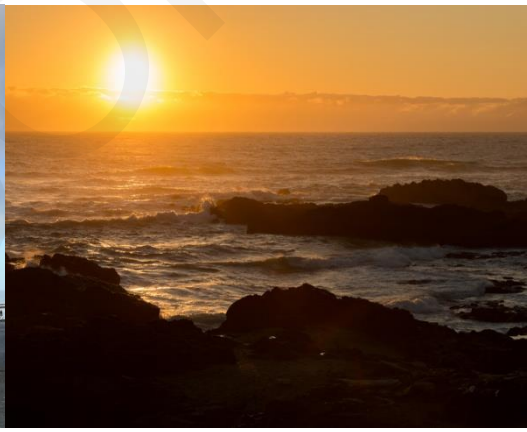
Yachats Addendum

to the Lincoln County Multi-Jurisdictional NHMP



Photos courtesy of Oregon State Parks

Effective: December XX, 2025 through December XX, 2030

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Planning grant funding provided by:

FEMA

Federal Emergency Management Agency (FEMA)
Hazard Mitigation Grant Program
Grant No: HMGP-PF-5446-01-P-OR

Additional Support Provided by:

OEM

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Introduction

Purpose and Adoption

This is an update of the City of Yachats 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 Yachats' 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 Yachats adopted their addendum to the Lincoln County Multi-jurisdictional NHMP on [Month DAY], 2025. FEMA Region X approved the Lincoln County NHMP on [Month DAY], 2025 and the city's addendum on [Month DAY], 2025. 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 [Month DAY], 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 Yachats to update their NHMP. Members of the NHMP steering committee also participated in the County NHMP update process (Attachment B).

Convener and Committee
The Yachats City Manager 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 conveners of the Lincoln County NHMP.

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

The current version of the addendum reflects changes decided upon at the designated meetings and through subsequent work and communication with OPDR.

The Yachats Steering Committee was comprised of the following representatives:

- Convener, Bobbi Price, City Manager
- Frankie Petrick, Fire Chief and Administrator, Yachats Rural Fire Protection District

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 Yachats 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.

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 Yachats 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 Yachats Comprehensive Plan (2019) does not explicitly state what city goals implement Statewide Planning Goal 7. However, Goal 'E' of the plan covers protection from natural hazards and disasters. This goal states that through regulation, the city will protect life and property from natural disasters and hazards. The plan has 13 policies that aim to accomplish

Goal 'E'. Additional goals cover topics that would otherwise exist in separate plans. They are Goal 'B', Protection of Estuarine Resources, Goal 'C', Protection of Shoreland Resources, and Goal 'M', Transportation.

Land Use Regulations

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

Land Use Codes

Title 9 of the Yachats Municipal Code is the city's zoning ordinance. Relevant chapters for natural hazard mitigation are chapter 9.36, EN Estuary Natural Zone, chapter 9.52.050, Geologic Hazard Overlay Zone, and chapter 9.54, Flood Damage Prevention Regulations. Chapter 9.52.050 references multiple Oregon Department of Geology and Mineral Resources (DOGAMI) reports that the city uses to determine development regulations. Chapter 9.54 details the city's methods for reducing flood losses, such as restricting development that is dangerous, controlling the alteration of natural floodplains and stream channels, controlling filling and dredging, and preventing the unnatural diversion of flood waters. There are also provisions for flood hazard reduction in riverine flood zones, coastal high hazard areas, and shallow flooding areas (AO Zones). Subchapter 9.54.050 details the flood hazard reduction provisions. This subchapter says the city's freeboard requirements for residential constructions is two (2) feet above the base flood elevation.

Yachats has made a decision regarding the FEMA Pre-Implementation Compliance Measures (PICM) in response to the National Marine Fisheries Service Biologic Opinion (BiOp). The city is in the process of finalizing the associated code, with a second reading scheduled. 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.

The 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 Yachats 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.

Yachats adopts the State Specialty Code as defined in ORS 455 as the Yachats Building Code.

Policies and Programs

City Plans

The Yachats Emergency Operations Plan (2019) ensures coordination of protection, prevention, mitigation, response, and recovery activities. Authorities are listed by what Emergency Support Function (ESF) they are responsible for.

The Lincoln County Evacuation Plan (2024) has a priority area plan for Yachats. 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

The Yachats Water System Master Plan (2021) provides a comprehensive evaluation of the city's water system with respect to its existing and future needs. The plan provides the city with a framework for the provision of water services through the year 2041. Chapter 10 of the plan is a Seismic Risk Assessment and Mitigation Plan. This chapter outlines the water systems critical facilities, the likelihood and consequences of failure, and a mitigation plan. The plan says that the distribution grid network that provides multiple flow paths throughout the city is the most susceptible to failure during a large seismic event. The recommended improvements described in this plan include replacing a small segment of the existing "North Artery" in Radar Road (Project D-6), adding an additional artery in King Street (Project D-7) and a relatively long section of the artery in Highway 101 from Sixth Street to Marine Drive (Project D-14). The city should consider using earthquake resistant piping materials for these projects.

The Yachats Storm Drainage Master Plan (2024) assesses the city's existing storm drainage system and provides recommendations for storm drainage within the City of Yachats. This plan will make policies intended to improve the drainage system easier. The primary purpose of the master plan is to provide the city with specific engineering recommendations for the management of storm drainage throughout the study area. It is intended that the information contained herein will assist the city in the planning and implementation of capital improvements to the storm drainage system, as well as ongoing system maintenance. Section 5, Storm System Evaluation & Recommendations, details each basin, provides improvement recommendations, gives a cost estimation, and sets priorities for each improvement.

The Yachats Wastewater System Facilities Plan (2022) provides a comprehensive evaluation of the city's wastewater system with respect to its existing and future needs, identify improvements and associated costs necessary to meet those needs, and provide the city with

a framework for the provision of sanitary sewer service through the year 2041. Chapter 7, Treatment System Evaluation gives a summary of system deficiencies and recommendations for improvement. Chapter 8, Capital Improvement Plan, gives each recommendation a priority ranking along with cost estimates and funding sources.

National Flood Insurance Program (NFIP)
Yachats participates in the National Flood Insurance Program (NFIP). The program is managed by the Planning Department. The program makes flood insurance available to all property owners. To maintain eligibility for the NFIP, Yachats has adopted and enforces special building and development restrictions for lands that are subject to flooding.

Yachats 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.

Oregon Department of Transportation (ODOT) Seismic Lifelines
Highway 101 in Yachats is designated as a Tier 1 seismic lifeline by the Oregon Department of Transportation. These routes are a part of the state's overall network of streets, highways, and bridges that will facilitate emergency service response and support in the event of a seismic event.

Government Structure

The City Council is the policy making body for Yachats. As the elected legislative body in Yachats, 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 Manager: The city manager is appointed by the City Council and serves as the city administrative officer of the city government. The city manager provides the leadership and direction for the operation and management of all city departments and serves as the city's budget officer.

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 in coordination with the mayor; maintains official city records which reflect the actions of the governing body; maintains a depository of contracts, agreements and official council actions and ensures the timely availability of these records to the council, public other agencies and staff.

City Planner: The city planner provides service and information to the general public regarding phases of planning and community development. The city planner implements ordinance and plan requirements through a site and land use review process. Specifically, the city planner reviews potential development opportunities to ensure compliance with zoning, setback, parking, landscaping, access and other city requirements.

In addition to oversight of the development process, the city planner advises the City Council and Planning Commission on land use and special project matters.

Public Works Department: The Yachats 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, storm drainage, public buildings and other facilities. Services provided by the department contribute to the public health, safety, economic diversity, environmental quality and citizen convenience.

Finance Department: The Finance Department serves the community by managing utility billing, business licenses, collecting taxes and fees, dealing with city expenditures, preparing the city's budget and managing investments. The goal of the Finance Department is to provide services with an emphasis on timelines, accuracy and courteous customer service.

Public Library: The Yachats Public Library collects, preserves, and administers organized collections of books and related materials.

Mitigation Successes

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

- Relocation of Fire District station 8200 to higher ground.
- DLCD grant to complete hazard code audit.
- Emergency grant through Lincoln County to enhance Emergency Caches.
- Yachats is working with the Red Cross to develop a plan for utilizing the Commons building as an emergency shelter. As part of this effort, the city is exploring upgrades including local diesel fuel storage and an enhanced generator system to ensure reliable emergency power. There may be increased emphasis on designating the Commons as a formal Red Cross shelter to strengthen community resilience during emergencies.

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 Yachats:

- The City of Yachats has an emergency planning steering committee that meets monthly.
- A Community Emergency Response Team (CERT) is active in Yachats. The CERT Program educates people about disaster preparedness and trains citizens to assist with the community's immediate needs in the aftermath of a disaster (when emergency services are not immediately available). CERT can assist in saving lives and protecting property.
- The City of Yachats coordinates emergency planning activities with the Yachats Rural Fire Protection District.

- The City of Yachats enforces a setback requirement for all developments located along the coast. The purpose of the setback is to reduce property damages related to coastal erosion, windstorms, and flooding. The setback requirement also serves to satisfy a portion of the city's natural hazard goal, as defined in the Yachats Comprehensive Plan: "Through regulation of the location and type of development, the city shall work to protect life and property from natural disasters and hazards, such as landslides, fire, tsunamis and flooding."
- The city's Comprehensive Plan and Zoning and Land Use Code address natural hazards. Specific hazardous areas have been identified by RNKR Associates in their work *Environmental Hazards, Coastal Lincoln County, Oregon, 1979*. The city has defined 'hazardous areas' and will allow development in these areas if adequate protective measures can be employed to prevent or minimize damage in accordance with city development code standards.
- State legislation: SB 379, implemented as Oregon Revised Statutes (ORS) 455.446 and 455.447, limits construction of new essential facilities and special occupancy structures in tsunami flooding zones.

Mitigation Strategy

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

Yachats 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 (Table YA-1). 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, tornado, distant tsunami, and volcanic event. The steering committee will study these hazards 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

Table YA-1 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 YA-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	Enhance community safety and mobility in the event of an earthquake by identifying and developing alternative transportation and evacuation routes that bypass the bridge over the Yachats 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		X		X					Local funding resources, OCVA	Public Works	L	L
2	Maintain and strategically place two mobile storage containers stocked with emergency supplies and equipment, identify CERT members responsible for access, and seek ongoing funding for maintenance and potential expansion. Continue community outreach to raise awareness of the importance of local preparedness.				X		X	X	X		X	X	X	Local funding resources, OREM	Administration	Ongoing	L to M
3	Implement and maintain the updated Yachats Stormwater Master Plan by prioritizing mitigation actions outlined in Section 7 and Figure A-5 of the 2008 Addendum. Regularly review these actions during city natural hazard mitigation meetings. Emphasize stormwater management as a critical strategy to reduce flood risk, protect water quality, and support community livability.						X							Local funding resources, HMA	Administration	Ongoing	L to H
4	Promote flood risk awareness and encourage the purchase of flood insurance, including for properties outside mapped NFIP hazard areas. Develop and distribute educational materials on flood mitigation strategies such as home elevation, and coordinate with Lincoln County and insurance representatives to stay informed on policy updates. Continue participation in the NFIP and explore joining the Community Rating System (CRS) to enhance public engagement and reduce flood vulnerability.						X							Local funding resources, DLCD TA, OSU Extension	Administration	Ongoing	L
5	Strategically install supplemental water supply tanks in key locations, leveraging existing storage containers, portable water treatment systems, and completed Blackstone tanks. This action will ensure continued water availability during and after drought and wildfire events. Additionally, pursue funding for the construction of additional			X							X			Local funding resources, IFA	Administration	S	H

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
	emergency water reservoirs and conduct research into non-structural drought risk reduction strategies. These efforts will be supported by an ongoing inventory of available water resources and filtration capabilities.																
6	Reduce landslide risk to life, property, and infrastructure by acquiring high-resolution LiDAR data, creating updated landslide inventories and susceptibility maps, and integrating them into local planning, zoning, and development regulations. Use the 2019 Landslide Hazards Land Use Guide to inform policy language and development review procedures.							X						Local funding resources, DLCD TA	Administration	S	L
7	Evaluate, design, and implement erosion control mitigation measures along NE Ocean View Drive and the Yachats 804 Trail—from 6th Street to south of 2nd Street—to address ongoing coastal erosion threatening public infrastructure, utilities, and pedestrian access. Actions will include installing riprap and handrails, enhancing storm drainage systems, and maintaining existing erosion control structures. Ground movement will be monitored, particularly after major storms, and critical infrastructure near erosion-prone areas will be identified and prioritized. Given the area's role as a vital bypass for Highway 101 and its location within the distant tsunami inundation zone, future risk assessments will incorporate potential land value losses and long-term resilience planning.		X											Local funding resources, HMA	Public Works	L	M to H
8	Collaborate with willing property owners of repetitive flood loss structures—particularly in high-risk areas such as Yachats Ocean Road and Gender Creek—to assess and implement cost-effective flood mitigation strategies, including elevation, relocation, or acquisition. Prioritize pre-FIRM structures located in flood-prone zones along major rivers, where past events have demonstrated the effectiveness of properly elevated buildings. Work in coordination with DLCD, FEMA, and OEM to evaluate individual properties and apply mitigation measures that align with the County's flood hazard area codes, ensuring structures are elevated at least one foot above base flood level to reduce future flood damage.						X							Local funding resources, HMA (FMA)	Floodplain Manager	L	H

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
9	Investigate and implement the relocation or structural mitigation of the city's Water and Wastewater Treatment Plants currently located within the tsunami inundation zone. This action aims to ensure continuity of essential services and minimize the risk of contamination, infrastructure failure, and public health crises following a significant tsunami event. The city will also evaluate resilient alternatives for critical public safety infrastructure, including the acquisition of a cost-effective, hazard-resistant police communications system, to maintain emergency response capabilities during and after natural disasters.						X		X					Local funding resources	Public Works	L	H
10	Enhance community resilience to tsunami hazards by developing and adopting a locally tailored tsunami land use code, guided by the Oregon Department of Land Conservation and Development's (DLCD) Tsunami Land Use Guidance. This initiative will utilize the Tsunami Inundation Maps (TIMs) and the model Tsunami Hazard Overlay (THO) zone to inform zoning updates, comprehensive plan amendments, and evacuation facility improvements. The code will incorporate relevant strategies from both the tsunami and landslide land use guides, ensuring a holistic, adoption-ready framework that supports pre-disaster planning, incentivizes resilient development, and aligns with local risk profiles and community priorities.								X					Local funding resources, HMA, DLCD TA	Planning	S	L
11	Collaborate with the Yachats Rural Fire Protection District and Public Works to investigate and implement a purple pipe system as a dedicated non-potable water source for fire suppression. This initiative supports the City of Yachats' broader water sustainability goals outlined in the Water Master Plan, Source Water Protection Plan, and Water Management and Conservation Plan by conserving potable water resources while enhancing fire resilience through alternative infrastructure.			X							X			Local funding resources, HMA	Public Works	L	M
12	Develop and implement a Climate Resilience Plan. This plan will identify local vulnerabilities, prioritize adaptive strategies, and establish clear protocols to enhance the city's capacity to prepare for, respond to, and recover from climate-related hazards such as coastal erosion, flooding, and wildfires. By leveraging regional partnerships		X	X			X	X			X	X	X	Local funding resources, HMA, OREM	Public Works	M	M

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
	and scientific guidance, Yachats will build long-term resilience and safeguard its community, infrastructure, and natural resources.																
13	Enhance the resilience of Yachats' town center to winter storms, windstorms, wildfires, and tsunamis by constructing durable sidewalks and relocating utilities underground along the corridor from the town center to Yachats Ocean Road. This infrastructure improvement will reduce exposure to hazards, ensure continuity of essential services during extreme weather events, and provide safer evacuation routes for residents and visitors.								X		X	X	X	Local funding resources, HMA, Central Lincoln PUD	Public Works	L	H to VH
14	Develop a comprehensive Greater Commons Master Plan that integrates alternative energy solutions—such as solar microgrids and battery storage—to ensure the commons can remain operational during disasters. This plan will assess energy needs, identify resilient infrastructure opportunities, and establish protocols for rapid deployment and maintenance, thereby enhancing community safety, continuity of services, and energy independence in times of crisis.													Local funding resources, HMA, ODE, Central Lincoln PUD	Administration	S	L to M

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 III, 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 YA-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.

Drought, windstorm, landslide, winter storm (snow/ice), Cascadia Subduction Zone earthquake, and local tsunami are the **high hazard threats** to the city. Wildfire, riverine flood, coastal flood, and coastal erosion are the **moderate hazard threats**. Crustal earthquake, tornado, distant tsunami, and volcanic events are the **low hazard threats**.

The city is not affected by air quality and extreme heat, as such the hazards are not profiled and not included in their hazard analysis.

Table YA-2 Hazard Analysis Matrix

Hazard	History	Vulnerability	Maximum Threat	Probability	Total Threat Score	Hazard Rank	Hazard Tiers
Drought	20	50	100	70	240	#1	
Windstorm	20	50	100	70	240	#2	
Landslide	20	40	100	70	230	#3	*Top Tier*
Winter Storm	18	40	100	70	228	#4	
Earthquake (Cascadia)	2	50	100	49	201	#5	
Local Tsunami	2	50	100	49	201	#6	
Wildfire	10	35	90	63	198	#7	
Flood (Riverine)	18	30	70	70	188	#8	*Middle Tier*
Flood (Coastal)	20	25	50	70	165	#9	
Coastal Erosion	20	15	50	49	134	#10	
Earthquake (Crustal)	10	20	40	42	112	#11	
Tornado	8	10	30	56	104	#12	*Bottom Tier*
Distant Tsunami	10	15	30	35	90	#13	
Volcanic Event	2	5	40	7	54	#14	

Source: City of Yachats NHMP Steering Committee (2025)

Community Characteristics

Table YA-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 Yachats is rich with beauty and abundant natural resources. The coastal community offers recreational amenities, activities and attractions including, but not limited to fishing, beachcombing, clam digging, hiking/ trail running, mountain biking (including the Gravel Epic ride), camping, whale watching, crabbing, windsurfing, scenic flights, golfing, kite-flying and more. In and around the community are the Cape Perpetua Federal Recreational Area and Museum, Smelt Sands State Park, Yachats State Park, the Commons Community Center, and the Yachats Ocean Wayside State Park.

The climate in Yachats is moderate. Average monthly temperatures range from lows of 36-40° F (November through April) to highs of 74-76° F (July through September) degrees. The driest months are July and August (average about 0.85-1.15 inches of precipitation per month) the

wettest months are November through March (average 11-14 inches of precipitation per month). Yachats has an average annual precipitation of approximately 92 inches (73%, 67 inches fall November through March).

Population, housing, and development

Between 2019 and 2023 the city grew by 246 people (32%). According to the State's official coordinated population forecast (preliminary), between 2023 and 2045 the city's population is forecast to grow by 28% to 1,289. City population varies according to the season, with up to a 400% increase in population occurring during the summer months (July/ August peak); the population increases roughly from 1,000 to 2,500. The city has an educated population with 96% of residents 25 years and older holding a high school degree, and 56% have a bachelor's degree or higher. Students attend school in Waldport. As of 2023-24, Waldport High School and the Lincoln County School District have 77% and 82% graduation rates, respectively.[1]

The City of Yachats sits at the mouth of the Yachats River overlooking the Pacific Ocean. Development in Yachats spreads mostly north to south along US-Highway 101 and slightly east along Yachats River Road. Dense commercial areas in Yachats exist along US-Highway 101 and are centrally located in the downtown area and around the Yachats River. Residential development surrounds the downtown commercial core. The city's Comprehensive Plan identifies land use needs within the city and its urban growth boundary. There are three oceanfront state parks located within the city.

Economy

About 43% of the resident population 16 and over is in the labor force (237 people) and 12% are unemployed. Top occupations include management, professional, and related (40%), service (40%), and sales and office (12%).

Median household income increased by 7% between 2017 and 2022.

Most workers residing in the city (77%, 186 people) travel outside of the city for work primarily to Newport and Waldport.[2] A significant population of people travel to the city for work, (88%, 411 people) primarily from Waldport, San Maine, and Newport.

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

[2] U.S. Census Bureau. LEHD Origin-Destination Employment Statistics (2002-2022). Longitudinal-Employer Household Dynamics Program, accessed on May 31, 2025 at https://onthemap.ces.census.gov.

Table YA-3 Community Characteristics

Population Characteristics		Population Growth
2019 Population Estimate	760	
2023 Population Estimate	1,006	32%
2045 Population Forecast*	1,289	28%
Race		
American Indian and Alaska Native		0%
Asian		< 1%
Black/ African American		1%
Native Hawaiian and Other Pacific Islander		1%
White		87%
Some Other Race		0%
Two or More Races		5%
Hispanic or Latino/a (of any race)		6%
Limited or No English Spoken	44	6%
Vulnerable Age Groups		
Less than 5 Years	10	1%
Less than 15 Years	36	5%
65 Years and Older	372	48%
85 Years and Older	96	12%
Age Dependency Ratio		1.12
Disability Status (Percent age cohort)		
Total Disabled Population	207	27%
Children (Under 18)	7	1%
Working Age (18 to 64)	42	6%
Seniors (65 and older)	158	44%

Household Characteristics		
Housing Units		
Single-Family (includes duplexes)	694	80%
Multi-Family	143	17%
Mobile Homes (includes RV, Van, etc.)	26	3%
Household Type		
Family Household	26	6%
Married couple (w/ children)	15	3%
Single (w/ children)	11	2%
Living Alone 65+	153	34%
Year Structure Built		
Pre-1970	268	31%
1970-1989	277	32%
1990-2009	276	32%
2010 or later	42	5%
Housing Tenure and Vacancy		
Owner-occupied	278	32%
Renter-occupied	173	20%
Seasonal	321	37%
Vacant	412	48%
Vehicles Available (Occupied Units)		
No Vehicle (owner occupied)	80	18%
Two+ vehicles (owner occupied)	153	34%
No Vehicle (renter occupied)	73	42%
Two+ vehicles (renter occupied)	11	6%

Income Characteristics		
Households by Income Category		
Less than $15,000	33	10%
$15,000-$29,999	84	24%
$30,000-$44,999	40	12%
$45,000-$59,999	59	17%
$60,000-$74,999	36	11%
$75,000-$99,999	14	4%
$100,000-$199,999	58	17%
$200,000 or more	22	6%
Median Household Income		$55,313
Gini Index of Income Inequality		0.51
Poverty Rates (Percent age cohort)		
Total Population	109	14%
Children (Under 18)	4	11%
Working Age (18 to 64)	68	19%
Seniors (65 and older)	37	10%
Housing Cost Burden (Cost > 30% of household income)		
Owners with a Mortgage		27%
Owners without a Mortgage		6%
Renters		9%

Employment Characteristics		
Labor Force (Population 16+)		
In labor Force (% Total Population)	314	43%
Unemployed (% Labor Force)	36	12%
Occupation (Top 5) (Employed 16+)		
Related	112	40%
Service	110	40%
Sales and Office	32	12%
Moving	18	7%
Constr., Extraction, and Maintenance	6	2%
Health Insurance		
No Health Insurance	61	8%
Public Health Insurance	492	65%
Private Health Insurance	447	59%
Transportation to Work (Workers 16+)		
Drove Alone	140	50%
Carpooled	0	0%
Public Transit	0	0%
Motorcycle	0	0%
Bicycle/Walk	60	22%
Worked at Home	78	28%

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 4: Northwest Oregon 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 (cite map). 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.

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

- **Yachats Rural Fire Protection District Station 8200:** 2056 Hwy 101 N
- Yachats Rural Fire Protection District Station 8300: 7881 Yachats River Road
- The Commons Building: 441 Hwy 101 N
- Public Library: 560 W 7th Street
- Water treatment plant: 500 W 7th Street
- Wastewater treatment plant: 500 W 7th Street
- City Hal (501 Hwy 101 N)
- Post Office: 141 Beach Avenue
- New Cingular Wireless Pcs
- Cellco partnership
- Southwest Lincoln County PUD: 7740 Hwy 101
- C & K Market: 231 Hwy 101
- Yachats Mercantile: 130 Hwy 101

In addition, the Sea Aire Assisted Living Facility (1882 Hwy 101 N) is considered a community asset serving the elderly population of the community.

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Transportation

Mobility plays an important role in Yachats, and the daily experience of its residents, and businesses. Motor vehicles represent the dominant mode of travel through, and within the city. Yachats is also served by Lincoln County Transit Routes 497 with service running six days a week with stops in Yachats and by the Florence-Yachats Connector.

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.[3]

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.

Highway 101 (Tier I) is the major north-south transportation route through the city (ODOT Map) Highway 18 (Tier I, north of Lincoln City), Highway 20 (Tier III, Newport), and Highway 126 (Tier II, Florence) are the major east-west transportation routes connecting the coast to the Willamette Valley. Highway 34 (Waldport) is not a seismic program highway; however, it does connect to the Willamette Valley through Alsea.

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 and culverts within the city that are critical or essential include (Map YA-1).

- Yachats River, US 101 (1977), (Bridge ID 01173D)
- (culvert) Starr Creek, US 101 (1930), (Bridge ID 01451)

Railroads

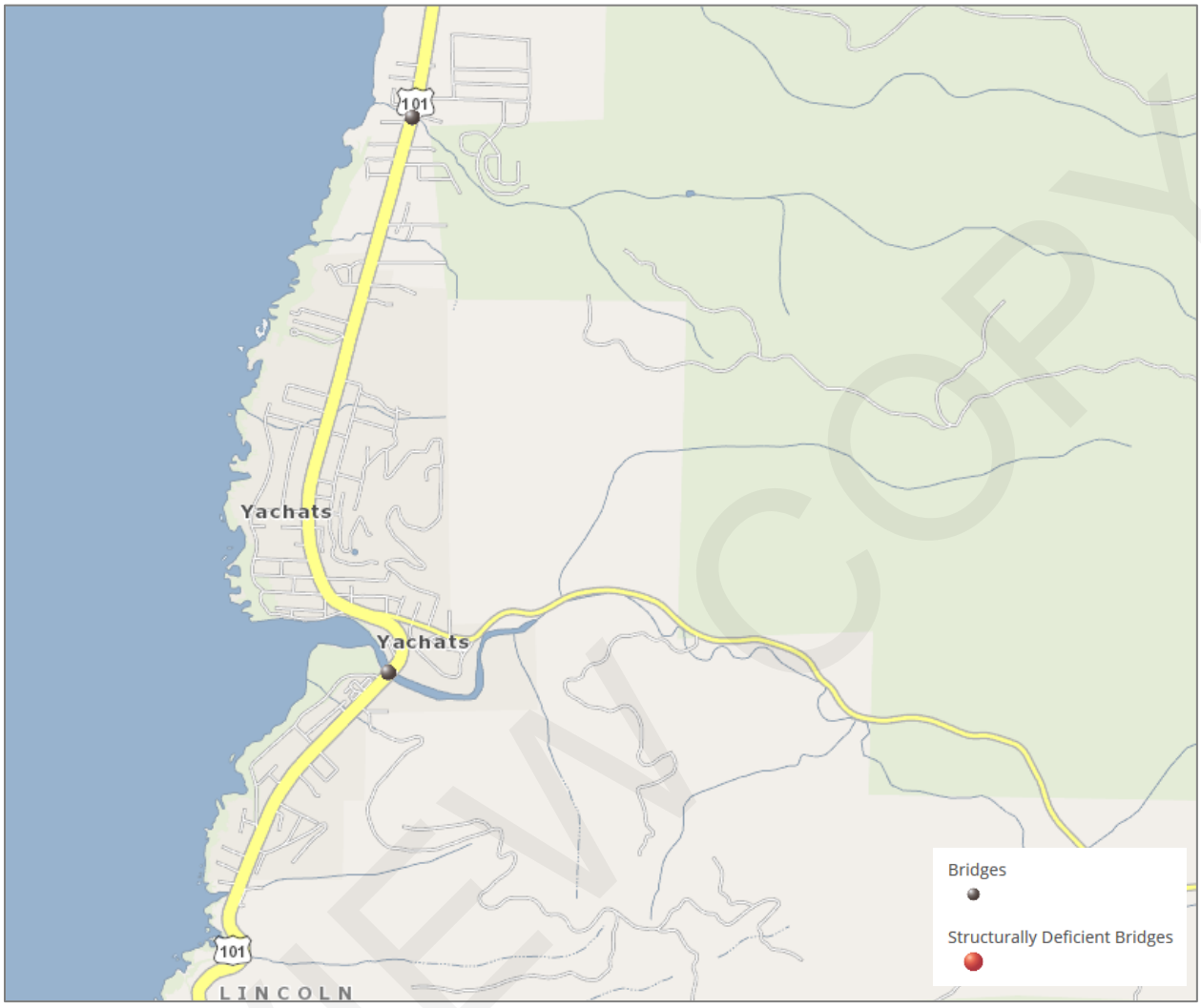
There are no railroads in Yachats.

Airports

There are no public airports in Yachats. Wakonda Beach State Airport is located north just south of Waldport and the Newport Municipal Airport is in the South Beach area of Newport. The city has no commercial service airports. The nearest commercial airports are in Eugene and Portland.

[3] Oregon Department of Transportation. Oregon Seismic Lifeline Evaluation, Vulnerability Synthesis, and Identification, *Oregon Seismic Lifeline Routes,* May 15 2012.

Map YA-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

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 (see their addendum for more information). 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: 963 Yachats River Road
- Storage tanks:
    - Primary tank, 1.0 MG, east side of Radar Road (ca. 1992)
    - Round tank, 0.2 MG, Radar Road (ca. 1945)
    - Upper tank, 0.01 MG, Horizon Hill Road (ca. 1964)
    - Pressure tank, 1,000-gallon, Horizon Hill Road
    - Blackstone Middle Tank 0.1 MG Gimlet Drive (ca. 2008)
    - Blackstone Upper tank 0.125 MG Horizon Hill Road (ca. 2008)
    - South Tank 0.25 MG Crestline (ca. 2017)
- Pump stations:
    - Radar Road, pumps between the primary tank and round tank
    - Upper Tank pump station used for pressure tank
    - Blackstone Lower pump station
    - Blackstone Middle pump station
    - Blackstone Upper pump station

Wastewater Infrastructure

- Wastewater Treatment Plant: 500 W 7th Street

Stormwater Infrastructure (e.g. Culverts)

- Numerous Critical or Essential culverts (some listed under bridges above)

Cultural and Historic Resources

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 City of Yachats's website offers noteworthy time periods in the community's history.[4] Before white settlers came to the Yachats area, the coast was inhabited by Native Americans, known as the Alsi and Yahuts tribes. In 1787, Captain Cook, one of the first white people sailing along the Oregon Coast, named Cape Perpetua, an 800-foot cape overlooking the ocean. In 1855, the Coast Range Reservation and Alsea Sub-Agency established a community to be the home to different tribes of Native Americans. In 1871, it noted that the first white child was born in Yachats. In 1875, the Coast Range Reservation and Alsea Sub-Agency was closed when the area was opened to settlement. In 1892, the Oceanview, Benton County Post Office was established in what later became known as the town of Yachats. Vacationers began visiting the Yachats area in the early 1900's. In 1914, the US Forest Service built a narrow road around Cape Perpetua. In 1917, the community was renamed from "Oceanview" to the present name of Yachats. In 1918, soldiers of the Signal Corps were organized at camps in the area to log for spruce used to build airplanes for war efforts. In 1926, the Little Log Church was built to serve the community. The church later became the property of the Lincoln County Historical Society, who eventually turned

[4] City of Yachats History. www. http://www.ci.yachats.or.us/Yachats%20History.htm

the church over to the City of Yachats. It is now maintained as the Little Log Church and Museum. In the 1930's, the Roosevelt Memorial Highway, now known as US Highway 101, was completed, opening the coastal area to a greater influx of people. In the 1930's and 40's, the Great Depression and World War II affected the area. Today, Yachats is a lively community home to permanent and seasonal residents, with a vigorous tourist population.

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 and the State Historic Preservation Office lists historic sites and properties within the city:[5]

- US Spruce Production Railroad XII, Spur 5, Linear District],1925
- Ten Mile Creek Bridge, Hwy 101, 1931
- North Fork Of The Yachats Bridge, North Fork Yachats River, c.1938
- Cape Perpetua Shelter and Parapet, Waldport Ranger District, 1933
- (35-LNC-73) Trail 804 Midden #3, Address Restricted
- (35-LNC-72) North 804 Midden, Address Restricted
- (35-LNC-66) Yachats Trail 804 Midden, Address Restricted
- (35-LNC-65) Smelt Sands Midden, Address Restricted
- (35-LNC-63) Archeological Site, Address Restricted
- (35-LNC-57) Cape Creek Site, Address Restricted
- (35-LNC-56) Good Fortune Cove Site, Address Restricted
- (35-LNC-55) Good Fortune Point Site, Address Restricted
- (35-LNC-54) Archeological Site, Address Restricted
- (35-LNC-48) Archeological Site, Address Restricted

The following list includes six other sites listed on the State Historic Preservation Office website:

- [House],10740 Yachats River Rd
- Upper Yachats School, E Hwy 101, c.1920
- Roosevelt Coast Highway, Hwy 101, c.1919
- Little Log Church by the Sea, 328 W 3rd St, 1927
- Alsea Sub-Agency Indian Reservation Headquarters, Hwy 101, 1875
- [House], 2550 N Hwy 101, c.1930

The City of Yachats holds many community events throughout the year, including, but not limited to, the Yachats Guitar Festival, the Yachats Music Festival, Yachats Big Band, the Yachats Farmers Market, various arts and craft shows, the Yachats la de da Parade, Festivities and Fireworks Show, the Yachats Village Mushroom Festival, the Annual Smelt Fry, the Yachats Celtic

[5] Oregon Historic Sites Database, http://heritagedata.prd.state.or.us/historic/, accessed July 17, 2020.

Music Festival, and the Yachats Youth and Families Activities Program, as well as a wide range of restaurants, galleries and shops.[6]

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 Lincoln County School District has two schools in Yachats including Crestview Heights Elementary and Yachats Middle and High School. For more information on School District assets see their addendum in Volume III

[6] City of Yachats Events. http://www.ci.yachats.or.us/calendar/commons/events.htm

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 YA-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.

Air Quality

The city experiences predominate westerly winds, as such, air quality is not considered to be a hazard within the community.

Coastal Erosion

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

Volume I, Section 2 describes the characteristics of coastal erosion hazards, as well as the history, location, extent, and probability of a potential event. Coastal erosion is a natural process that continually affects coastal areas; in Yachats and elsewhere along the Pacific, coastal erosion becomes a hazard when lives and properties are at risk of death, injury, or damage. Coastal erosion is typically a gradual process, which can be greatly accelerated in the event of a storm or climate factors that increase the potential for coastal erosion.

Additional information can be found on the Lincoln County website: https://www.co.lincoln.or.us/742/Hazards-Air-Quality.

Future Climate Projection:

According to OCCRI report "*Future Climate Projections: Lincoln County*" (Link) the risk of coastal erosion is expected to increase due to sea level rise and changing wave dynamics.

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 county identified areas along Highway 101 that have sustained erosion induced damages. The city can be characterized as consisting of low rock beaches, basalt cliffs and benches overlain by sedimentary uplifted marine terrace deposits along US Highway 101. Additionally, the city has steep hillsides east of Highway 101 and southeast of the Yachats River. The most susceptible area for coastal erosion is along the oceanfront where concentrations of homes, businesses, roads and infrastructure are located. The steering committee identified the area along Ocean View Drive from 6th Street down to the Yachats Recreation Area as experiencing on-going erosion; this road includes major water and sewer lines. The City of Yachats has engaged in projects to mitigate coastal erosion by installing hardened shoreline stabilization in the form of rip-rip, relocating pump stations away from vulnerable locations, and stabilizing banks. The city previously installed rip-rap to protect utilities and streets along the bluffline. Records of other specific events are not available at this time; however, events may have occurred in tandem with previous storms.

Potential community-related impacts, including shoreline reduction, economic (tourism-related) impacts, and property/infrastructural damage, are adequately described within the Volume I, Section 2 of the NHMP. See Map YA-2 for locations of the city's coastal erosion hazard along coastal bluffs on the city's western edge.

The City of Yachats uses the RNKR Environmental Hazards Inventory of Coastal Lincoln County, Oregon as a mapping and reporting tool for coastal erosion. Although not included within this addendum, the coastal erosion hazards map can be obtained through the Planning and Community Development Department at City Hall.

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 coastal erosion. The Risk Report provides a distinct profile for Yachats.

The Risk Report provides an analysis of dune-backed beaches and bluff-backed shorelines to identify the general level of susceptibility due to storm-induced erosion, sea level rise, and subsidence due to CSZ earthquake event. 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 Yachats may be impacted by profiled coastal erosion scenario (Table YA-4).

Very few people are may be displaced by coastal erosion. These people are expected to have mobility or access issues and/or may have their residences impacted by coastal erosion. Properties that are most vulnerable to the coastal erosion hazard are those that are developed in an area of steep dunes or cliffs. Only a few buildings (residential, commercial, industrial) are exposed to the high coastal erosion hazard zone. The value of exposed buildings is $325,000 (a fraction of total building value). It is important to note that impact from coastal erosion may vary depending on areas that are impacted during an event.

Table YA-4 Potentially Displaced Residents and Exposed Buildings, Coastal Erosion

Community Overview: Yachats						
Population		Buildings		Critical Facilities	Total Building Value ($)	
690		1,050		1	160,911,000	
Exposure Analysis: Coastal Erosion High Hazard Scenario						
Potentially Displaced Residents		Exposed Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Value ($)	Percent
2	0.3%	4	0.4%	0	325,000	0.2%

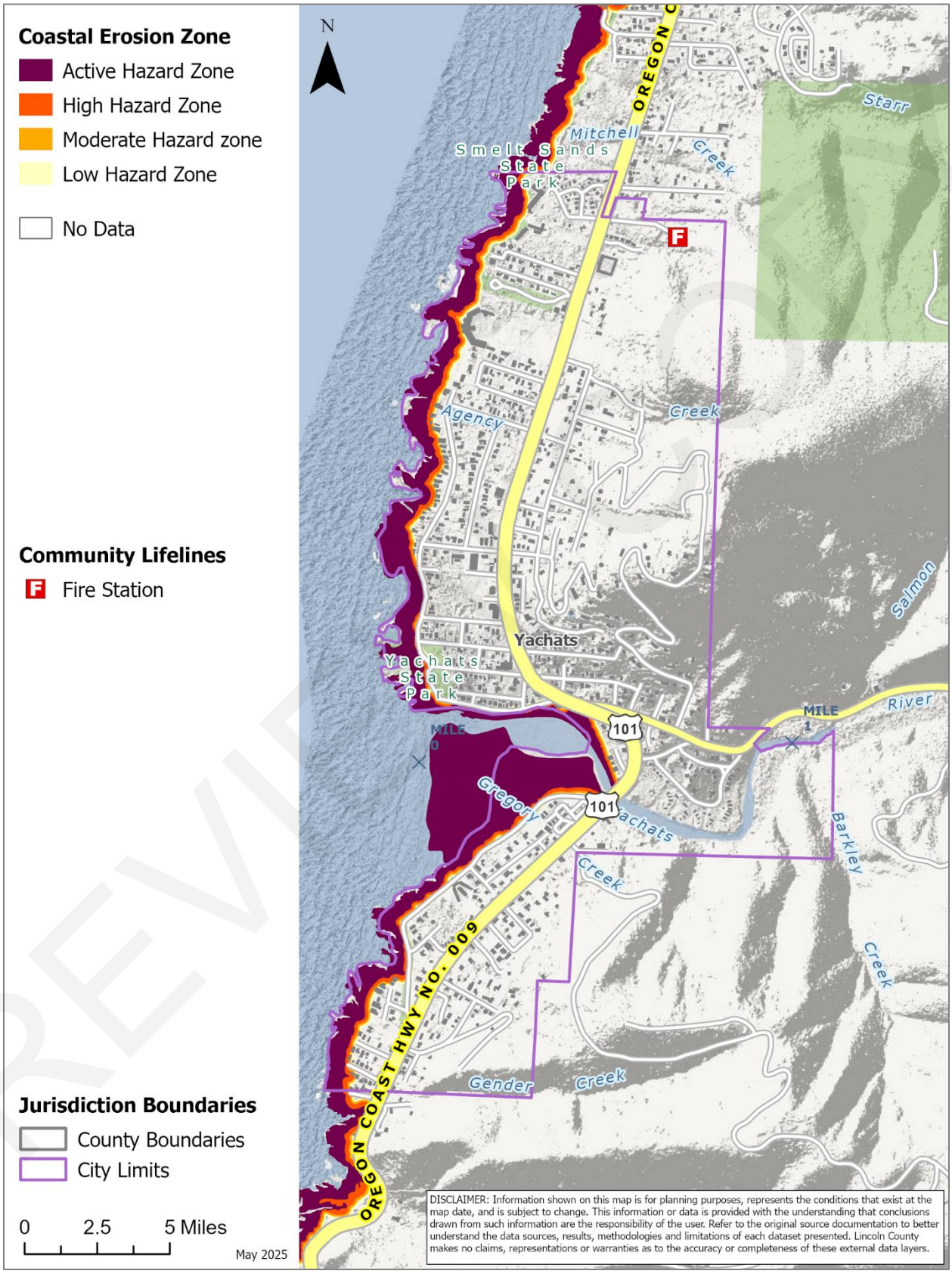
Source: IPRE. Data adapted from DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-20. Note: City population based on the 2010 Census population.

Critical Facility Vulnerability[7]

There are no critical facilities exposed to the profiled coastal erosion scenario.

[7] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-21.

Map YA-2 Coastal Erosion Hazard



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left

Drought

The Steering Committee rated the city's **probability of occurrence for drought events as "high" and their vulnerability as "high"**. *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 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.

The city is working to protect their water rights on the Yachats River, including the Reedy and Salmon creeks to secure future access and supply (there is some concern in the community that logging within the Salmon Creek Watershed compromises their water availability). Likewise, Yachats has an intergovernmental agreement with the South Lincoln County Water District and the City of Waldport for delivery services in the event of a water-shortage. In addition, Yachats's population expands during the summer tourist season, peaking in July/ August with a tourist population upwards to 400% the normal population of the community (approximately 750); during these period water meter usage expands from about 150 to about 800; the tourism population, in addition to natural population growth, will further strain the existing system. To mitigate water availability the city installed a 250,000-gallon storage tank in 2017 and plans additional water storage projects.

Due to lack of a predictable water supply, the Yachats Steering Committee believes that the impacts of a potential event are much greater for the city than for the county. Although the city has intergovernmental agreements (IGA's) to ensure deliverable water in the event of a water shortage, the South Lincoln County Water District and the City of Waldport have similar contamination concerns as Yachats. Funding was recently secured and emergency treatment machines capable of treating 9,000 gallons per day for drinking water were installed. In addition, the city Public Works Department has an ongoing water main inspection program to prevent the loss of water due to leaks. The city also has long range plans to construct a series of reservoirs with water storage capacity of up to 500,000 gallons (one 250,000-gallon tank completed in 2017). The city has a Water Management and Conservation Plan and program in place (Section 7 of their Water System Master Plan). In addition to reduced water supplies, a drought will increase the chances of wildfire and significantly reduce tourism activities. If hotels and rental houses, for example, are unable to accommodate guests, the city's economy would greatly suffer.

The city currently has water rights from four (4) surface water sources: Yachats River, Cape Creek, Reedy Creek, and Salmon Creek.[8] The city's water rights to the Yachats River are subservient, limiting their priority and availability. Additionally, Cape Creek rarely maintains summer flow and accessing it would be both technically challenging and financially burdensome for the city. Water from the city reservoirs is treated at the water treatment facility that can

[8] Yachats Water Master Plan, 2001.

treat up to 0.50 million gallons per day (mgd) or 350 gallons per minute. Following treatment water flows via water transmission mains to four water storage reservoirs (combined 1.21 million gallons capacity) in the northern half of the city at elevations ranging from 210 to 545 feet. Most of the system utilizes 6- or larger diameter pipes. There are two pump stations that boost pressure to higher elevations. The city has enough capacity to meet current and anticipated future demand.

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. Industries important to the City of Yachats's local economy such as fishing have historically been affected, and any future droughts would have tangible economic and potentially human impacts.

In addition to reduced water supplies, a drought will increase the chances of wildfire and significantly reduce tourism activities. If hotels, for example, are unable to accommodate guests, the city's economy would greatly suffer.

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 "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 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).[9]

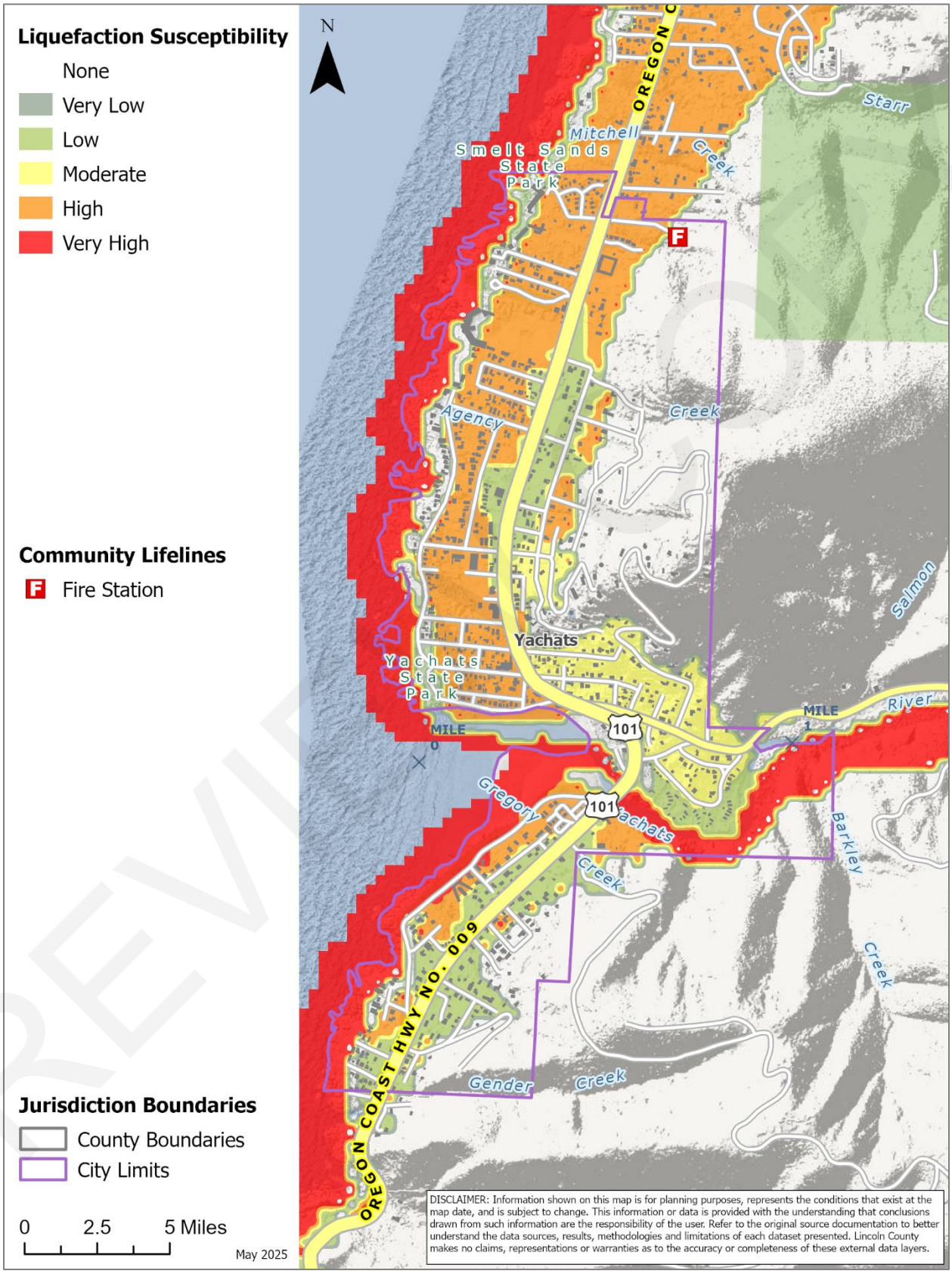
The Oregon Department of Geology and Mineral Industries (DOGAMI), in partnership with other state and federal agencies, has undertaken a rigorous program in Oregon to identify seismic hazards, including active fault identification, bedrock shaking, tsunami inundation zones, ground motion amplification,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

The city faces several earthquake-related risks, including soft soil and liquefaction hazards (Map YA-3) and a moderate to very high probability over the next 50 years of experiencing shaking strong enough to damage weak buildings (Map YA-4).

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

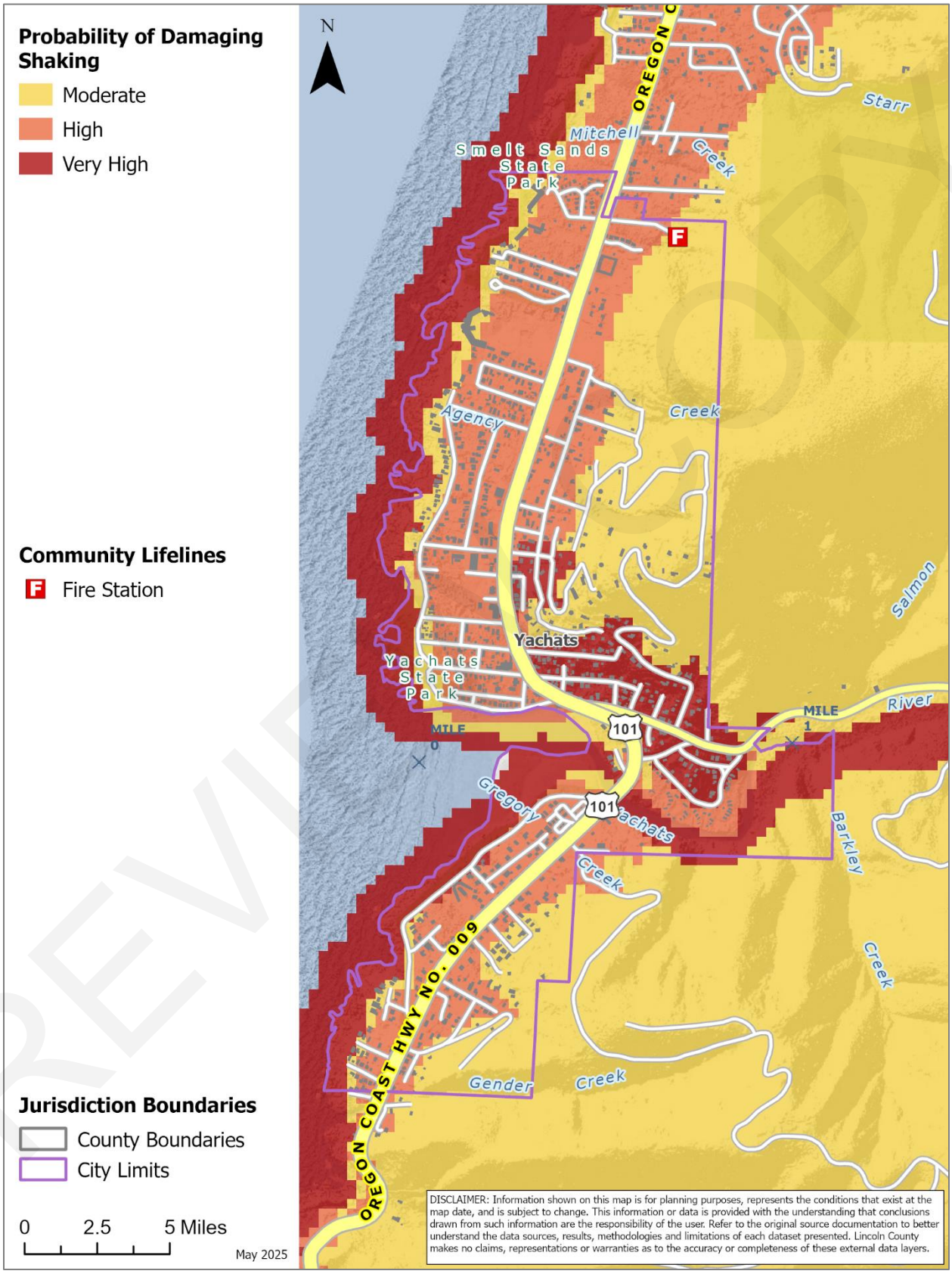
[9] DLCD. *Oregon State Natural Hazard Mitigation Plan*. 2020 (Draft).

Map YA-3 Earthquake Liquefaction (Soft Soil) Hazard and Active Faults



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left.

Map YA-4 Probability of Damaging Shaking



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left.

Vulnerability Assessment

See *Earthquake and tsunami impact analysis for coastal Lincoln County, Oregon* (2021, O-21-02) and *Earthquake and tsunami impact analysis for the Oregon* coast (2025, O-25-01) for additional information.

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, water and sewer treatment systems, and City Hall were identified by the steering committee as vulnerable assets. 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 is an on-going endeavor in Yachats.

To help communities better prepare for earthquakes, DOGAMI released the Oregon Seismic Hazard Database in 2021.[10] 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 YA-5), expected shaking and damage from large Cascadia subduction zone earthquakes (Map YA-6), and the chance of experiencing shaking strong enough to damage buildings (Map YA-4). The extent of the damage to structures and injury and death to people will depend upon the type of earthquake, proximity to the epicenter and the magnitude and duration of the event.

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 YA-3), approximately 63% 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. The only facility evaluated by DOGAMI was the former Yachats RFPD building at 217 W 2nd Street. For more information click this link O-07-02.

[10]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

Table YA-5 Potentially Displaced Residents and Exposed Buildings, Earthquake

Community Overview: Yachats						
Population		Buildings		Critical Facilities	Total Building Value ($)	
690		1,050		1	160,911,000	
Exposure Analysis: Earthquake CSZ M9.0 (Deterministic) Scenario						
Potentially Displaced Residents		Damaged Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Loss Estimate ($)	Loss Ratio
125	18.1%	289	27.5%	1	35,498,000	22.1%
Exposure Analysis (within Tsunami Zone - Medium)						
6	0.9%	32	3.0%	0	6,089,000	3.8%
Total Exposure						
131	19.0%	321	30.6%	1	41,587,000	25.8%

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

Critical Facility Vulnerability[11]

- Yachats Fire Station and South Lincoln Ambulance Service (Fire District)

Note 1: It is expected that bridges in the area may be impassable by vehicles for over 24 months. As such bringing resources into Yachats by sea and air will be necessary.

Note 2: The city also expects city hall and their water treatment and wastewater treatment plants and systems to be impacted by earthquake.

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 Yachats.

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. *Note: Due to the simultaneous nature of a CSZ earthquake and tsunami, loss estimates have been separated in the following tables to avoid double counting. Building losses within the tsunami zone are considered total. See the tsunami section for additional information.*

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 Yachats may be impacted by the profiled earthquake scenarios (Table YA-5). *Note: Due to the simultaneous nature of a CSZ earthquake and tsunami, loss estimates have been separated in the following tables to avoid double counting. Building*

[11] Ibid, Table A-21.

losses within the tsunami zone are considered total. See the tsunami section for additional information. [12]

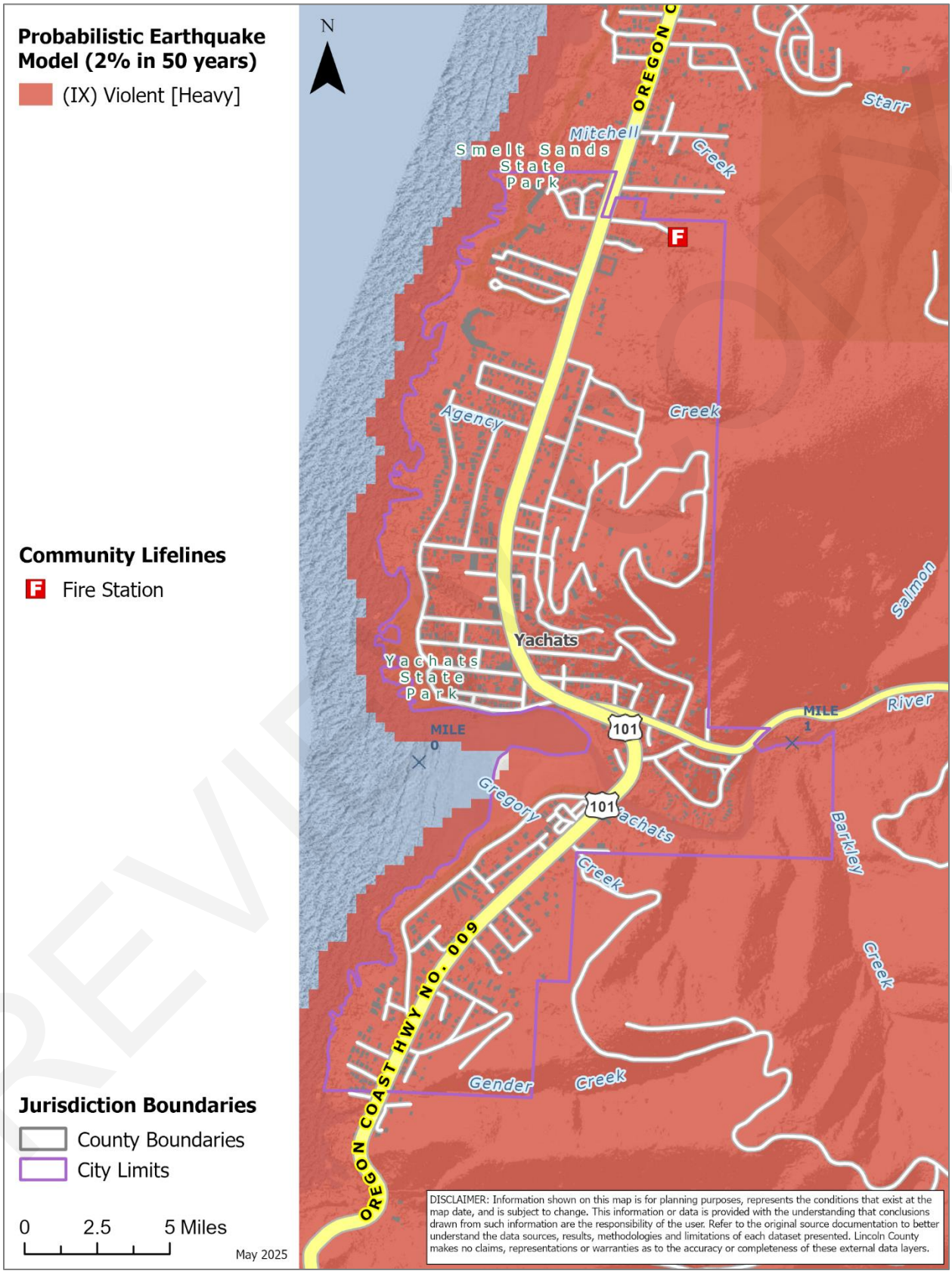
Approximately 19% of the city's population (131 people) may be displaced by a magnitude 9.0 CSZ earthquake and tsunami event. Of those, approximately less than 1% will be impacted by the accompanying tsunami. *Note: The data does not include potentially impacted visitor populations that may be lodging or at a public venue during a CSZ earthquake and tsunami event.* Earthquakes will impact every building in the city, to some degree, by a CSZ magnitude 9.0 earthquake and tsunami. Building damage (loss) estimates are reported for buildings expected to be damaged by the earthquake outside of the tsunami inundation zone (medium-sized). Additional exposure information is provided for buildings within the tsunami inundation zone to obtain the combined total damage (loss) estimate. Buildings reported as "damaged" in the area *outside* the tsunami zone include yellow tagged (extensive, limited habitability) and red tagged (complete, uninhabitable) buildings, while 100% of buildings exposed *inside* the tsunami inundation area are considered "damaged" (complete, uninhabitable). The city has 321 buildings that are expected to be damaged by the CSZ earthquake and tsunami event. The combined (earthquake and tsunami) value of building damage losses are $41.6 million.

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 22% to 16% ($10.5 million decrease in loss) when all buildings are upgraded to at least moderate code level.[13] *Note: earthquake vulnerability retrofit benefits are minimized in areas of liquefaction and landslide where additional geotechnical mitigation would be needed.*

[12] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-20.

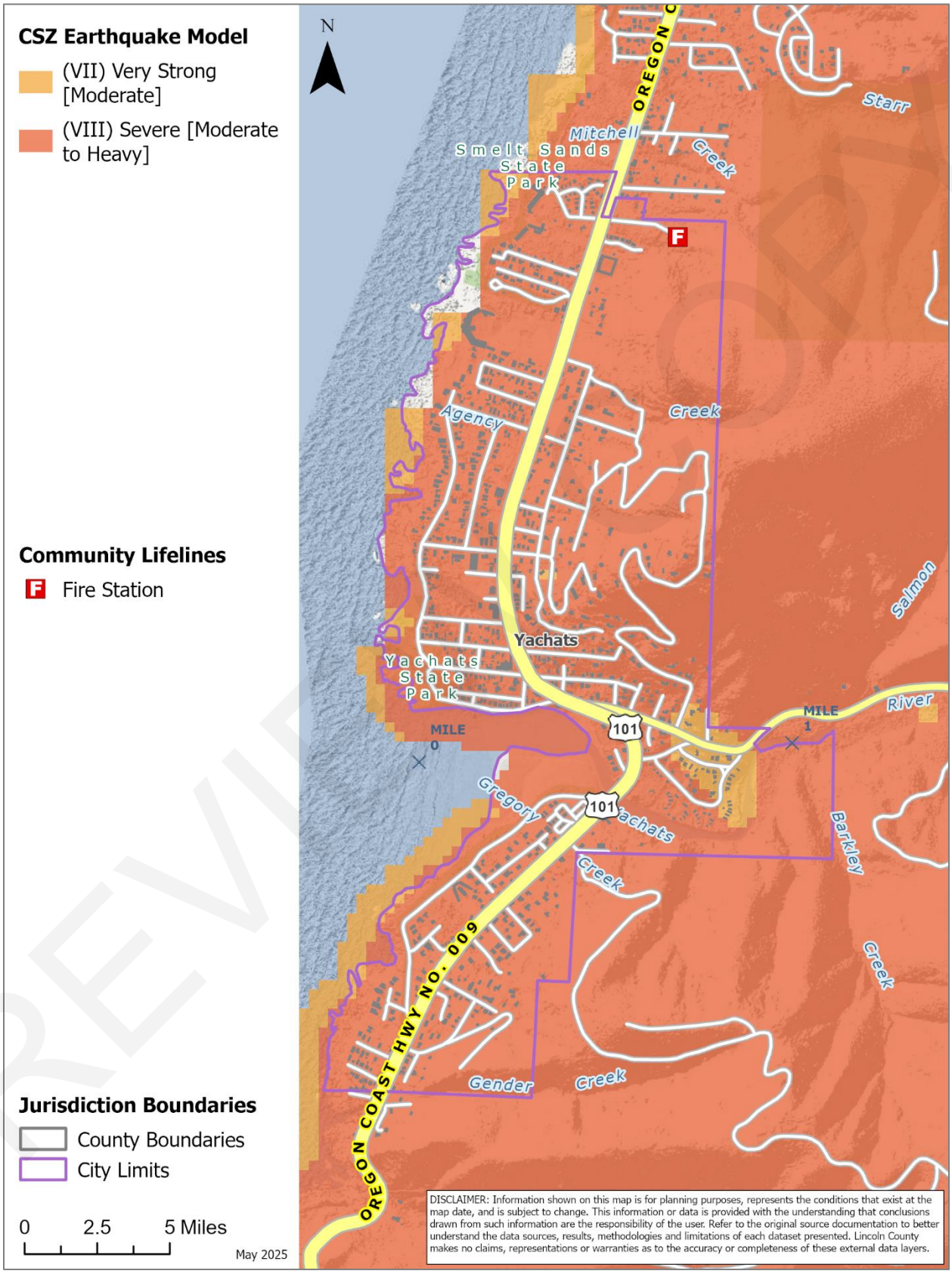
[13] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table B-2.

Map YA-5 Perceived Shaking and Damage Potential, Probabilistic Earthquake Model



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left..

Map YA-6 Perceived Shaking and Damage Potential, CSZ Earthquake Model



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left.

Tsunami

The Steering Committee rated the city's **probability of occurrence for a local tsunami 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 distant tsunami events as "moderate" 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 tsunami hazards, as well as the history, location, extent, and probability of a potential event. 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).[14] Distant tsunamis happen more regularly that CSZ related local tsunamis.

Additional information can be found on the Lincoln County website:
https://www.co.lincoln.or.us/772/Hazards-Tsunamis

It is difficult to predict when the next tsunami will occur. According to the Oregon NHMP the coast has experienced 25 distant tsunamis in the last 145 years with only three causing measurable damage. Thus, the average recurrence interval for tsunamis on the Oregon coast from distant sources would be about six (6) years. However, the time interval between events has been as little as one year and as much as 73 years. Since only a few tsunamis caused measurable damage, a recurrence interval for distant tsunamis does not have much meaning for the city.

A 9.0 magnitude earthquake originating from Japan caused approximately $7.1 million worth of damages along the Oregon Coast. Particularly, there was extensive damage to the Port of Brookings (Curry County; $6.7 million), as well as the Port of Depoe Bay (Lincoln County; $182,000), and Charleston Harbor (Coos County; $200,000); Salmon Harbor on Winchester Bay (Douglas County) and the South Beach Marina in Newport (Lincoln County) were also affected. On March 15, 2011 Governor Kitzhaber declared a State of Emergency was declared by an Executive Order in Curry County. Approximately 40% of all docks at the Port of Brookings were destroyed or rendered unusable (including a dock leased by the U.S. Coast Guard) compromising commercial fishing and U.S. Coast Guard operations. Along the Oregon Coast local official activated the Emergency Alert System and sirens, implemented "reverse 9-1-1" and conducted door-to-door notices to evacuate people form the tsunami inundation zone. Local governments

[14] Oregon Natural Hazard Mitigation Plan. Department of Land Conservation and Development. 2015

activate their Emergency Operations Centers and the state activated its Emergency Coordination Center.

In 1995, the Department of Geology and Mineral Industries (DOGAMI) conducted an analysis resulting in extensive mapping along the Oregon Coast. The maps depict the expected inundation for tsunamis produced by a magnitude 8.8 to 8.9 undersea earthquake. The tsunami maps were produced to help implement Senate Bill 379 (SB 379); digitized in 2014 (O-14-09). SB 379, implemented as Oregon Revised Statutes (ORS) 455.446 and 455.447, and Oregon Administrative Rules (OAR) 632-005, limit construction of new essential facilities and special occupancy structures in tsunami flooding zones. Map YA-7 shows the tsunami inundation indicating that much of the residential development west of Highway 101 is impacted by tsunami inundation. Note: HB 3309 (2019) effective January 1, 2020 repealed the ban on building "new essential facilities, hazardous facilities, major structures, and special occupancy structures" inside the tsunami inundation zone (SB 379 line):[15]

Tsunami inundation maps were created by the Department of Geology and Mineral Industries (DOGAMI) to be used for emergency response planning for coastal communities. Maps were created for local and distant source tsunami events. The local source tsunami inundation maps display the output of computer modeling showing five tsunami event scenarios shown as "T-shirt" sizes S, M, L, XL, and XXL (Map YA-7). The distant source tsunami inundation maps show the potential impacts of tsunamis generated by earthquakes along the "Ring of Fire" (the Circum-Pacific belt, the zone of earthquake activity surrounding the Pacific Ocean). The distant tsunami inundation maps model the 1964 Prince William Sound event (Alaska M9.2 and a hypothetical Alaska Maximum event scenario; only the Alaska Maximum Wet/ Dry Zone is shown within the Oregon Explorer: Map Viewer. Both the local and distant source tsunami inundation maps show simulated wave heights and inundation extents for the various scenarios.

For more information on the regulatory and non-regulatory maps visit the Oregon Tsunami Clearinghouse resource library:

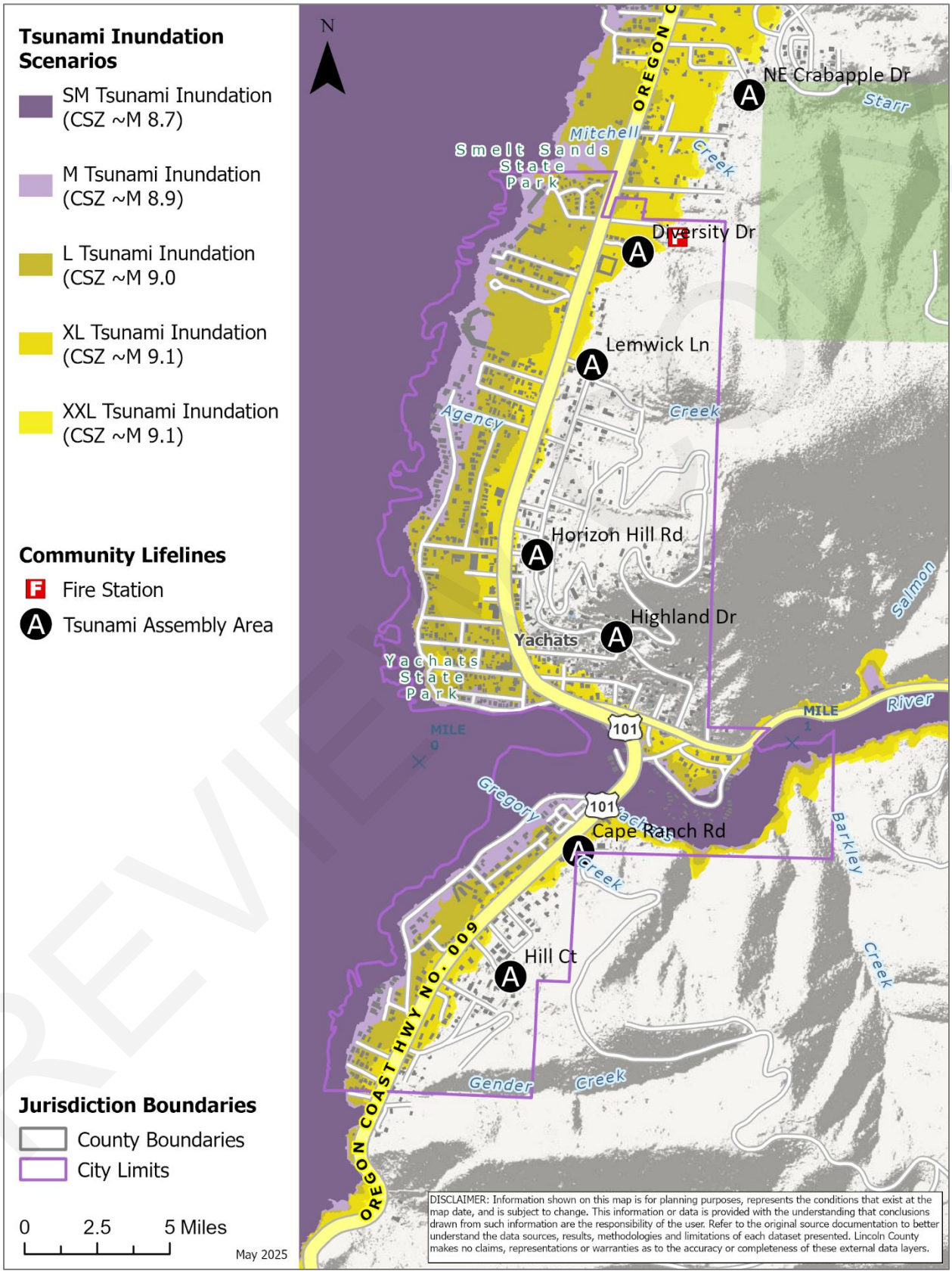
Regulatory (SB 379) - http://www.oregongeology.org/tsuclearinghouse/pubs-regmaps.htm
(Note: HB 3309, effective January 1, 2020, repealed ban on building essential facilities within the tsunami inundation zone, SB 379 line.)

Non-Regulatory Tsunami-Inundation Maps:
http://www.oregongeology.org/tsuclearinghouse/pubs-inumaps.htm

Evacuation maps (brochures) are available for the populated areas of Lincoln County. The Department of Geology and Mineral Industries (DOGAMI) developed the evacuation zones in consultation with local officials; local officials developed the routes that were reviewed by the Oregon Department of Emergency Management (OEM). The maps show the worst-case scenario for a local source and distant source tsunami event and are not intended for land-use planning or engineering purposes.

[15] Oregon Legislature. HB 3309 (2019). https://olis.leg.state.or.us/liz/2019R1/Downloads/MeasureDocument/HB3309

Map YA-7 Tsunami Inundation Scenarios



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left.

For more information on the evacuation brochures visit the Oregon Tsunami Clearinghouse resource library:

http://www.oregongeology.org/tsuclearinghouse/pubs-evacbro.htm

A free application is also available that displays the evacuation routes in coastal areas of Oregon: http://www.nanoos.org/mobile/tsunami_evac_app.php

Vulnerability Assessment

See *Earthquake and tsunami impact analysis for coastal Lincoln County, Oregon* (2021, O-21-02) and *Earthquake and tsunami impact analysis for the Oregon* coast (2025, O-25-01) for additional information.

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.

In 2013, DOGAMI produced new Tsunami Inundation Maps (TIMs) for the entire Oregon coast. The TIMs identify both local and distant Tsunami Inundation Zones (TIZs) by event size. The maps also tabulate the affected buildings located within the local and distant source tsunami inundation zones. The Risk Report section below provides detailed information on the impact to the city from a CSZ earthquake and medium tsunami.

When the tourist population swells, many are spending time at accommodations, facilities, or along the beach/bluff-line in these vulnerable locations. An existing assisted living facility (Sea Aire Assisted Living Facility, 1882 Hwy 101 N) is located on the eastern fringe of the tsunami inundation zone. Additionally, the city water and wastewater treatment plants and city hall are among the buildings within the local source tsunami inundations zone. Severe damage could occur to low-lying areas of the city, including roads, bridges, communication systems, and infrastructure within Yachats, among other assets described in the county's plan. The City of Yachats recognizes the importance of continuing education and outreach, especially to the transient populations (i.e., tourists), and plans to implement greater outreach in the future. The city utilizes a reverse 911 service as the tsunami warning system; rental houses are notified if a land line is present.

As shown in Table YA-3 there are about 23 manufactured housing units (mobile homes) in Yachats. Manufactured homes built prior to 2003 are subject to slipping off their foundations potentially compromising the occupants' ability to exit. The compromised egress may hinder timely evacuation.

Population vulnerability is characterized in terms of exposure, demographic sensitivity, and short-term resilience of at-risk individuals. Nate Wood, et al. (USGS) performed a cluster analysis of the data for coastal communities in the Pacific Northwest to identify the most vulnerable communities in the region.[16] Wood, et al. conducted a comprehensive analysis to derive overall

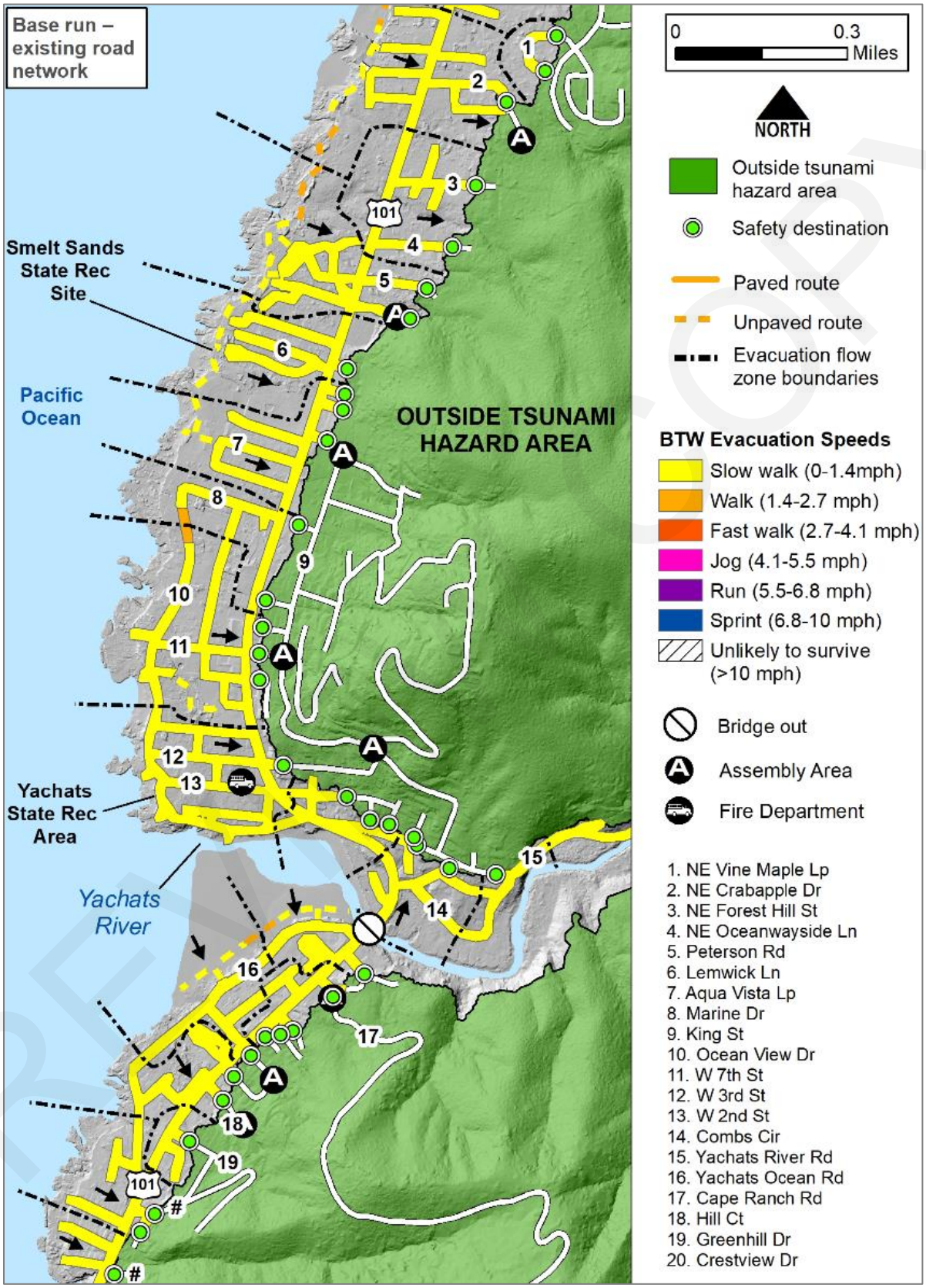
[16] Nathan J. Wood, Jeanne Jones, Seth Spielman, and Mathew C. Schmidtlein. "Community clusters of tsunami vulnerability in the US Pacific Northwest", PNAS 2015 112 (17) 5354-5359.

community clusters based on (1) the number of people and businesses in the tsunami hazard zone, (2) the demographic characteristics of residents in the zone, and (3) the number of people and businesses that may have insufficient time to evacuate based on slow and fast walking speeds. According to the study Lincoln County (including Yachats) has relatively low numbers of "residents, employees, or customer-heavy businesses" inside the tsunami hazard zones and will likely have enough time to reach high ground before a tsunami wave arrives.

In 2019, DOGAMI published a tsunami evacuation analysis using the XXL inundation zone which covers the largest CSZ event likely to occur based on the historical record. [17] Safety is reached when evacuees have reached "high ground", or 20 feet beyond the limit of tsunami inundation. An analysis was conducted for Yachats. According to the model the first waves arrive along the open coast 26 minutes after the start of earthquake shaking with most of Yachats inundated about 4 minutes later. North Yachats from Camp One to Starr Creek Dr is expected to be completely inundated under the XXL tsunami inundation scenario. High ground is generally accessible at a slow walking speed of 2 feet per second (fps) or 1.4 mph. Evacuees closer to the ocean (Ocean View Dr and Yachats Ocean Rd) will need to move faster in order to beat the wave and make it to high ground (Map YA-8). It is expected that the Yachats River Bridge will fail, and that north and south parts of Yachats will be disconnected during a tsunami. Prompt evacuation, knowledge of the route, signage, and alternative route designation due landslide activity is necessary to improve evacuation speeds. For details see *Tsunami evacuation analysis of Lincoln City and unincorporated Lincoln County: Building community resilience on the Oregon coast* (DOGAMI, 2019, O-19-06).

[17] DOGAMI, Open-File Report O-19-06.

Map YA-8 Beat the Wave modeling (CSZ earthquake XXL inundation zone)



Source: DOGAMI, Open-File Report O-19-06.

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 tsunami. The Risk Report provides a distinct profile for Yachats.

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 Yachats may be impacted by the profiled tsunami scenario (Table YA-6).

About 12% the city's population (85 people) may be displaced by a magnitude 9.0 CSZ tsunami event (note there are additional people that will be displaced by the earthquake). This is fewer people than those exposed within the Senate Bill 379 line (215 people). *Note: The data does not include potentially impacted visitor populations that may be lodging or at a public venue during a CSZ earthquake and tsunami event.* Building damage (loss) estimates are reported for buildings expected to be damaged by the tsunami inundation zone (medium-sized and SB 379). All 169 buildings exposed *inside* the tsunami inundation area are considered "damaged" (complete, uninhabitable); the number of buildings damaged is higher under the SB 379 scenario (408 buildings).

Table YA-6 Potentially Displaced Residents and Exposed Buildings, Tsunami

Community Overview: Yachats						
Population		Buildings		Critical Facilities	Total Building Value ($)	
690		1,050		1	160,911,000	
Exposure Analysis: Tsunami CSZ M9.0 (Deterministic) Scenario						
Potentially Displaced Residents		Exposed Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Value ($)	Percent
85	12.3%	169	16.1%	0	37,266,000	23.2%
Exposure Analysis: Tsunami SB 379 Regulatory Line						
215	31.2%	408	38.9%	0	67,112,000	41.7%

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

Critical Facility Vulnerability[18]

There are no critical facilities exposed to the profiled tsunami inundation scenario.

Note 1: Although critical facilities are not exposed to the profiled tsunami scenarios it is expected that bridges in the area may be impassable by vehicles for over 24 months. As such bringing resources into Yachats by sea and air will be necessary.

[18] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-21.

Note 2: The city expects city hall and their water treatment and wastewater treatment plants and systems to be impacted by the M (water treatment plant) and XXL tsunami inundation scenarios (city hall and wastewater treatment plant).

For more information, see the following DOGAMI reports:

- Tsunami evacuation analysis of Yachats and unincorporated Lincoln County: Building community resilience on the Oregon coast (2019, O-19-06)

Earthquake and Tsunami Impact Analysis

DOGAMI developed two Earthquake and Tsunami Impact Analysis for Coastal Lincoln County, Oregon (O-21-02) and Earthquake and Tsunami Impact Analysis for the Oregon Coast (O-25-01) include economic and population impact assessments for the city. The model's results show the following building loss estimates from a Cascadia Subduction Zone (deterministic) magnitude 9.0 earthquake:

Table YA-7 Earthquake and Tsunami Impact Analysis

Resident Population (Total)	819		
Temporary Population (Total)*	2,143		
	M1	L1	XXL1
Earthquake Injuries:	60	60	60
Tsunami injuries (Permanent + Temporary):			
Tsunami fatalities (Permanent):			
Tsunami fatalities (Temporary @ 100% occupancy):			
Displaced population (P):	180	400	590
Displaced population (P+T):	980	1,910	2,380
Numbers of buildings in tsunami zone	171	566	772
Building replacement cost (millions)	$56.4	$124.7	$182.4
Debris weight (tons)	5,698	23,281	47,086

Source: IPRE. Data adapted from DOGAMI, Open-File Report O-25-01, Earthquake and Tsunami Impact Analysis for the Oregon Coast (2025). Note: Estimates of the permanent population in the tsunami inundation zone are derived from U.S. Census data collected in 2020 and ACS data maintained by the U.S. Census Bureau .* - Assumes 100% occupancy of second homes, vacation rentals, condominium units, bed and breakfast facilities, hotels, motels, and campgrounds.

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 Steering Committee rated the city's **probability of occurrence for coastal flood events as "high" and their vulnerability as "moderate"** (which is the same as the County's Rating). *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 coastal and riverine flood 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/757/Hazards-Flooding-River-Levels

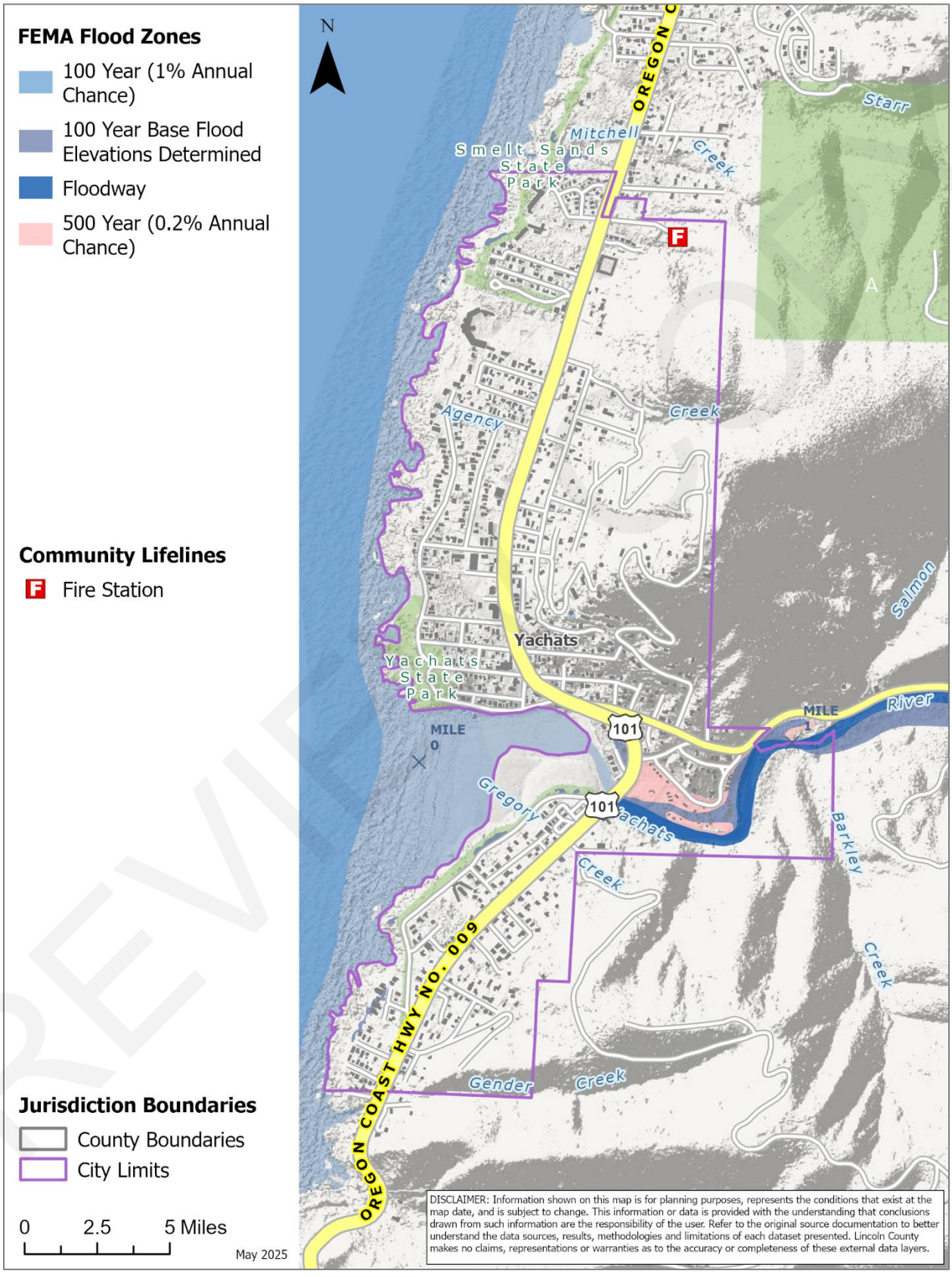
The Yachats River and the Pacific Ocean are the primary sources of flooding– typically due to coastal flood and rain. The extent of flooding varies depending on height of tides, rainfall, and/or precipitation levels throughout the year.

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 YA-9). 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. These maps represent a snapshot in time, and do not account for later changes which occurred in the floodplains. According to Oregon Explorer about 17% of the city is within the 100-year floodplain, and an additional 4% 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. Additionally, coastal flooding is expected to increase due to sea level rise (SLR) and changing wave dynamics. Sea level is projected to rise by 1.7 to 5.7 feet by 2100. Tidal wetlands and estuaries throughout the county are also expected to experience changes to their composition and area, thereby impacting their ability to naturally mitigate flood events.

Map YA-9 Flood Hazard Zones (100- and 500-year floodplains)



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left.

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.

The City of Yachats's Steering Committee notes that a couple of homes along Gender Creek located south of the Yachats River have flooded in recent history, most likely from debris that clogs storm drains (possibly from recent logging activity). The city is currently taking steps to address infrastructural vulnerabilities associated with seasonal flooding and flooding associated with storm drain systems. The city's water intake system was upgraded in such a way that improved maintenance capabilities and will reduce potential flood impacts. The city is reviewing its Storm Water Master Plan to identify a list of projects intended to mitigate localized flooding that's associated with clogged or overloaded drains. Except for some pump stations, there are no critical city facilities located in flood hazard areas. Houses along Bayview Terrace near the bridge, and west of Yachats Ocean Rd, may be more vulnerable to flooding due to low elevation The Yachats Stormwater Master Plan includes additional information on flood impacts to the community and includes additional mitigation actions.

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 Yachats.

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 Yachats may be impacted by the profiled flood scenario (Table YA-8).

Table YA-8 Potentially Displaced Residents and Exposed Buildings, Flood

Community Overview: Yachats						
Population		Buildings		Critical Facilities	Total Building Value ($)	
690		1,050		1	160,911,000	
Exposure Analysis: Flood (1% Annual Chance)						
Potentially Displaced Residents		Damaged Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Loss Estimate ($)	Loss Ratio
13	1.9%	7	0.7%	0	81,000	0.1%

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

Less than two percent (2%) of the city's population (13 people) may be displaced by flooding. These people are expected to have mobility or access issues due to surrounding water. Similarly, less than one percent (1%) of the city's buildings (7 buildings) are exposed to the flood hazard and may be damaged. The loss estimate for exposed buildings is $81,000. No critical facilities are vulnerable to the flood hazard.

Critical Facility Vulnerability[19]

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

[19] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-21.

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 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.

The city has 99 National Flood Insurance Program (NFIP) policies in force, representing almost $34.2 million in coverage. The Community Repetitive Loss record for the city identifies one (1) Repetitive Loss Properties[20] and zero (0) Severe Repetitive Loss Properties[21].

Landslide

The Steering Committee rated the city's **probability of occurrence for landslide events as "high" and their vulnerability as "high"**. *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 Yachats is shown in Map YA-10. Approximately 42% of the city has very high or high, and 25% moderate, landslide susceptibility exposure.[22] *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

[20] 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.

[21] 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.

[22] DOGAMI. Open-File Report, O-16-02, *Landslide Susceptibility Overview Map of Oregon* (2016)

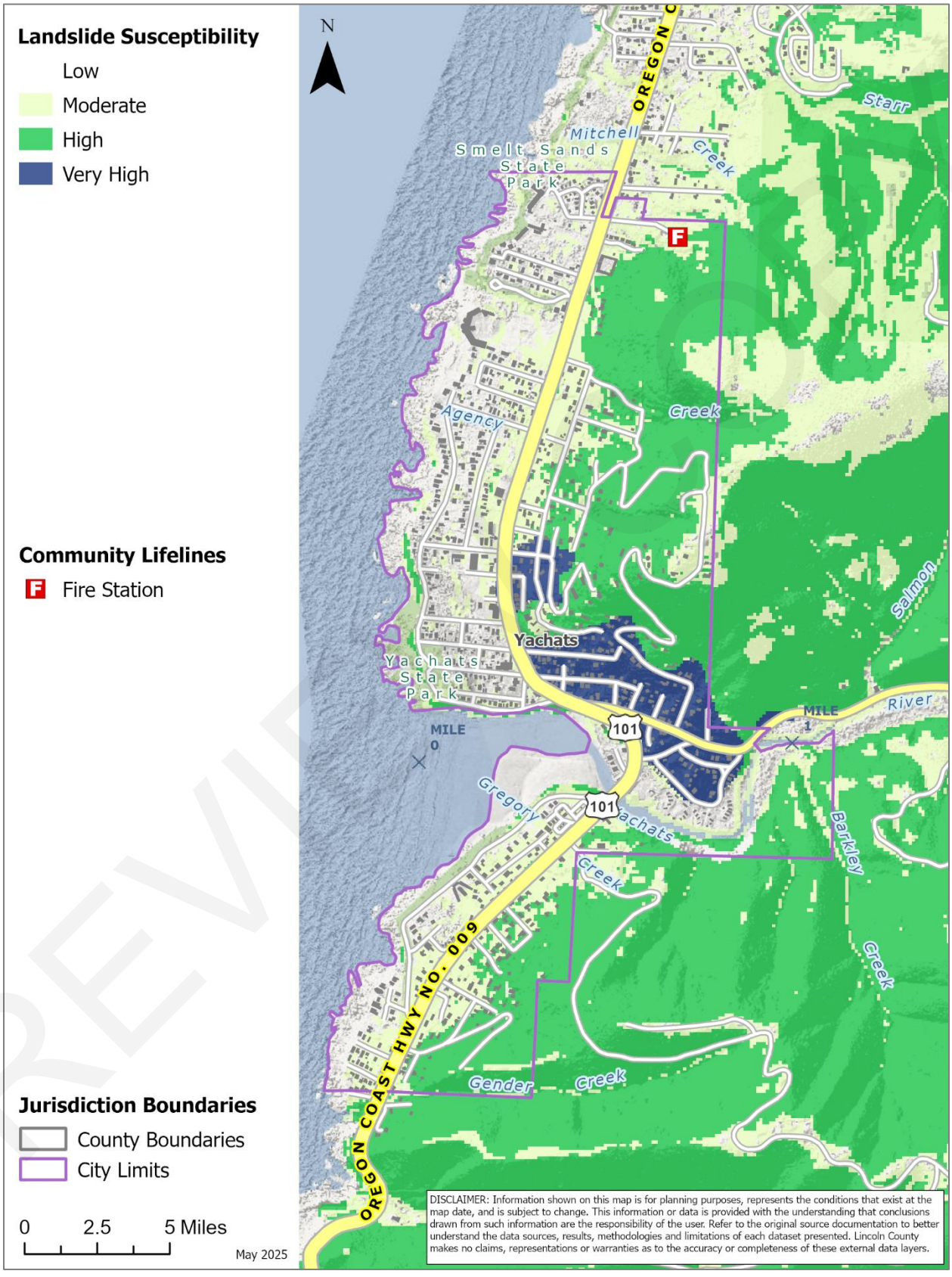
wettest days and the wettest consecutive five days is expected to increase by about 13% (range 4% to 28%) by the 2050s under the higher emissions scenario relative to historical baselines. Landslide risk is not expected to change significantly.

Vulnerability Assessment

Development pressure on steep slopes is an issue that Yachats is facing. Map YA-10 shows that the areas most susceptible to landslide activity are on steep hillsides east of Highway 101 and southeast of the Yachats River. In addition, development and population forecasts are not expected to increase or decrease the impact of this hazard.

Site-specific geotechnical reports are required for development on steep hillsides, and city approval is also required for road construction and utility installation serving development on steep hillsides. 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, Yachats is vulnerable to isolation for an extended period.

Map YA-10 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 Yachats.

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 YA-9).

Approximately 33% of the city's population (225 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 31% of all buildings (322 buildings) within the city are exposed to the High or Very High landslide susceptibility zones (Table YA-9). The value of exposed buildings is just over $49 million (about 31% of total building value).

Table YA-9 Potentially Displaced Residents and Exposed Buildings, Landslide

Community Overview: Yachats						
Population		Buildings		Critical Facilities	Total Building Value ($)	
690		1,050		1	160,911,000	
Exposure Analysis: Landslide High & Very High Susceptibility						
Potentially Displaced Residents		Exposed Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Value ($)	Percent
225	32.6%	322	30.7%	0	49,175,000	30.6%

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

Critical Facility Vulnerability[23]

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

[23] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-21.

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.[24] 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.[25] 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.

Additional information can be found on the Lincoln County website:
https://www.co.lincoln.or.us/765/Hazards-Severe-Weather

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.[26]

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 city experiences milder temperatures compared to inland areas, as such, extreme heat is not considered to be a hazard within the community.

[24] US Department of Agriculture. http://www.fsa.usda.gov/or/Notice/Flp104.pdf.

[25] Interagency Hazard Mitigation Team. 2000. State Hazard Mitigation Plan. Salem, OR: Oregon Office of Emergency Management.

[26] Oregon Climate Change Research Institute http://occri.net/wp-content/uploads/2011/04/chapter9ocar.pdf Page 412.

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 "high" 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 Yachats, power outages are the greatest concern during windstorms. Building codes require new developments to place power lines below ground. Without power, communication is lost, and fuel and food stores shut down. 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. The county's plan adequately identifies the remaining impacts and damages that can occur with windstorm events.

Winter Storm (Snow/ Ice)

The Steering Committee rated the city's **probability of occurrence for winter storm events as "high" and their vulnerability as "high"**. *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 can and have occurred in the Yachats area, and while they typically do not cause significant damage; they are frequent and have the potential to impact economic activity. Road closures on Highway 101, or the passes to the Willamette Valley (Hwy 126, 34, 20, and 18), 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 Yachats 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. Yachats 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 "high" and their vulnerability as "moderate"**. *These ratings have not changed 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. The burn probability and wildfire history

(1992-2022) for the city is shown in Map YA-11. Most of the city has "very low" to "low" burn probability. Resource lands that are actively managed for forest uses surround the City of Yachats. Weather conditions are primarily at cause for the hazard level, the steering committee noted that the current drought conditions have heightened fire conditions in the area and likely have increased the probability of a wildfire occurrence. Due to the prevailing wind patterns (i.e., from the north or south), the city's steering committee felt that the east end of the city might be the most vulnerable. Power, natural gas, and phone lines run through the forest to the east of the city and would be affected in the event of a wildfire. Likewise, active commercial logging occurs just outside the city, and slash burns are a potential wildfire concern.

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 YA-12).[27] 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.

Overall, the city, and its watershed, has low to moderate overall wildfire risk, however, the forested areas have the potential for large wildfires and a wildfire within the watershed could impact the city's water supply and quality. Commercial forestry and harvesting activities increase the potential for wildfires. In addition, development on the ridgeline along the eastern boundary of the city has increased over the last few years, making this urban/rural interface more vulnerable to wildfires.

Property can be damaged or destroyed with one fire as structures, vegetation, and other flammables easily merge to become unpredictable, and hard to manage. Other factors that affect ability to effectively respond to a wildfire include access to the location, and to water,

[27] Full documentation of methods for the 2023 update to the Pacific Northwest QWRA can be found here: https://oe.oregonexplorer.info/externalcontent/wildfire/PNW_QWRA_2023Methods.pdf

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 Yachats.

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 YA-10).

Table YA-10 Potentially Displaced Residents and Exposed Buildings, Wildfire

Community Overview: Yachats						
Population		Buildings		Critical Facilities	Total Building Value ($)	
690		1,050		1	160,911,000	
Exposure Analysis: Wildfire High-Hazard						
Potentially Displaced Residents		Exposed Buildings			Exposed Building Value	
Number	Percent	Number	Percent	Critical Facilities	Value ($)	Percent
0	0.0%	0	0.0%	0	0	0.0%

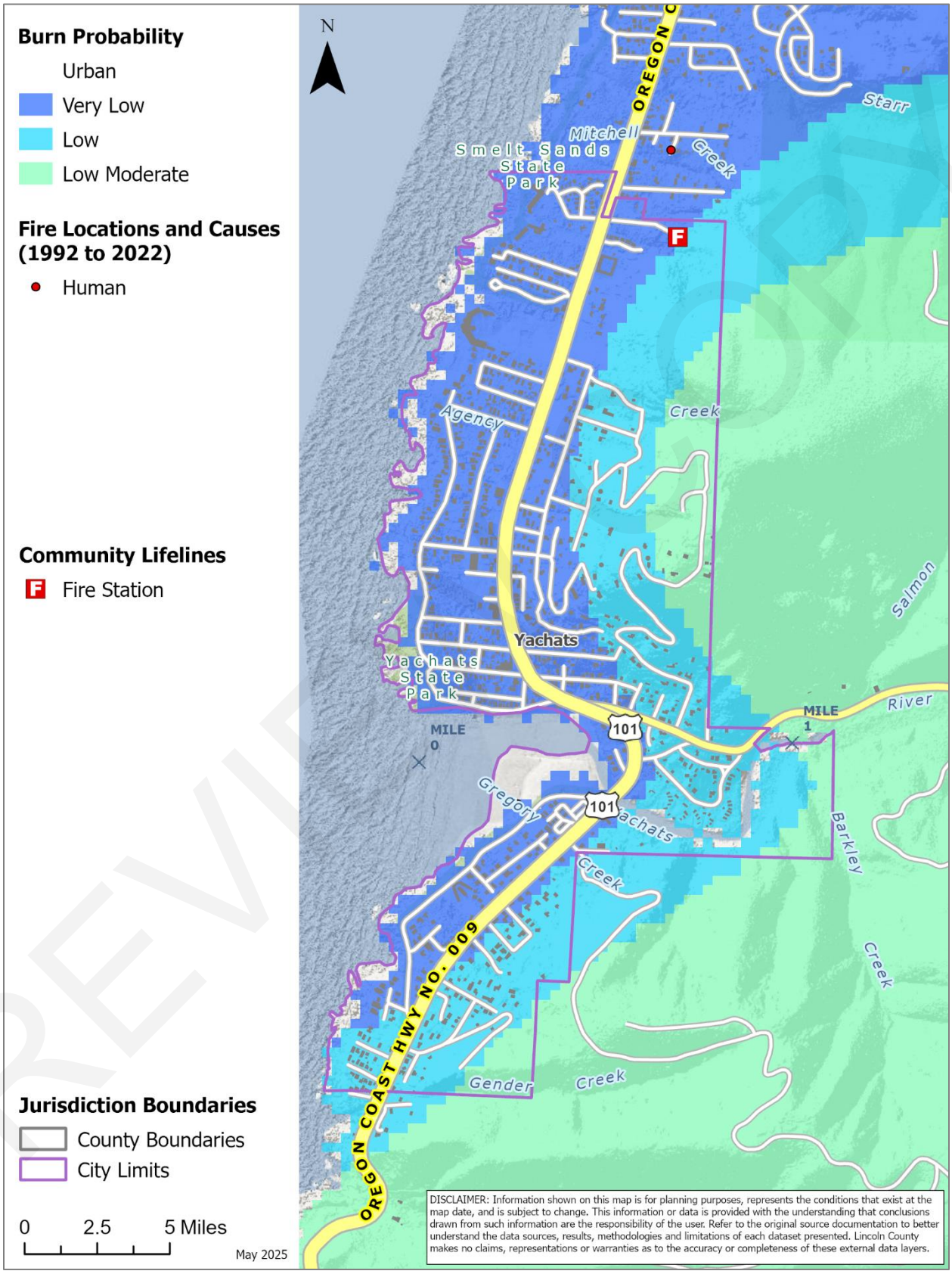
Source: IPRE. Data adapted from DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-20. Note: City population based on the 2010 Census population.

Critical Facility Vulnerability[28]

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

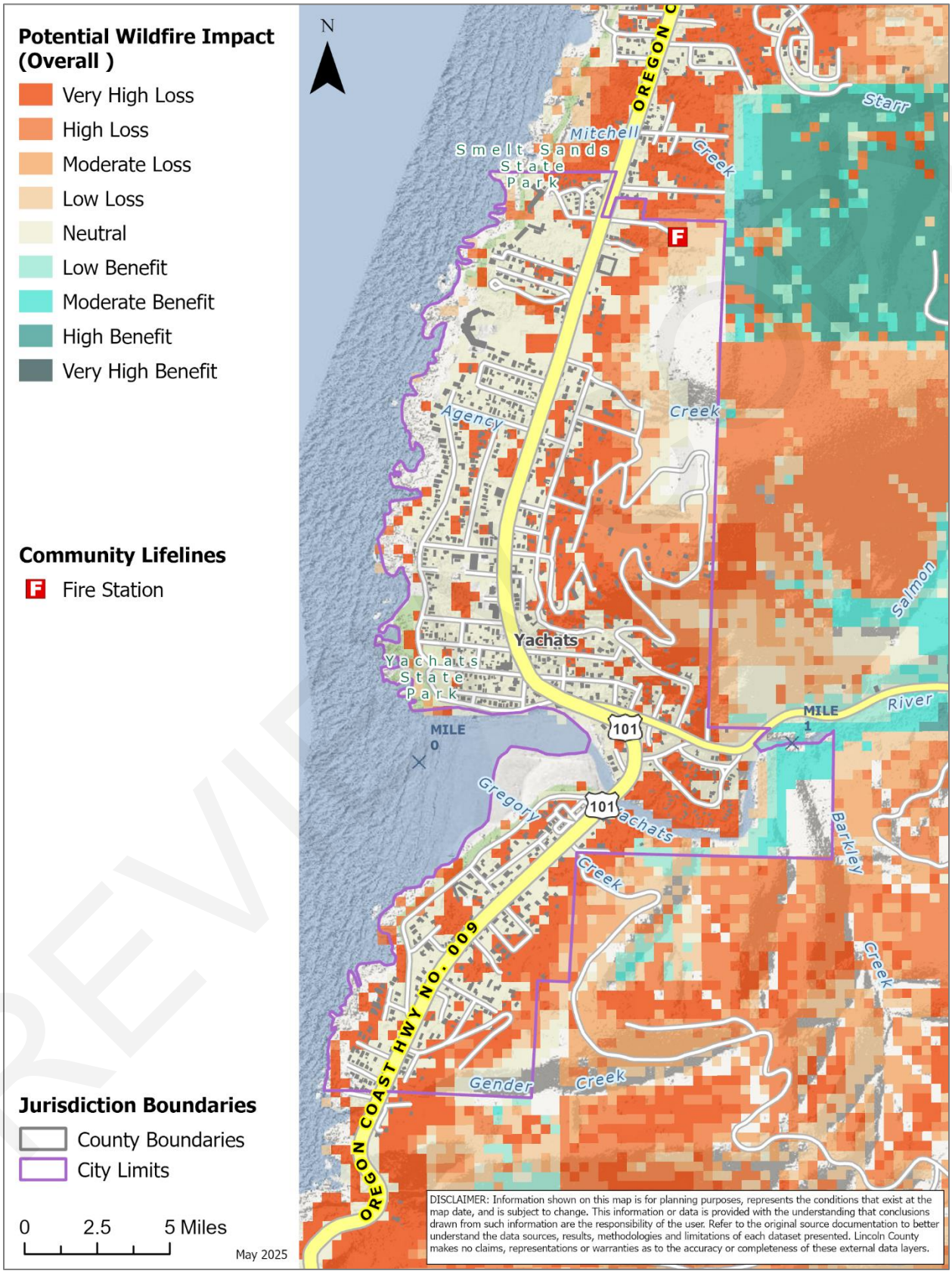
[28] DOGAMI, Open-File Report O-20-11, Lincoln County Natural Hazard Risk Report (2020), Table A-21.

Map YA-11 Burn Probability and Fire History (1992-2022)



Source: Oregon Explorer: Map Viewer – To view map detail click hyperlink to left.

Map YA-12 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 YA-11 is an accounting of the status (complete or not complete) and major changes to actions since the previous NHMP. All actions were renumbered in this update to be consistent with other jurisdictions that are participating in the multi-jurisdictional NHMP. Actions identified as still relevant are included in the updated action plan (Table YA-1).

Previous NHMP Actions that are Complete:
Yachats #11: *Research drought resiliency code amendments (Gray water systems, green infrastructure, etc.). Consider drafting a drought resiliency ordinance.* Have contract partnership with neighboring Water District (South Lincoln WD), have drought resiliency code, added secondary source.

Previous NHMP Actions that are Not Complete and No Longer Relevant:
None

Table YA-11 Status of All Hazard Mitigation Actions in the Previous Plan

2020 Action Item	2025 Action Item	Status	Still Relevant? (Yes/No)
Yachats #1	Yachats #1	Not complete	Yes
Yachats #2	Yachats #2	Not complete	Yes
Yachats #3	Yachats #3	Not complete	Yes
Yachats #4	Yachats #4	Not complete	Yes
Yachats #5	Yachats #5	Not complete	Yes
Yachats #6	Yachats #6	Not complete	Yes
Yachats #7	Yachats #7	Not complete	Yes
Yachats #8	Yachats #8	Not complete	Yes
Yachats #9	Yachats #9	Not complete	Yes
Yachats #10	Yachats #10	Not complete	Yes
Yachats #11	-	Complete	-
Yachats #12	Yachats #11	New	-
Yachats #13	Yachats #12	New	-
-	Yachats #13	New	-
-	Yachats #14	New	-

Attachment B: Public Involvement Summary

Members of the Steering Committee provided edits and updates to the NHMP prior to the public review period as reflected in the final document. In addition, a 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.

A diverse array of agencies and organizations were provided an opportunity to provide input to inform the plan's content through a variety of mechanisms including the opportunity for comment on the draft plan. The agencies and organizations represent local and regional agencies involved in hazard mitigation activities, those that have the authority to regulate development, neighboring communities, representatives of businesses, academia, and other private organizations, and representatives of nonprofit organizations, including community-based organizations, that work directly with and/or provide support to underserved communities and socially vulnerable populations. For more information on the engagement strategy 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, Bobbi Price, City Manager