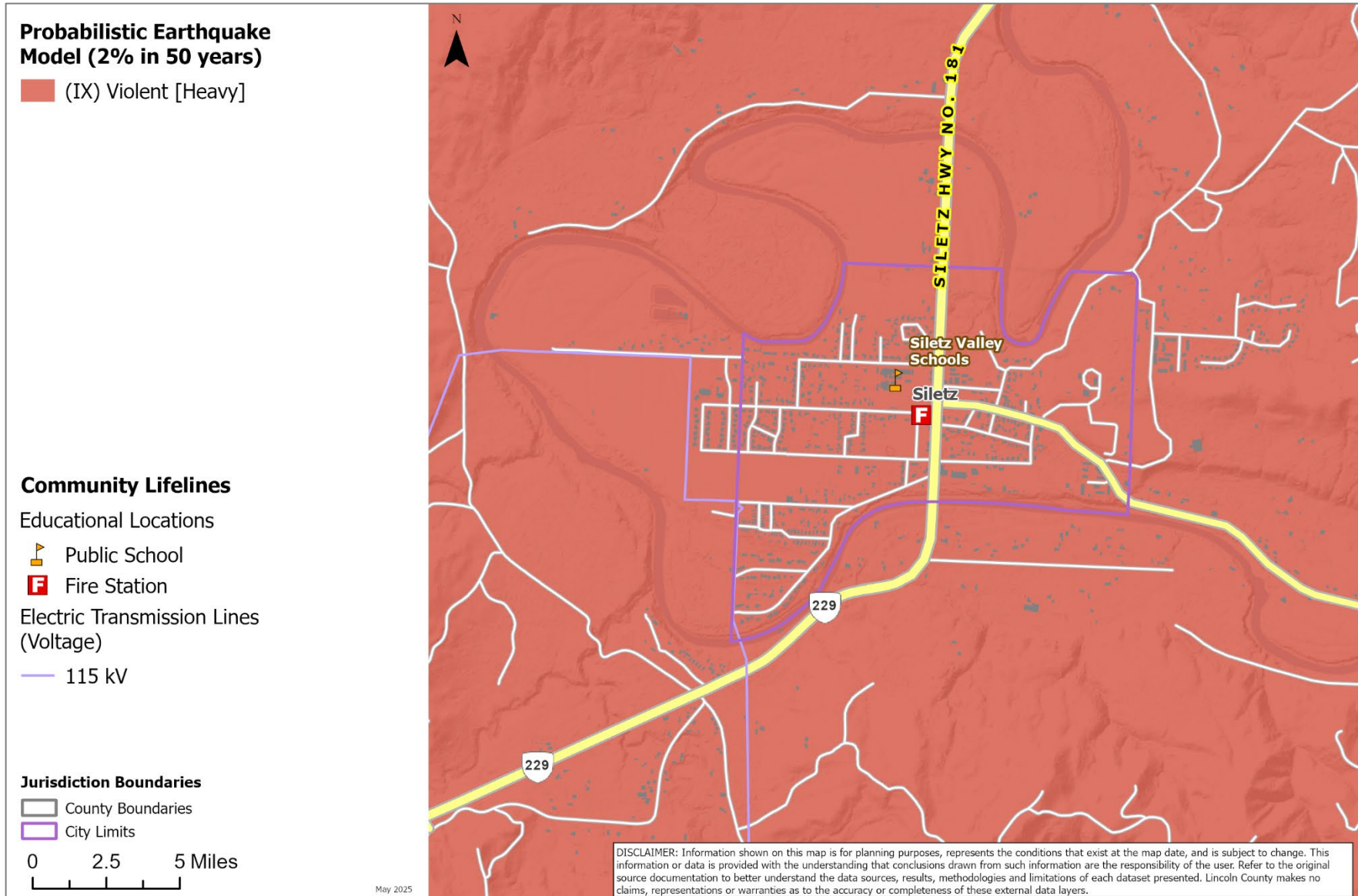
- CTSI Annex STEDCO Building
- CTSI Community Center
- CTSI Cultural Center
- Public Works Shop
- Siletz Community Health Clinic (not in city limits)
- USDA Food Distribution Center (not in city limits)

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<sup>7</sup> DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table B-2.

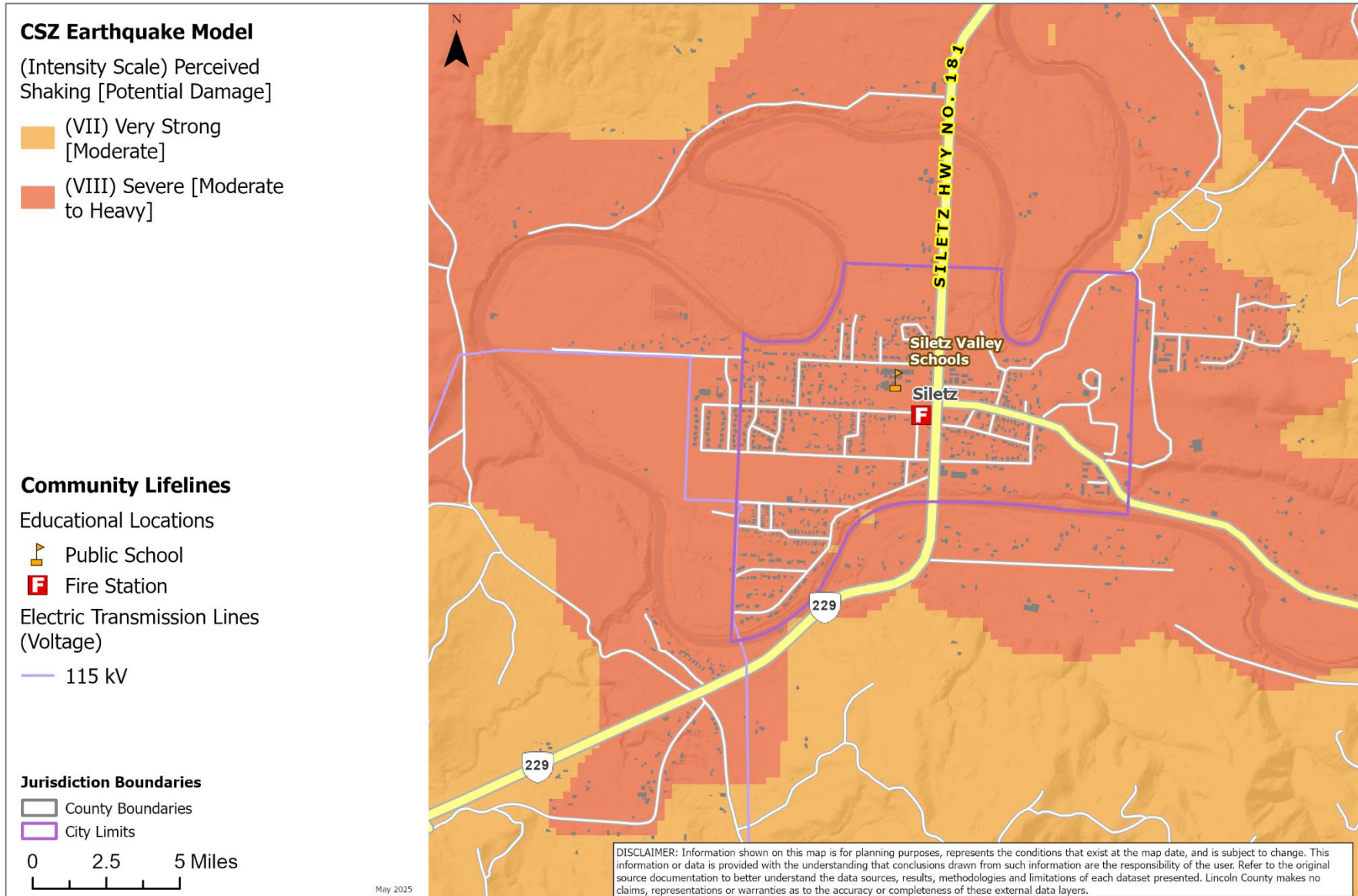
<sup>8</sup> Ibid, Table A-19.

## Map SA-4 Perceived Shaking and Damage Potential, Probabilistic Earthquake Model



Source: [Oregon Explorer: Map Viewer](#) – To view map detail click hyperlink to left..

## Map SA-5 Perceived Shaking and Damage Potential, CSZ Earthquake Model



Source: [Oregon Explorer: Map Viewer](#) – To view map detail click hyperlink to left.

## Tsunami

The City of Siletz does not border the Pacific Ocean; as such, tsunami is not considered to be a hazard within the community.

## Flood

The Steering Committee rated the city's **probability of occurrence for riverine flood events as "high" and their vulnerability as "moderate"**. *These ratings have not changed since the previous NHMP.*

The City of Siletz does not border the Pacific Ocean; as such, tidal flood is not considered to be a hazard within the community.

Volume I, Section 2 of Lincoln County's NHMP adequately describes the causes and characteristics of coastal and riverine flood hazards, as well as the history, location, extent, and probability of a potential event. River-related flood events are also caused by storms, as well as rain on snow / snowmelt. Flooding typically occurs within the city when storm drains back up and/or pumps fail to work. The city also experiences riverine flooding from the Siletz River. The extent of riverine flooding varies depending on rainfall and/or precipitation levels throughout the year. Siletz's most significant flood events occurred in 1964, 1996 and 1999.

Additional information can be found on the Lincoln County website:

<https://www.co.lincoln.or.us/757/Hazards-Flooding-River-Levels>

FEMA has mapped most of the flood-prone streams in Oregon for 100- and 500-year flood events. A 100-year flood (a flood with a one percent probability of occurring within any given year) is used as the standard for floodplain management in the United States and is referred to as a base flood; also known as the Special Flood Hazard Area (SFHA). The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. Flood Insurance Rate Maps (FIRMs) prepared by FEMA provide the most readily available source of information for 100-year floods (Map SA-6). These maps are used to support the NFIP. FIRMs delineate 100- and 500-year (a flood with a 0.2-percent probability of occurring within any given year) floodplain boundaries for identified flood hazards. According to Oregon Explorer almost 16% of the city is within the 100-year floodplain, including the areas in the southern part of the city that includes several residential properties. Another 3% of the city is within the 500-year floodplain.

### Future Climate Projection:

According to OCCRI report "*Future Climate Projections: Lincoln County*" ([Link](#)) the intensity of extreme precipitation is expected to increase as the atmosphere warms. The magnitude of the wettest days and the wettest consecutive five days is expected to increase by about 13% (range 4% to 28%) by the 2050s under the higher emissions scenario relative to historical baselines. The probability of winter flood risk will increase within coastal rain-dominated watersheds (such as the Siletz River) due to projected greater winter precipitation and warmer winter temperatures

that will cause precipitation to fall more as rain than snow. There will also be an increase in atmospheric river events.

## Vulnerability Assessment

No development or population changes affected the jurisdiction’s overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

A floodplain vulnerability assessment combines the floodplain boundary, generated through hazard identification, with an inventory of the property within the floodplain. Understanding the population and property exposed to natural hazards will assist in reducing risk and preventing loss from future events.

### Natural Hazard Risk Report for Lincoln County

The Risk Report ([DOGAMI, O-20-11](#)) provides hazard analysis summary tables that identify populations and property within Lincoln County that are vulnerable to flood. The Risk Report provides a distinct profile for Siletz.

The Risk Report provides a flood analysis for four flood scenarios (10-, 50-, 100-, and 500-year). The 100-year flood scenario is used for reporting since it is commonly used as a reference level for flooding and is the standard FEMA uses for regulatory purposes. In addition to the riverine flood scenarios coastal flooding information is available for the 100-year flood scenario for the city. The Risk Report only analyzed buildings within a flood zone, or within 500 feet of a flood zone. First-floor building height and presence of basements was also considered. Buildings with a first-floor height above the flood level were not included in the flood loss estimate, however, their assumed building occupants (residents) were counted as potentially displaced. According to the Risk Report the following resident population and property (public and private) within Siletz may be impacted by the profiled flood scenario (Table SA-5).

**Table SA-5 Potentially Displaced Residents and Exposed Buildings, Flood**

Community Overview: Siletz						
Population		Buildings		Critical Facilities	Total Building Value (\$)	
1,149		716		2	31,647,000	
Exposure Analysis: Flood (1% Annual Chance)						
Potentially Displaced Residents		Damaged Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Loss Estimate (\$)	Loss Ratio
77	6.7%	44	6.1%	0	289,000	0.9%

Source: IPRE. Data adapted from DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-18. Note: city population based on the 2010 Census population.

Less than 7% of the city’s population (77 people) may be displaced by flooding. These people are expected to have mobility or access issues due to surrounding water. About seven percent (7%)

of the city's buildings (44 buildings) are exposed to the flood hazard and may be damaged. The loss estimate for exposed buildings is \$289,000 (less than 1% of total building value).

### **Critical Facility Vulnerability<sup>9</sup>**

There are no critical facilities exposed to the profiled flood scenario.

## **National Flood Insurance Program Insured Structures (NFIP)**

FEMA updated the Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) in 2019 (effective October 10, 2019). The city subsequently adopted the applicable FIRMs as part of their floodplain ordinance. The city does not participate in the CRS and, therefore, does not receive discounted flood insurance premiums for residents in a special flood hazard zone.

The city complies with the NFIP through enforcement of their flood damage prevention ordinance and their floodplain management program. Their flood prevention code section is based on the Oregon Model Flood Hazard Prevention code, which includes provisions addressing substantial improvement/substantial damage. After a flood event the Building Official will ensure that construction requirements found in the Floodplain Ordinance for properties that have seen substantial improvement/substantial damage are met when issuing building permits.

The city has 14 National Flood Insurance Program (NFIP) policies in force, representing almost \$3.5 million in coverage. The Community Repetitive Loss record for the city identifies zero (0) Repetitive Loss Properties<sup>10</sup> and zero (0) Severe Repetitive Loss Properties<sup>11</sup>.

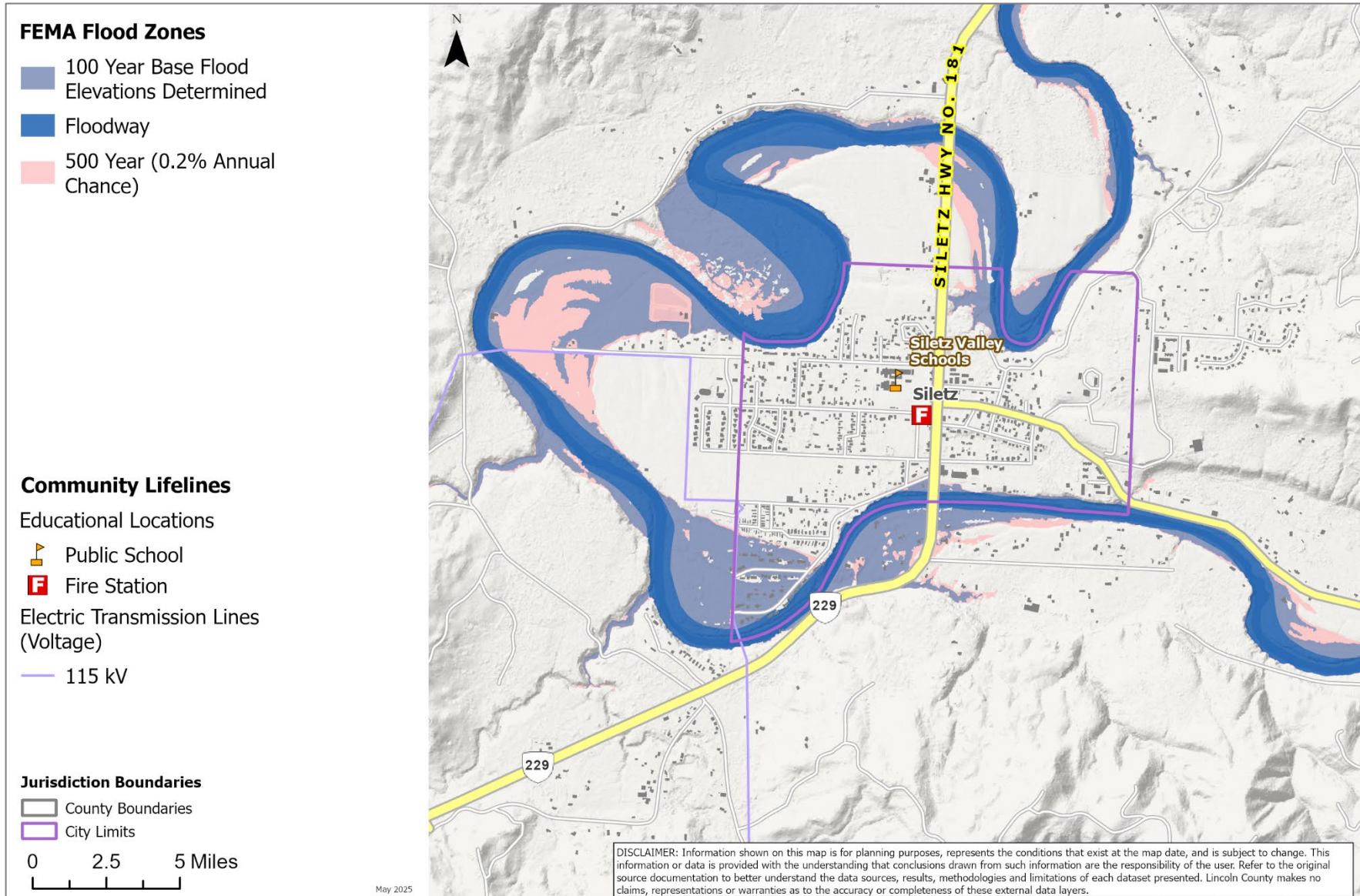
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<sup>9</sup> DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-19.

<sup>10</sup> 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.

<sup>11</sup> 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. Repetitive Flood Loss information provided by FEMA correspondence on September 10, 2020.

## Map SA-6 Flood Hazard Zones (100- and 500-year floodplain)



Source: [Oregon Explorer: Map Viewer](#) – To view map detail click hyperlink to left.

## Landslide

The Steering Committee rated the city's **probability of occurrence for landslide events as “moderate” and their vulnerability as “moderate”**. *These ratings have not changed since the previous NHMP.*

Volume I, Section 2 of Lincoln County's NHMP adequately describes the causes and characteristics of landslide hazards, as well as the history, location, extent, and probability of a potential event. Additional information can be found on the Lincoln County website: <https://www.co.lincoln.or.us/762/Hazards-Landslides>

The severity or extent of landslides is typically a function of geology and the landslide triggering mechanism. Rainfall initiated landslides tend to be smaller and earthquake induced landslides may be very large. Even small slides can cause property damage, result in injuries or take lives. Landslide susceptibility exposure for Siletz is shown in Map SA-7. Approximately 10% of the city has very high or high, and 21% moderate, landslide susceptibility exposure.<sup>12</sup> *Note that even if a city has a high percentage of area in a high or very high landslide exposure susceptibility zone, this does not mean there is a high risk, because risk is the intersection of hazard and assets.*

### Future Climate Projection:

According to OCCRI report “*Future Climate Projections: Lincoln County*” ([Link](#)) the intensity of extreme precipitation is expected to increase as the atmosphere warms. The magnitude of the wettest days and the wettest consecutive five days is expected to increase by about 13% (range 4% to 28%) by the 2050s under the higher emissions scenario relative to historical baselines. Landslide risk is not expected to change significantly.

## Vulnerability Assessment

No development or population changes affected the jurisdiction's overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

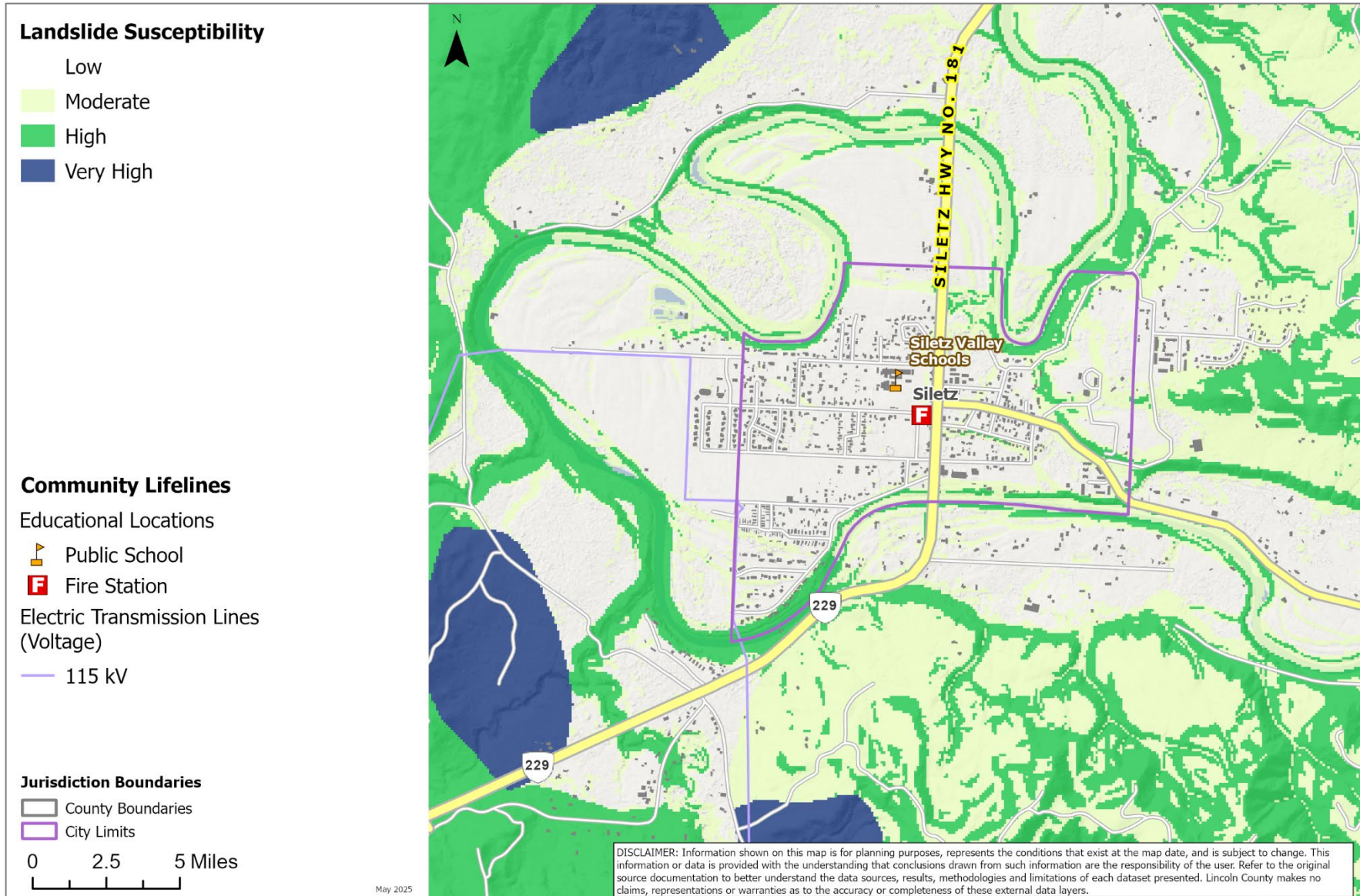
The topography of the city is relatively level, except for steeper hillsides in the northeast section of town by Old River Road and Judd Road. These areas would be more susceptible to landslide events. Road cracking has occurred in some areas, but no significant losses are documented. Additionally, erosion around the Siletz River is a concern, particularly in the river bends along the north side of the city.

Potential landslide-related impacts are adequately described within the county's plan, and include infrastructure 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 Lincoln County, and thoroughfares beyond city limits are susceptible to obstruction as well. As such, Siletz is vulnerable to isolation for an extended period.

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<sup>12</sup> DOGAMI. [Open-File Report, O-16-02, Landslide Susceptibility Overview Map of Oregon](#) (2016)

# Map SA-7 Landslide Susceptibility Exposure



Source: [Oregon Explorer: Map Viewer](#) – To view map detail click hyperlink to left.

## Natural Hazard Risk Report for Lincoln County

The Risk Report ([DOGAMI, O-20-11](#)) provides hazard analysis summary tables that identify populations and property within Lincoln County that are vulnerable to landslide. The Risk Report provides a distinct profile for Siletz.

The Risk Report provides an analysis of landslide susceptibility to identify the general level of susceptibility to landslide hazards, primarily shallow and deep landslides. The Risk Report performed an analysis of buildings, including critical facilities, to determine exposure for the city. According to the Risk Report the following resident population and property (public and private) within the city may be impacted by the profiled landslide scenario (Table SA-6).

Approximately two percent (2%) of the city’s population (26 people) may be displaced by landslides. These people are expected to have mobility or access issues and/or may have their residences impacted by a landslide. It is important to note that impact from landslides may vary depending on the specific area that experiences landslides during an event. Properties that are most vulnerable to the landslide hazard are those that are developed in an area of, or at the base of, moderate to steep slopes. Approximately three percent of all buildings (20 buildings) within the city are exposed to the High or Very High landslide susceptibility zones (Table SA-6). The value of exposed buildings is \$1.1 million (about 3% of total building value).

**Table SA-6 Potentially Displaced Residents and Exposed Buildings, Landslide**

Community Overview: Siletz						
Population		Buildings		Critical Facilities	Total Building Value (\$)	
1,149		716		2	31,647,000	
Exposure Analysis: Landslide High & Very High Susceptibility						
Potentially Displaced Residents		Exposed Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Value (\$)	Percent
26	2.3%	20	2.8%	0	1,075,000	3.4%

Source: IPRE. Data adapted from DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-18. Note: city population based on the 2010 Census population.

### Critical Facility Vulnerability<sup>13</sup>

There are no critical facilities exposed to the profiled landslide scenarios.

<sup>13</sup> DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-19.

## Severe Weather

Severe wind events may occur throughout Oregon during all seasons. Often originating in the Pacific Ocean, westerly winds pummel the coast, slowing as they cross the Coastal mountain range and head into the inland valleys.<sup>14</sup> Similarly, severe winter storms consisting of rain, freezing rain, ice, snow, cold temperatures, and wind originate from troughs of low pressure offshore in the Gulf of Alaska or in the central Pacific Ocean that ride along the jet stream during fall, winter, and early spring months.<sup>15</sup> In summer, the most common wind directions are from the west or northwest; in winter, they are from the south and east. Local topography, however, plays a major role in affecting wind direction.

### Future Climate Projections

Oregon and the Pacific Northwest experience a variety of extreme weather incidents ranging from severe winter storms and floods to drought and dust storms, often resulting in morbidity and mortality among people living in the impacted regions. According to the Oregon Climate Change Research Institute, climate change is expected to increase the frequency and intensity of some weather incidents.<sup>16</sup>

Climate change poses risks for increased injuries, illnesses and deaths from both direct and indirect effects. Incidents of extreme weather (such as floods, droughts, severe storms, heat waves and fires) can directly affect human health as well as cause serious environmental and economic impacts. Indirect impacts can occur when climate change alters or disrupts natural systems.

According to OCCRI report “*Future Climate Projections: Lincoln County*” ([Link](#)) windstorm events are not expected to increase, however, air temperatures on the coldest day of the year will increase by about 5°F by the 2050s under the higher emissions scenario relative to historical baselines.

## Extreme Heat

The Steering Committee rated the city’s **probability of occurrence for extreme heat events as “moderate” and their vulnerability as “low”**. *This hazard was not assessed in the previous version of this NHMP.*

Volume I, Section 2 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. Areas of the county that are inland, like the city, are more susceptible to extreme heat events. Extreme temperatures are measured as days with a heat index above 90 degrees. Extreme heat events can and have occurred in the city, and while they typically do not cause loss

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<sup>14</sup> US Department of Agriculture. <http://www.fsa.usda.gov/or/Notice/Flp104.pdf>.

<sup>15</sup> Interagency Hazard Mitigation Team. 2000. State Hazard Mitigation Plan. Salem, OR: Oregon Office of Emergency Management.

<sup>16</sup> Oregon Climate Change Research Institute, *Seventh Oregon Climate Assessment*, <https://oregonstate.app.box.com/s/ziqc1kisxkup45147phjp526kheugqnb>

of life, they are becoming more frequent and have the potential to impact on economic activity as well as quality of life and have caused threat to life in some cases.

## Vulnerability Assessment

No development or population changes affected the jurisdiction's overall vulnerability to this hazard. The population of adults aged 65 and older is increasing within this jurisdiction. As a result, the impact of this hazard may increase.

## Windstorm

The Steering Committee rated the city's **probability of occurrence for windstorm events as "high" and their vulnerability as "high"**. *These ratings have not changed since the previous NHMP.*

The Steering Committee rated the city's **probability of occurrence for tornado events as "low" and their vulnerability as "low"**. *These ratings have not changed since the previous NHMP.*

Volume I, Section 2 of Lincoln County's NHMP adequately describes the causes and characteristics of windstorm hazards, as well as the history, location, extent, and probability of a potential event. Because coastal windstorms typically occur during winter months, ice, freezing rain, flooding, and very rarely, snow sometimes accompany them. More than likely, however, the coast's winter will just be windy, cold, and wet.

## Vulnerability Assessment

No development or population changes affected the jurisdiction's overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

Due to insufficient data and resources, a quantitative risk assessment or exposure analysis for this hazard cannot currently be performed.

In Siletz, power outages are the greatest concern during windstorms. Without power, communication is lost, and fuel and food stores shut down. In the December 2007 windstorm the city lost power and some residents were unable to access 911. Also, of concern are downed trees and damage to buildings. The city, in conjunction with some private utility companies, works to remove hazardous trees where possible.

## Winter Storm (Snow/ Ice)

The Steering Committee rated the city's **probability of occurrence for winter storm events as "high" and their vulnerability as "moderate"**. *These ratings have not changed since the previous NHMP.*

Volume I, Section 2 of Lincoln County's NHMP adequately describes the causes and characteristics of winter storm hazards, as well as the history, location, extent, and probability of a potential event. 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 October through March. More than likely, however, the coast’s winter will just be windy, cold, and wet.

## Vulnerability Assessment

No development or population changes affected the jurisdiction’s overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

Due to insufficient data and resources, a quantitative risk assessment or exposure analysis for this hazard cannot currently be performed. Major winter storms have occurred in the Siletz area, and while they typically do not cause significant damage; they are frequent and have the potential to impact economic activity. Road closures on Highways 20 or 101, or the mountain passes to the Willamette Valley, due to winter weather are an uncommon occurrence, but can interrupt commuter and large truck traffic.

## Volcanic Event

The Steering Committee rated the city’s **probability of occurrence for volcanic events as “low” and their vulnerability as “low”**. *These ratings have not changed since the previous NHMP.*

Volume I, Section 2 of Lincoln County’s NHMP adequately describes the causes and characteristics of volcanic event hazards, as well as the history, location, extent, and probability of a potential event. Generally, an event that affects the county is likely to affect Siletz as well.

## Vulnerability Assessment

No development or population changes affected the jurisdiction’s overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

Due to insufficient data and resources, a quantitative risk assessment or exposure analysis for this hazard cannot currently be performed. Siletz is very unlikely to experience anything more than volcanic ash during a volcanic event. When Mt. Saint Helens erupted in 1980, the city received small amounts of ashfall, but not enough to cause significant health and/or economic damages.

## Wildfire

The Steering Committee rated the city’s **probability of occurrence for wildfire as “moderate” and their vulnerability as “moderate”**. *The vulnerability rating increased since the previous NHMP.*

The [Lincoln County Community Wildfire Protection Plan \(CWPP\)](#) was last completed in 2024. The CWPP is hereby incorporated into this NHMP addendum by reference, and it will serve to supplement the wildfire section in this addendum.

Volume I, Section 2 of Lincoln County’s NHMP adequately describes the causes and characteristics of wildfire hazards, as well as the history, location, extent, and probability of a potential event. The location and extent of a wildfire vary depending on fuel, topography, and weather conditions. Wildfires in 1849 and 1936 were particularly devastating in Lincoln County, but since then, there have been few large events. There have been no large wildfires near the city in recent history. The burn probability and wildfire history (1992-2022) for the city is shown in Map SA-8.

The city has mostly low, with some moderate and high, overall wildfire risk to the south. The city sits along the Siletz River and is surrounded by industrial and public forestlands. These forestlands are believed to be vulnerable to wildfires.

Additional information can be found on the Lincoln County website:  
<https://www.co.lincoln.or.us/770/Hazards-Wildfire>

#### **Future Climate Projection:**

According to OCCRI report “*Future Climate Projections: Lincoln County*” ([Link](#)) wildfire risk is expected to increase as the frequency of higher fire danger days per year increases by 37% by the 2050s under the higher emissions scenario compared with the historical baseline.

## **Vulnerability Assessment**

No development or population changes affected the jurisdiction’s overall vulnerability to this hazard. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

Potential wildfire impact is shown using integrated conditional net value change from the Pacific Northwest Quantitative Wildfire Risk Assessment (2023, Map SA-9). Overall Potential Impact measures the potential consequences of wildfire on valuable assets and resources—such as infrastructure, housing, forests, and wildlife habitat—without considering the likelihood (probability) of fire occurring. It reflects a spectrum from very negative impacts (e.g., damage to structures or sensitive ecosystems) to positive impacts (e.g., ecological benefits like improved vegetation or habitat conditions). Not all resources are present everywhere, so the map displays risk only for what's within the mapped area. Most of the city lies within “neutral” to “very high” loss areas. The forested areas have the potential for large wildfires and a wildfire within the watershed could impact the city’s water supply and quality.

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 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).

Exposed infrastructure including wastewater main lines, major water lines, natural gas pipeline and fiber optic lines are buried, decreasing their vulnerability to damage from wildfire hazards. However, wildfire conditions could potentially limit or delay access for the purposes of operation or repair.

## Natural Hazard Risk Report for Lincoln County

The Risk Report ([DOGAMI, O-20-11](#)) provides hazard analysis summary tables that identify populations and property within Lincoln County that are vulnerable to wildfire. The Risk Report provides a distinct profile for Siletz.

The Risk Report provides an analysis of the West Wide Wildfire Risk Assessment’s Fire Risk Index (FRI) High Hazard category to identify the general level of susceptibility to the wildfire hazard. The Risk Report performed an analysis of buildings, including critical facilities, to determine exposure for the City. According to the Risk Report there are no resident population and property (public and private) within the City that may be impacted by the profiled wildfire scenario (Table SA-7).

**Table SA-7 Potentially Displaced Residents and Exposed Buildings, Wildfire**

Community Overview: Siletz						
Population		Buildings		Critical Facilities	Total Building Value (\$)	
1,149		716		2	31,647,000	
Exposure Analysis: Wildfire High-Hazard						
Potentially Displaced Residents		Exposed Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Value (\$)	Percent
0	0.0%	0	0.0%	0	0	0.0%

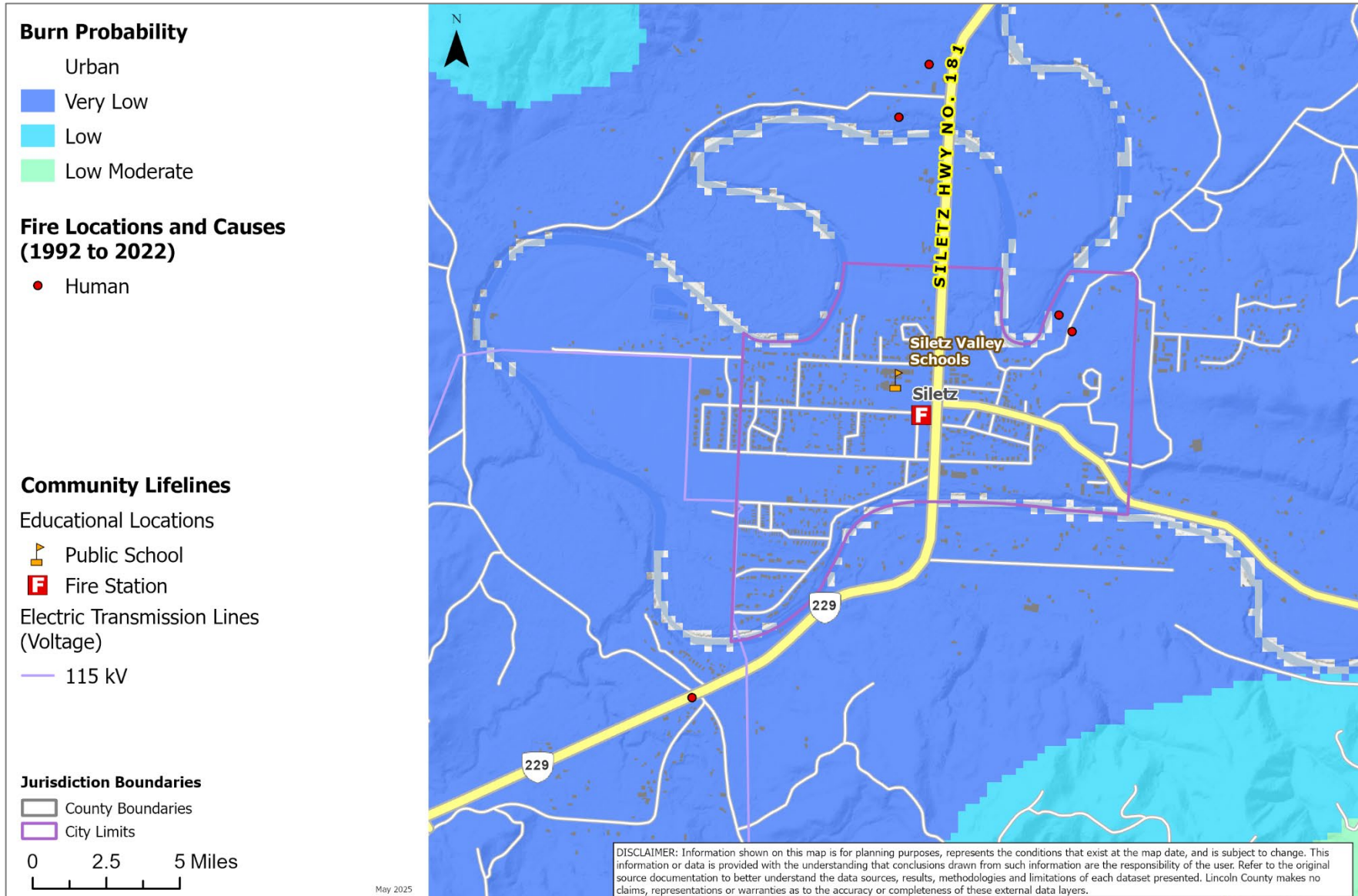
Source: IPRE. Data adapted from DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-18. Note: City population based on the 2010 Census population.

### Critical Facility Vulnerability<sup>17</sup>

There are no critical facilities exposed to the profiled wildfire scenario.

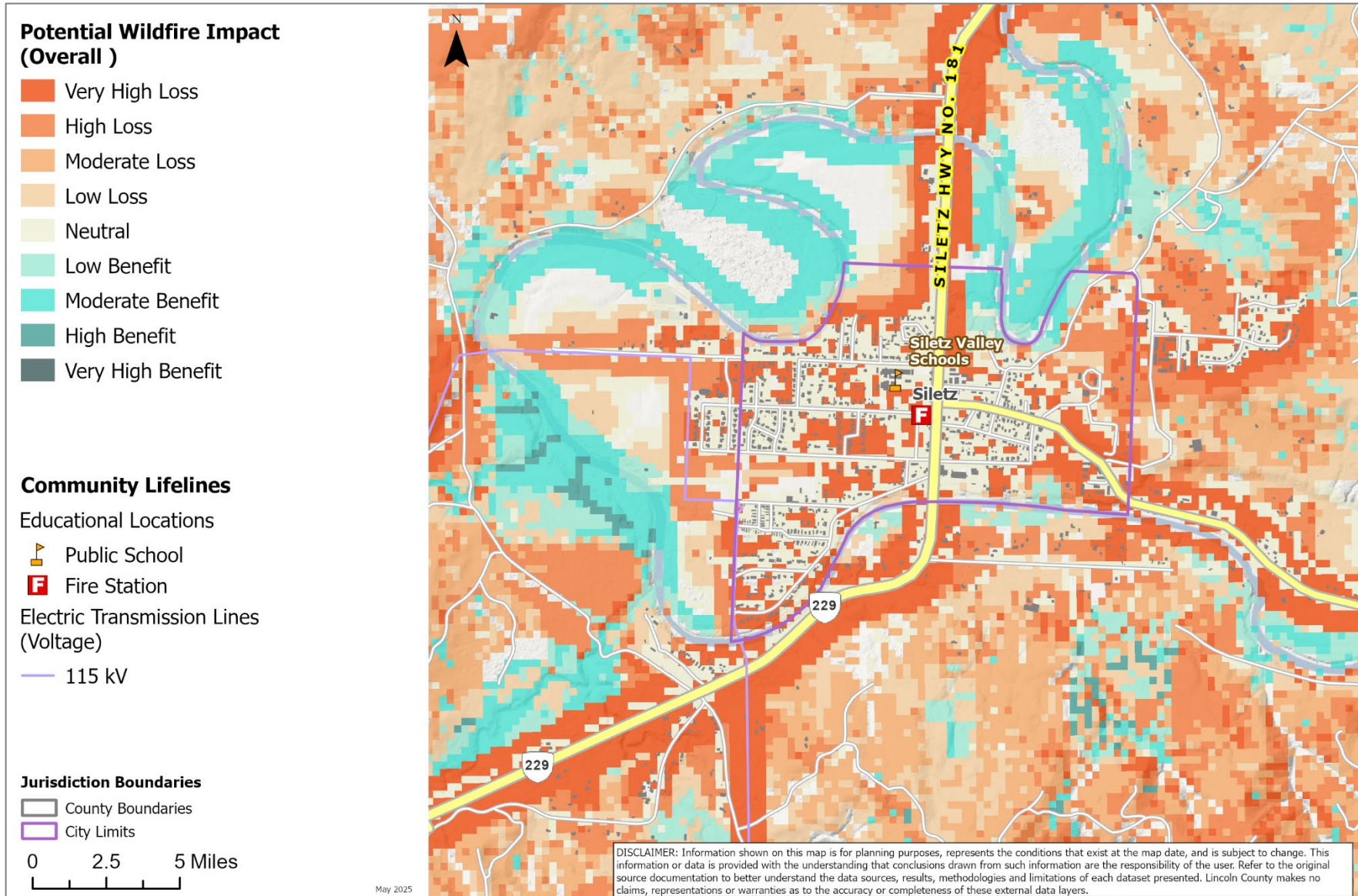
<sup>17</sup> DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-19.

## Map SA-8 Burn Probability and Fire History (1992-2022)



Source: [Oregon Explorer: Map Viewer](#) – To explore and view map detail click hyperlink to left.

## Map SA-9 Potential Wildfire Impact (Overall)



Source: [PNW Quantitative Wildfire Risk Assessment](#) (2023, layer name = icNVC), To view map detail click hyperlink to left..

# Attachment A: Action Items

Table SA-8 is an accounting of the status (complete or not complete) and major changes to actions since the previous NHMP. All actions were revised and 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 SA-1).

**Previous NHMP Actions that are Complete:**

None.

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

Siletz #1, “Identify options and strategies to ensure community health facility is prepared to function and support the community after a significant disaster.” The city does not have jurisdiction over this facility which is on tribal land.

**Table SA-8 Status of All Hazard Mitigation Actions in the Previous Plan**

2020 Action Item	2025 Action Item	Status	Still Relevant? (Yes/No)
Siletz #1	Siletz #1	Not Complete	Yes
Siletz #2	Siletz #2	Not Complete	Yes
Siletz #3	Siletz #3	Not Complete	Yes
Siletz #4	Siletz #4	Not Complete	Yes
Siletz #5	-	Not Complete	No
Siletz #6	Siletz #5	Not Complete	Yes
-	Siletz #6	New	-
-	Siletz #7	New	-

# Attachment B: Public Involvement Summary

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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 survey was distributed that included responses from residents of the district (Volume II, Appendix F).

To provide the public information regarding the draft NHMP addendum, and provide an opportunity for comment, an announcement was provided from August 7 through 21, 2025 on the County's website and publicized by the city. Comments were reviewed and integrated into the NHMP as applicable. Additional opportunities for stakeholders and the public to be involved in the planning process are addressed in Volume II, Appendix B.

Various agencies and organizations contributed input through multiple channels, including comments on the draft. These groups include local and regional hazard mitigation agencies, development regulators, neighboring communities, businesses, academia, nonprofits, and community-based organizations serving underserved and socially vulnerable populations (see Volume II, Appendix B).

## Steering Committee

Steering Committee members possessed familiarity with the city and how it is affected by natural hazard events. The Steering Committee guided the update process through several steps including 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. The Steering Committee met formally on the following dates:

### **Meeting #1: April 10, 2025 (virtually via Zoom)**

During this meeting, the Steering Committee reviewed the previous NHMP, and were 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 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:**

- Convener, Fisher Koehler, Wastewater Plant Operator
- Ted Lapine, Lead Wastewater Plan Operator
- Dave Lapoff, Siletz Valley Fire District Chief