

City of Newberg Addendum to the Yamhill County Multi-Jurisdictional Hazard Mitigation Plan



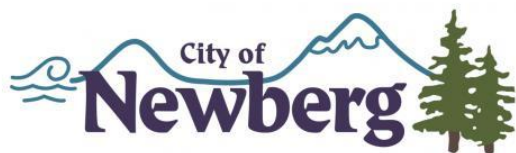
June 2020

Volume II: Newberg Addendum

Prepared for:

City of Newberg

Prepared by:



University of Oregon
Institute for Policy Research and Engagement
Oregon Partnership for Disaster Resilience

Planning grant funding provided by:



FEMA

Federal Emergency Management Agency (FEMA)

Pre-Disaster Mitigation Program

Grant: HMGP-DR4328-5-P-OR

Disaster Award Number: 97.039

and

Additional Support Provided by:



*This material is a result of tax-supported research and, as such, is not copyrightable.
It may be freely reprinted with the customary crediting of the source.*

TABLE OF CONTENTS

Purpose, Mission, and Goals	1
Process and Participation.....	3
Implementation and Maintenance	4
Mitigation Strategy	7
Risk Assessment	
Hazard Analysis	15
Community Characteristics.....	17
Community Assets.....	19
Hazard Characteristics	25
Drought.....	25
Earthquake (Cascadia Subduction Zone).....	26
Earthquake (Crustal)	28
Flood	31
Landslide	34
Severe Weather	36
Volcanic Event.....	37
Wildfire	38
Attachment A: Action Item Forms.....	41
Attachment B: Public Involvement Summary	49

List of Tables

Table NA-1 Newberg Action Items	9
Table NA-2 Hazard Analysis Matrix	16
Table NA-3 Probability and Vulnerability Comparison	16
Table NA-4 Community Characteristics.....	18
Table NA-5 Critical and Essential Facilities	20
Table NA-6 Rapid Visual Survey Scores	30
Table NA-7 Flood Insurance Detail	33

List of Figures

Figure NA-1 Understanding Risk	15
Figure NA-2 Oregon Transportation Map: City of Newberg	19
Figure NA-3 Oregon Bridges and Structurally Deficient Bridges.....	23
Figure NA-3 Cascadia Subduction Zone Expected Shaking	27
Figure NA-4 Active Crustal Faults, Epicenters (1971-2008), and Soft Soils.....	29
Figure NA-5 Special Flood Hazard Area	32
Figure NA-6 Landslide Susceptibility Exposure	35
Figure NA-7 Overall Wildfire Risk	39

Purpose

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

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

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

Newberg adopted their addendum to the Yamhill County Multi-jurisdictional NHMP on [Date, 2020]. FEMA Region X approved the Yamhill County NHMP on [Date, 2020] and the City's addendum on [Date, 2020]. With approval of this NHMP the City is now eligible to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's hazard mitigation project grants through [Date, 2025].

Mitigation Plan Mission

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

The City concurs with the mission statement developed during the Yamhill County planning process (Volume I, Section 3):

To promote public policy and mitigation activities which will enhance the safety to life and property from natural hazards.

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

Mitigation Plan Goals

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

The City concurs with the goals developed during the Yamhill County planning process (Volume I, Section 3). All NHMP goals are important and are listed below in no order of priority. Establishing community priorities within action items neither negates nor eliminates any goals, but it establishes which action items to consider implementing first, should funding become available.

Below is a list of the NHMP goals:

GOAL 1: EMERGENCY OPERATIONS

- Coordinate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures and with other agencies.

GOAL 2: EDUCATION AND OUTREACH

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.

GOAL 3: PARTNERSHIPS

- Develop effective partnerships with public and private sector organizations and significant agencies and businesses for future natural hazard mitigation efforts.
- Coordinate natural hazard mitigation actions between the County and local jurisdictions to create more cohesive and effective hazard mitigation efforts.

GOAL 4: PREVENTIVE

- Develop and implement activities to protect human life, commerce, and property from natural hazards.
- Reduce losses and repetitive damage for chronic hazard events while promoting insurance coverage for catastrophic hazards.

GOAL 5: NATURAL RESOURCES UTILIZATION

- Link natural resources management, land use planning, and watershed planning with natural hazard mitigation activities to protect natural systems and allow them to serve natural hazard mitigation functions.

GOAL 6: IMPLEMENTATION

- Implement strategies to mitigate the effects of natural hazards and increase the quality of life and resilience of economies in Yamhill County.

GOAL 7: DEVELOPMENT

- Communities appropriately apply development standards that consider the potential impacts of natural hazards.

GOAL 8: DOCUMENTATION

- Document and evaluate progress in achieving hazard mitigation strategies and action items.

Process and Participation

This section of the NHMP addendum addresses 44 CFR 201.6(a)(3), *Participation*.

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 Office of Emergency Management (OEM), Yamhill County, and Newberg to update their NHMP. This project is funded through the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program for DR-4328 (HMGP-DR-4328-OR-5-P). Members of the Newberg NHMP Steering committee also participated in the County NHMP update process (Volume III, Appendix B).

The Yamhill County NHMP, and Newberg addendum, are the result of a collaborative effort between citizens, public agencies, non-profit organizations, the private sector, and regional organizations. The Newberg NHMP Steering Committee guided the process of developing the NHMP.

Convener and Committee

The Newberg Public Works Director served as the NHMP addendum convener for the 2019-2020 update. The City Manager will be the convener for plan implementation, maintenance, and future updates. The convener of the NHMP will take the lead in implementing, maintaining, and updating the addendum to the Yamhill County NHMP in collaboration with the designated convener of the Yamhill County NHMP (Yamhill County Emergency Manager).

Representatives from the City of Newberg 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 NHMP's risk assessment, and mitigation strategy (action items).

This addendum reflects decisions made at the designated meetings, and during subsequent work, and communication with Yamhill County Emergency Manager, and OPDR. The changes are highlighted with more detail throughout this document, and within Volume III, Appendix B. Other documented changes include a revision of the City's risk assessment, and hazard identification sections, action items, and community profile.

The Newberg steering committee was comprised of the following representatives:

- Convener, Jay Harris, Public Works Director (*former*)
- Karen Tarmichael, Project Specialist
- Dan Weinheimer, City Manager

Public Participation

Public participation was achieved by posting the NHMP publicly and providing community members the opportunity to make comments and suggestions during the review process. Community members were also provided an opportunity for comment via a survey administered by IPRE (Volume III, Appendix F). During the City public review period (Attachment B) there were **no** comments provided.

Implementation and Maintenance

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

- Reviewing existing action items to determine suitability of funding;
- Reviewing existing, and new risk assessment data to identify issues that may not have been identified at NHMP creation;
- Educating, and training new steering committee members on the NHMP, and mitigation actions in general;
- Assisting in the development of funding proposals for priority action items;
- Discussing methods for continued public involvement; and
- Documenting successes, and lessons learned during the year.

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

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

Implementation through Existing Programs

This NHMP is strategic and non-regulatory in nature, meaning that it does not necessarily set forth any new policy. It does, however, provide: (1) a foundation for coordination and collaboration among agencies and the public in the city; (2) identification and prioritization of future mitigation activities; and (3) aid in meeting federal planning requirements and qualifying for assistance programs. The mitigation plan works in conjunction with other city plans and programs including the Comprehensive Land Use Plan, Capital Improvements Plan, and Building Codes, as well as the [Yamhill County NHMP](#), and the [State of Oregon NHMP](#).

The mitigation actions described herein (and priority actions in Attachment A) are intended to be implemented through existing plans and programs within the city. Plans and policies already in existence have support from residents, businesses and policy makers. Where possible, Newberg will implement the NHMP's recommended actions through existing plans

and policies. Many land-use, comprehensive and strategic plans get updated regularly, allowing them to adapt to changing conditions and needs. Implementing the NHMP's action items through such plans and policies increases their likelihood of being supported and implemented. Implementation opportunities are further defined in action items when applicable.

Future development without proper planning may result in worsening problems associated with natural hazards. Newberg's acknowledged comprehensive plan is the City of Newberg Comprehensive Plan. The City implements the plan through the Community Development Code.

Newberg currently has the following plans that relate to natural hazard mitigation. For a complete list visit the City's [website](#):

- [Comprehensive Plan](#) (1979, amended 2018)
- [Newberg Community Development Code, and City Code \(revised February 2020\)](#)
 - Chapter 8.20 Obnoxious Vegetation/Fire Hazard
 - Chapter 13 Public Utilities and Services
 - Chapter 15 Development Code
 - Chapter 15.342 Stream Corridor Overlay District
 - Chapter 15.343 Areas of Special Flood Hazard Area
 - Chapter 15.430 Underground Utility Installation
- Building Code, [2017 Oregon State Building Code](#) based on 2015 International Residential Code (IRC), and 2012 International Building Code (*to be updated to the 2020 Oregon State Building Code, anticipated October 2020*)
- [Emergency Operations Plan](#) (updated 2013)
- [2036 Transportation System Plan](#) (2016)

Other plans:

- [Yamhill County Community Wildfire Protection Plan](#) (2009, revised Nov. 2015)
- [TVF&R Strategic Plan](#) (2018)

Government Structure

The Newberg City Charter establishes a Mayor-Council-Manager form of government, which vests policy authority in a volunteer City Council, and administrative authority for day-to-day operations in an appointed, professional City Manager. The Newberg City Council consists of a Mayor and six Councilors who serve four-year terms. At least three Council positions are up for election every two years. Councilors are elected at-large. The three candidates who receive the highest number of votes are elected to the vacant seats. The Council meets at least once per month at City Hall. The agenda of each meeting includes time for citizen comment.

The City of Newberg currently has the following departments which have a role in natural hazard mitigation:

Fire protection is provided by Tualatin Valley Fire & Rescue which includes emergency response to more than 530,446 residents in several cities and unincorporated areas of Yamhill, Multnomah, Clackamas, and Washington counties. Emergency services include fire suppression, emergency medical response, hospital ambulance transportation, water and

dive rescue operations, hazardous materials incidents, and disaster response. Non-emergency services include fire prevention and inspection services, code enforcement, public safety education services/CPR training, fire extinguisher use, residential safety surveys, home fire escape planning, emergency and disaster preparedness planning and training for citizens (CERT), and fire and life safety education in Newberg schools.

Public Works provides many of the basic urban services to the citizens of Newberg, including water, sanitary sewer, and storm drainage systems, and their maintenance and repair. The Department is divided into three divisions: Maintenance, Operations, and Engineering.

Community Development includes Building and Planning divisions. The Planning division is responsible for all long range and current planning for new development, as well as the City's natural resource, geologic hazard and floodplain overlay zones. It is also responsible for implementation of the Comprehensive Plan. The Building division is responsible for plan review and inspections on commercial, industrial and residential developments, as well as fire life and safety plan review.

Police is a full-service law enforcement organization dedicated to the citizens of the City of Newberg and the City of Dundee. The Department is made up sworn officers and non-sworn personnel.

Emergency Management coordinates emergency preparedness, mitigation, response and recovery efforts for Newberg during emergencies, disasters, or disruptions.

Continued Public Participation

An open public involvement process is essential to the development of an effective NHMP. To develop a comprehensive approach to reducing the effects of natural disasters, the planning process shall include opportunities for the public, neighboring communities, local, and regional agencies, as well as, private, and non-profit entities to comment on the NHMP during review.¹ Keeping the public informed of efforts to reduce its risk to future natural hazard events is important for successful NHMP implementation, and maintenance. As such, the City is committed to involving the public in the NHMP review and update process (Volume I, Section 4). The City posted the plan update for public comment before FEMA approval, and after approval will maintain the plan on the City's website: <https://www.newbergoregon.gov/citymanager/page/about-emergency-management>.

NHMP Maintenance

The Yamhill County NHMP, and City addendum will be updated every five years in accordance with the update schedule outlined in the Disaster Mitigation Act of 2000. During the County NHMP update process, the City will also review, and update its addendum (Volume I, Section 4). The convener will be responsible for convening the steering committee to address the questions outlined below.

- Are there new partners that should be brought to the table?

¹ Code of Federal Regulations, Chapter 44. Section 201.6, subsection (b). 2015

- Are there new local, regional, state or federal policies influencing natural hazards that should be addressed?
- Has the community successfully implemented any mitigation activities since the NHMP was last updated?
- Have new issues or problems related to hazards been identified in the community?
- Are the actions still appropriate given current resources?
- Have there been any changes in development patterns that could influence the effects of hazards?
- Have there been any significant changes in the community's demographics that could influence the effects of hazards?
- Are there new studies or data available that would enhance the risk assessment?
- Has the community been affected by any disasters? Did the NHMP accurately address the impacts of this event?

These questions will help the steering committee determine what components of the mitigation plan need updating. The steering committee will be responsible for updating any deficiencies found in the NHMP.

Mitigation Strategy

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

The City's mitigation strategy (action items) were first developed during the 2009 NHMP planning process and revised during subsequent NHMP updates. During these processes, the steering committee assessed the City's risk, identified potential issues, and developed a mitigation strategy (action items).

During the 2019-2020 update process the City re-evaluated their mitigation strategy (action items). During this process action items were updated, noting what accomplishments had been made, and whether the actions were still relevant; any new action items were identified at this time (see Volume III, Appendix B for more information on changes to action items).

Priority Action Items

Table NA-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 in **bold** text with grey 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. Refer to Attachment A for detailed information for each high priority action. Full text of the plan goals referenced in Table NA-1 is located on page NA-2.

This page intentionally left blank.

Table NA-I Newberg Action Items

Natural Hazard Action ID	Action Item	Coordinating Organization (Lead)	Partners	Potential Funding	Cost	Timing	Plan Goals Addressed							
							Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
Multi-Hazard Actions														
Multi-Hazard #1	Develop, enhance, and implement public education and information materials concerning mitigation, preparedness and safety procedures for identified natural hazards.	TVF&R, Emergency Management	Public Works	General fund, grants	L	Ongoing	✓	✓	✓			✓		✓
Multi-Hazard #2	Integrate the Mitigation Plan findings into planning & regulatory documents & programs and into enhanced emergency planning.	Planning	Emergency Management	General fund, utility rates	L	Short	✓			✓	✓	✓	✓	✓
Multi-Hazard #3	Develop early warning test program: partnering with NOAA, city police, fire department to coordinate test.	Emergency Management	TVF&R, Police, 911	General fund	L	Short	✓		✓	✓		✓		✓
Multi-Hazard #4	Review ordinances and develop outreach programs to assure mobile homes and manufactured buildings are protected from natural hazards. (Anchoring, elevation, and other methods as applicable)	Community Development	Administration	General Fund, DLCD TA	L	Medium					✓	✓	✓	✓
Multi-Hazard #5	Develop critical facility list needing emergency back-up power systems, prioritize, seek funding and implement mitigation actions.	Emergency Management	Community Development	General Fund, HMA	M	Short	✓		✓			✓	✓	✓
Multi-Hazard #6	Purchase and install generators with main power distribution disconnect switches for identified and	Emergency Management	Community Development	General Fund, HMA	M	Medium	✓		✓	✓		✓		✓

Natural Hazard Action ID	Action Item	Coordinating Organization (Lead)	Partners	Potential Funding	Cost	Timing	Plan Goals Addressed							
							Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
	prioritized critical facilities susceptible to short term power disruption. (i.e. first responder and medical facilities, schools, correctional facilities, and water and sewage pump stations, etc.)													
Multi-Hazard #7	Improve vegetation management throughout the city.	Community Development	Public Works	General fund, utilities	L	Ongoing		✓	✓	✓	✓	✓		✓
Multi-Hazard #8	Encourage utility companies to evaluate and harden vulnerable infrastructure elements for sustainability.	Emergency Management	Community Development, Public Works	General fund, utilities	L	Ongoing	✓		✓	✓		✓		✓

Drought Actions

No actions identified at this time

Earthquake Actions

Earthquake #1	Conduct seismic strength evaluations of critical facilities and infrastructure to identify vulnerabilities and seismically retrofit (structural and nonstructural) identified critical facilities and infrastructure to meet life safety standards in order to continue operations post-earthquake.	Emergency Management	Administration , Community Development, Public Works, TVF&R, Police	General funds, utility fees, grants (SRGP, HMA)	H	Long		✓	✓	✓		✓	✓	✓
---------------	---	----------------------	---	---	---	------	--	---	---	---	--	---	---	---

Natural Hazard Action ID	Action Item	Coordinating Organization (Lead)	Partners	Potential Funding	Cost	Timing	Plan Goals Addressed							
							Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
Flood Actions														
Flood #1	Ensure continued compliance in the National Flood Insurance Program (NFIP) through enforcement of local floodplain management ordinances.	Community Development	Emergency Management; Public Works	General fund	L	Ongoing	✓	✓	✓	✓	✓	✓	✓	✓
Flood #2	Coordinate with Yamhill County, DOGAMI, and DLCD to enhance data and mapping of floodplain data in the county. Identify and map flood-prone areas outside of designated floodplains. (Attempted in 2019, not funded)	Emergency Management	Community Development	General fund, HMA, Risk MAP	M	Long	✓		✓	✓		✓		✓
Flood #3	Perform hydrologic and hydraulic engineering, and drainage studies and analyses	Public Works	Community Development	General fund	M	Long	✓		✓	✓		✓		✓
Flood #4	Develop and maintain GIS mapped critical facility inventory for all structures and residential and commercial buildings located within 100-year and 500-year floodplains.	Community Development	Public Works, Emergency Management	General fund	L	Short	✓		✓	✓		✓		✓
Flood #5	Acquire, relocate, elevate, or otherwise flood-proof critical facilities.	Administration	Community Development, Public Works, Police, TVF&R	General fund, HMA	H	Long		✓	✓			✓		✓
Flood #6	Secure a redundant water supply to supply one day of wintertime average water demand. Preferred locations are north of the Willamette River.	Public Works	Community Development, Administration	General fund, utility fees, grants	H	Long			✓	✓		✓		✓

Natural Hazard Action ID	Action Item	Coordinating Organization (Lead)	Partners	Potential Funding	Cost	Timing	Plan Goals Addressed							
							Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
Landslide Actions														
Landslide #1	Use DOGAMI landslide risk maps to improve public knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas in the city.	Emergency Management	DOGAMI	General fund	M	Short	✓	✓	✓			✓		✓
Severe Weather Actions (Windstorm and Winter Storms – Snow/Ice)														
Severe Weather #1	Develop, implement, and maintain partnership program with electrical utilities to use underground utility placement methods where possible to reduce or eliminate power outages from severe winter storms. Consider developing incentive programs. Develop and implement tree clearing mitigation programs to keep trees from threatening lives, property, and public infrastructure from severe weather events.	Public Works	Community Development	General fund, utility fees, grants	H	Ongoing		✓	✓	✓		✓		✓
Severe Weather #2	Review critical facilities and government building energy efficiency, winter readiness, and electrical protection capability. Identify, prioritize, and implement infrastructure upgrades (e.g., undergrounding, etc.)	Emergency Management	Public Works, Community Development, Administration	General fund, grants	H	Medium		✓		✓		✓		✓

Natural Hazard Action ID	Action Item	Coordinating Organization (Lead)	Partners	Potential Funding	Cost	Timing	Plan Goals Addressed							
							Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
Volcanic Event Actions														
Volcanic Event #1	Evaluate ash impact on stormwater drainage system and develop mitigation actions.	Public Works	Community Development	General fund	L	Long				✓	✓	✓		✓
Wildfire Actions														
Wildfire #1	Coordinate wildfire mitigation action items through the Yamhill County Community Wildfire Protection Plan.	TVF&R	Community Development	General fund	L	Ongoing	✓	✓	✓	✓	✓	✓	✓	✓
Wildfire #2	Promote fire-resistant strategies and the use of non-combustible roofing materials by evaluating and making recommendations to current code to encourage noncombustible roofing standards in high fire-hazard areas.	Fire & Planning	Community Development	General fund	L	Long		✓	✓	✓	✓	✓	✓	✓
Wildfire #3	Conduct regular fuel-reduction projects throughout wildfire hazard-prone areas in the city.	Fire Defense Board	ODF, BOC,	General fund, grants	M	Ongoing		✓	✓	✓	✓	✓	✓	✓

Source: City of Newberg steering committee, 2020.

Note: Full text of the plan goals referenced in this table is located on page NA-2.

This page intentionally left blank.

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. The risk assessment process is graphically depicted in Figure NA-1. Ultimately, the goal of hazard mitigation is to reduce the area of risk, where hazards overlap vulnerable systems.

Figure NA-1 Understanding Risk



Hazard Analysis

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

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

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

Table NA-2 Hazard Analysis Matrix

Hazard	History	Vulnerability	Maximum Threat	Probability	Total Threat Score	Hazard Rank	Hazard Tiers
Winter Storm	16	40	80	56	192	#1	Top Tier
Earthquake - Cascadia	6	45	100	35	186	#2	
Windstorm	16	25	70	56	167	#3	
Drought	8	15	50	56	129	#4	Middle Tier
Flood	8	15	50	49	122	#5	
Earthquake - Crustal	6	20	60	28	114	#6	
Wildfire	6	15	40	21	82	#7	Bottom Tier
Landslide	6	15	30	21	72	#8	
Volcanic Event	4	10	30	7	51	#9	

Source: Newberg steering committee, 2019-2020.

Table NA-3 categorizes the probability, and vulnerability scores from the hazard analysis for the City and compares the results to the assessment completed by the Yamhill County steering committee. Variations between the City, and County are noted in **bold** text within the city ratings.

Table NA-3 Probability and Vulnerability Comparison

Hazard	Newberg		Yamhill County	
	Probability	Vulnerability	Probability	Vulnerability
Drought	High	Low	High	Moderate
Earthquake - Cascadia	Moderate	High	Moderate	High
Earthquake - Crustal	Moderate	Moderate	Low	Moderate
Flood	Moderate	Low	High	High
Landslide	Low	Low	High	Low
Volcanic Event	Low	Low	Low	Low
Wildfire	Low	Low	Low	Low
Windstorm	High	Moderate	High	Moderate
Winter Storm	High	High	High	High

Source: Newberg and Yamhill County steering committee, 2019-2020.

Community Characteristics

Table NA-4 and the following section provides information on City specific demographics, and assets. 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. Between 2012 and 2019 the City grew by 1,745 people (8%).² According to the State's official coordinated population forecast, between 2019 and 2040 the City's population is forecast to grow by 53% to 36,709.³ *Note: the State is currently updating the official forecast and the proposed 2040 population is 32,780 which represents a 36% increase from 2019 population.*⁴ Median household income decreased by 3% between 2012 and 2017.⁵ New development has complied with the standards of the [Oregon Building Code](#), and the city's development code including their floodplain ordinance.

Economy

The City of Newberg is in the northeast corner of Yamhill County, on the north side of the Willamette River. Newberg's commercial areas developed along primary routes, and residential development followed nearby (see Figure NA-2).

Newberg is the second largest incorporated community in Yamhill County. There is significant economic activity happening within the City of Newberg, making it a desirable place to live, work, and visit. Most workers residing in the city (81%, 8,221 people) travel outside of the city for work primarily to the Portland metro area, Salem, and McMinnville.⁶ A significant population of people travel to the city for work, (77% of the workforce, 6,613 people) primarily from McMinnville, Portland metro area, Sherwood, Lafayette, and Salem.

Newberg residents are mostly employed in professional (18%), management, business, and financial operations (15%), office and administrative support (13%), sales (10%), production (9%), and food preparation and serving (8%) occupations.⁷

² Portland State University, Population Research Center, "Annual Population Estimates", 2019.

³ Portland State University, Population Research Center, "Oregon Population Forecast Program Cycle 1 (2014-2017)". 2017.

⁴ Portland State University, Population Research Center, "Oregon Population Forecast Program Cycle 2 (2018-2020)". 2020 (proposed).

⁵ Social Explorer, Table T57, U.S. Census Bureau, 2013-2017 and 2008-2012 American Community Survey Estimates.

⁶ U.S. Census Bureau. LEHD Origin-Destination Employment Statistics (2002-2017). Longitudinal-Employer Household Dynamics Program, accessed on April 25, 2020 at <https://onthemap.ces.census.gov>.

⁷ Social Explorer, Table A17008, U.S. Census Bureau, 2013-2017 American Community Survey Estimates.

Table NA-4 Community Characteristics

Population Characteristics		
2012 Population	22,300	
2019 Population	24,045	
2040 Forecasted Pop. [Proposed]*	36,709 [32,780]	
Race (non-hispanic) and Ethnicity (Hispanic)		
White	80%	
Black/ African American	< 1%	
American Indian and Alaska Native	1%	
Asian	2%	
Native Hawaiian and Other Pacific Islander	< 1%	
Some Other Race	0%	
Two or More Races	3%	
Hispanic or Latino	15%	
Limited or No English Spoken	5%	
Vulnerable Age Groups		
Less than 15 Years	4,042	18%
65 Years and Over	3,181	14%
Disability Status		
Total Population	3,112	14%
Children	261	5%
Seniors	1,479	47%
Income Characteristics		
Households by Income Category		
Less than \$15,000	841	10%
\$15,000-\$29,999	1,047	13%
\$30,000-\$44,999	1,390	17%
\$45,000-\$59,999	907	11%
\$60,000-\$74,999	895	11%
\$75,000-\$99,999	1,417	17%
\$100,000-\$199,999	1,488	18%
\$200,000 or more	141	2%
Median Household Income	\$56,910	
Poverty Rates		
Total Population	3,652	17%
Children	1,276	26%
Seniors	156	5%
Housing Cost Burden		
Owners with Mortgage	1,464	29%
Renters	1,716	55%

Source: U.S. Census Bureau, 2013-2017 American Community Survey; Portland State University, Population Research Center, "Annual Population Estimates", 2019. Portland State University, Population Research Center, "Oregon Population Forecast Program Cycle 1 (2014-2017)". 2017. and "Oregon Population Forecast Program Cycle 2 (2018-2020)". 2020 (proposed).

Housing Characteristics		
Housing Units		
Single-Family	6,027	70%
Multi-Family	1,943	23%
Mobile Homes	610	7%
Year Structure Built		
Pre-1970	2,475	29%
1970-1989	2,710	32%
1990-2009	2,995	35%
2010 or later	400	5%
Housing Tenure and Vacancy		
Owner-occupied	5,023	59%
Renter-occupied	5,314	31%
Seasonal	0	0%
Vacant	454	5%

Newberg is in the northeastern corner of Yamhill County, located in the Tualatin Valley. The Willamette River is to the south of the city and there are three drainage basins within the city: Chehalem Creek, Hess Creek, and Spring Brook. Newberg is generally flat and has gently rolling hills to the north and northeast of the city. Soils in Newberg area largely silt loams of the Aloha (poorly drained) and Woodburn (moderately well-drained) series. The area that is not urbanized is cultivated or comprised of grass, scattered Oak, and Douglas Fir.

Newberg's temperatures range from a monthly average low of 34-39°F in the winter months to average highs of 76-82°F in the summer months. The coolest month is December and the warmest month is August. The average annual precipitation is about 43 inches and approximately 75% falls between November and April.

The City has an educated population with 88% of residents 25 years, and older holding a high school degree, 28% have a bachelor's degree or higher. The Newberg School District has an 85% graduation rate as of 2019. Newberg includes industrial and commercial development but is zoned primarily residential.

[illegible]

Yamhill County NHMP

Page NA-19

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 Newberg.

Critical facilities and infrastructure 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. These include locally designated shelters and other essential assets, such as fire stations, and water and wastewater treatment facilities (see Table NA-5). **Essential facilities and infrastructure** are those that support the continued delivery of key government services, and/or that may significantly impact the public's ability to recover from the emergency. These facilities may include: City buildings and other public facilities such as schools.

It is important to note that the facilities identified as "critical" and "essential" are characterized differently than the structural code that identifies buildings as "essential" and "non-essential." The structural code uses different language and criteria and therefore have completely different meanings than the buildings identified in this addendum.

Table NA-5 Critical and Essential Facilities

Facility Name	Address	
Government		
See Table NA-6 for information on seismic vulnerability.		
City Hall	414 E. 1st St.	Critical
Annex	115 S. Howard St.	Critical
Public Safety Building/Police	401 E. Third St.	Critical
Public Works Maintenance	500 W 3 rd St	Essential
US Post Office	401 E. First St.	Essential
US Army National Guard	620 N Morton St	Critical
Waste Management	2808 Wyooski Rd	Essential
Treatment Plants Admin offices	2301 NE Wyooski Rd	Critical
Water Treatment Plant Office	1400 Wyooski St	Critical
Emergency Response		
Fire Station #20 (TVF&R)	414 E. 2nd St.	Critical
Fire Station #21 (TVF&R)	3100 Middlebrook Dr.	Critical
Educational (Public)		
Newberg SD 29J (Admin Office)	714 E 6th St	Essential
School District Shops	703 S. Blaine St.	Essential
Antonia Crater Elementary	203 W Foothills Dr	Essential
Edwards Elementary	715 E 8th St	Essential
Ewing Young Elementary	17600 NE N Valley Rd	Essential
Joan Austin Elementary	2200 N Center St	Essential
Mabel Rush Elementary	1441 Deborah Rd	Essential

Chehalem Valley Middle School	403 W Foothills Dr	Essential
Mountain View Middle School	2015 Emery Dr	Essential
Newberg High School	2400 Douglas Rd	Essential
Educational (Private/Charter/Montessori, etc.)		
CS Lewis Academy	609 Wynooski St	Essential
Veritas Academy	26288 NE Bell Rd	Essential
Benedict Preschool	504 E. 2nd St.	Essential
Jack and Jill Christian Preschool	3231 Antonia Way	Essential
Colleges/Universities		
Portland Community College	135 Werth Blvd	Essential
George Fox University	414 Meridian	Essential
Medical Care Facilities		
Providence Newberg Medical Center	1003 Providence Drive	Critical
	310 Villa Rd	Critical
	218 Villa Rd	Critical
	1515 E. Portland Rd	Critical
Newberg Urgent Care	2880 Hayes St	Critical
Community Facilities		
Northwest Senior & Disability Services	101 West Foothills	Essential
Yamhill Community Action Partnership	719 E First St	Essential

Transportation/Infrastructure

Mobility plays an important role in Newberg, and the daily experience of its residents, and businesses. Motor vehicles represent the dominant mode of travel through, and within Newberg. Newberg is served by Yamhill County Transit, Oregon POINT, among other transit providers.

Infrastructure that provides critical and essential services include:

Railroads

Railroads are major providers of regional and national cargo and trade flows. Railroads run through the Northern Willamette region provide vital transportation links from the Pacific to the rest of the country. The Portland & Western (PNWR) provides freight service to/from the city. There is no passenger rail service in the city.

Rails are sensitive to icing from the winter storms that can occur in the Northern Willamette region. For industries in the region that utilize rail transport, these disruptions in service can result in economic losses. The potential for rail accidents caused by natural hazards can also have serious implications for the local communities if hazardous materials are involved.

Airports

The city has no commercial service airports, however Portland International Airport (PDX), the largest and busiest airport in the state, is in nearby Multnomah County. There is one public airport: Sportsman Airpark (includes Western Helicopter).

Roads/Seismic lifelines

Oregon 99W is the major transportation east-west route through the city. OR 219, OR 240, and OR 18/Newberg-Dundee Bypass, Sunnycrest Rd, and Dayton Ave are also major transit routes (see Figure NA-2).

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.⁸

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

The Lifeline Routes in Newberg:

- Tier I: 99W
- Tier II: None
- Tier III: Hwy 219

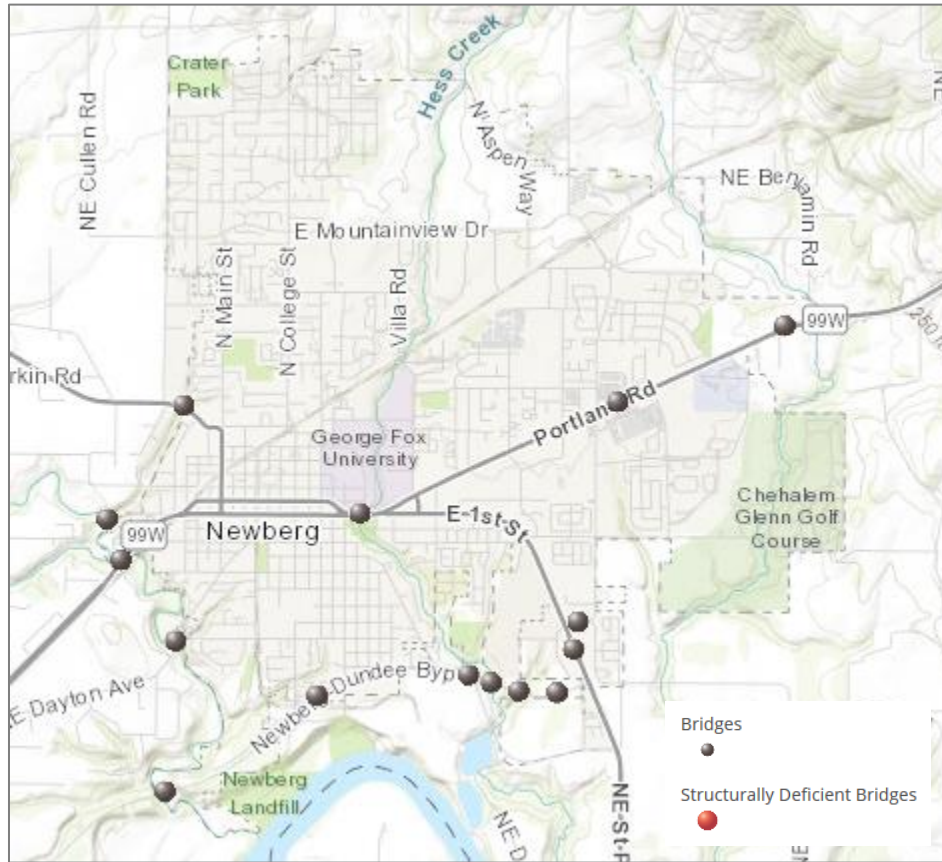
Bridges

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

- Chehalem St/OR 99W bridge (ODOT 02054A)
- Chehalem St/OR 240 bridge (ODOT 17451)
- Chehalem St/Dayton Ave bridge (ODOT 11767F)
- Chehalem St/Sunnycrest bridge
- St Paul OR 219 bridge (ODOT 22406)
- Hess Creek/Hwy 1W (OR 99W) (ODOT 00458)

⁸ Oregon Department of Transportation. Oregon Seismic Lifeline Evaluation Vulnerability Synthese Identification, *Oregon Seismic Lifeline Routes*, May 15 2012. Page 6-4 figure 6-1. Accessed September 12, 2019.

Figure NA-3 Oregon Bridges and Structurally Deficient Bridges



Source: Oregon Department of Transportation, ODOT TransGIS, accessed May 21, 2020

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 Portland General Electric.⁹ The Williams Gas Pipeline provides natural gas that is delivered to customers in the city by Northwest Natural Gas. These lines may be vulnerable as infrequent natural hazards, like earthquakes, could disrupt service to natural gas consumers across the region.

The city water and wastewater systems include the following:

- Water Reservoirs:
 - North Valley No. 1 and No. 2
 - Corral Creek (31451 NE Corral Creek Rd)
- Pump station (W 8th Street/Ivy Lane)

⁹ Allan, Stuart et. al., Atlas of Oregon. Pg. 102.

- Sewer treatment plant (2301 Wynooski Rd)
- Water treatment plant (2200 Wynooski Rd)

Environmental Assets/Parks:

Environmental assets are those parks (most parks in the area are maintained by the Chehalem Parks and Recreation District, CPRD) , green spaces, wetlands, and rivers that provide an aesthetic, and functional ecosystem services for the community include:

Armory Park	Jaquith Park
Babe Nicklous Pool Park	Memorial Park
Bald Peak State Park (9 miles NW))	Oak Knoll Tot Lot
Bob's Corner Park	Riley Park & Farmhouse
Buckley Park	Rogers Landing County Park (County)
College Park	Rotary Centennial Park
Champoeq Park (6 miles SE)	Schaad Park
Crater Park	Scott Levitt Park
Ewing Young Park/Newberg Dog Park	Spring Meadow Park
Francis Square	Tom Gail Park
Gladys Park	White Oak Park
Hoover Park/Hess Creek	

Vulnerable Populations:

Vulnerable populations, including seniors, disabled citizens, women, and children, as well those people living in poverty, often experience the impacts of natural hazards and disasters more acutely. Populations that have special needs or require special consideration include:

Child Care Facilities

Bundles of Joy Day Care	Newberg YMCA Child Development Center
Buckle My Shoe Childcare	
Great Expectations Daycare Center	Open Bible Learning Center
Hand in Hand Children's Learning Center	Parkview Daycare
Let the Blessing Flow Childcare	

Adult Care Facilities

Arbor Oaks Terrace	Friendsview Village
Astor House	Huffman House
Avamere at Newberg	Newberg Care Home
Chehalem Health & Rehab Center	Northwest Senior & Disability Services
Chehalem Valley Senior Citizen Council)	Marquis Care Home
Friendsview Retirement Community	Senior Center
	Willow Place

Cultural and Historic Assets

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

protecting these resources from the impact of disasters is important. The following historic resources can be found in the City of Newberg:

Scout House
Library Annex

Newberg Public Library
George Fox University

Hazard Characteristics

Drought

The steering committee determined that the City's probability for drought is **high**, and that their vulnerability to drought is **low**.

Volume I, Section 2 describes the characteristics of drought hazards, history, as well as the location, extent, and probability of a potential event. Due to the climate of Yamhill County, past, and present weather conditions have shown an increasing potential for drought.

The City of Newberg owns and operates a "wellfield" south of the Willamette River that supports 100% of the water supply for the City.¹⁰ The City also operates Otis Spring, used for irrigation purposes only. In addition to supplying water to residents within the city limits the city also supplies water to some residents outside of the city including residents of Aspen Estates (along Highway 240 west of Chehalem Creek), properties along Highway 99W east of Providence Hospital including the Rex Hill Winery, and a number of private water districts. The existing well capacity allows for a minimum of 8.9 million gallons per day (mgd) to a maximum of 11.8 mgd via two water transmission mains (one 24-inch diameter main is suspended from a city owned decommissioned bridge and another 30-inch diameter main downstream from the bridge carries from the well field under the Willamette River) from the wellfield to the water treatment plant(WTP). Operational capacity at the WTP is limited to approximately 8 mgd due to undersized piping between the water mains and settling basins at the WTP.

The city has three reservoirs with a combined capacity of about 12 million gallons (MG). North Valley Reservoirs No. 1 (4 MG) and No. 2 (4 MG) are located outside of the UGB on the north side of North Valley Road west of Highway 219. The reservoirs were constructed in 1960 (No. 1) and 1978 (No. 2, seismically retrofitted in 2017). The Corral Creek Reservoir (4 MG) was constructed in 2003 and is located on the eastside of the city's water system.

For more information on Newberg's water supply visit their website:

<https://www.newbergoregon.gov/operations/page/our-water-source>.

Vulnerability Assessment

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment, or exposure analysis, for this hazard. 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 Newberg's local economy such as

¹⁰ Our Water Source. City of Newberg. Last visited 8/15/19.
<https://www.newbergoregon.gov/operations/page/our-water-source>

agriculture, fishing, and timber have historically been affected, and any future droughts would have tangible economic and potentially human impacts.

The city's existing well field is its only water source and is vulnerable to flooding during the winter wet season. The city's water mains are vulnerable to seismic activity.

Mitigation Activities

The City provides information on water conservation including free water efficiency kits to Newberg water customers and free water assessments for low-income customers. The City engages in other water conservation measures including water line leak detection and repair, replacement of deteriorating pipe, and replacement/repair of older and under-registering water meters and reducing dead end lines in order to increase water circulation throughout the system.

Newberg Codes Pertaining to Droughts

The following Newberg codes, plans, and policies pertain to droughts:

1. Newberg Comprehensive Plan, Goal 7 - Areas Subject to Natural Disasters and Hazards, goal is: "To protect life and property from flooding and other natural hazards."
2. Newberg Municipal Code chapter 13.15 Water, Article III, Water Emergencies, provides the city's water conservation and curtailment policies.

Please review Volume I, Section 2 for additional information on this hazard.

Earthquake (Cascadia Subduction Zone)

The steering committee determined that the City's probability for a Cascadia Subduction Zone (CSZ) earthquake is **moderate** and that their vulnerability to a CSZ earthquake is **high**.

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

Within the Northern Willamette Valley are that includes Yamhill County, two potential faults and/or zones can generate high-magnitude earthquakes. These include the Cascadia Subduction Zone and the Gales Creek-Newberg-Mt. Angel Structural Zone (including the Newberg Fault).

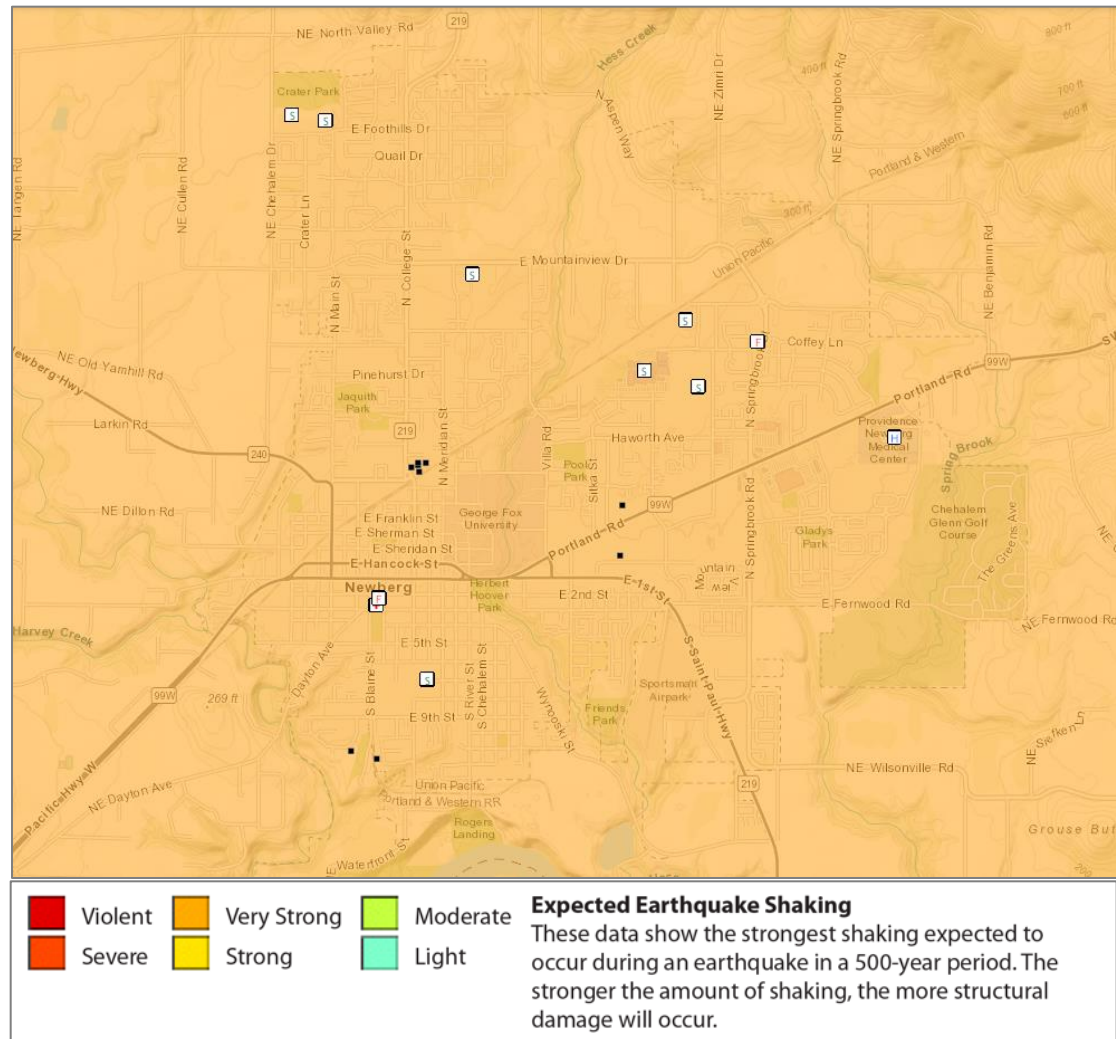
Cascadia Subduction Zone

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

occurrence interval of about 510 years. The most recent of these large earthquakes took place in approximately 1700 A.D.¹¹

Figure NA-4 displays relative shaking hazards from a Cascadia Subduction Zone earthquake event. As shown in the figure, most of the City is expected to experience very strong (orange) shaking in a CSZ event.

Figure NA-4 Cascadia Subduction Zone Expected Shaking



Source: [Oregon HazVu: Statewide Geohazards Viewer \(DOGAMI\)](#)

Note: To view detail click the link above to access Oregon HazVu.

The city's proximity to the Cascadia Subduction Zone, potential slope instability, and the prevalence of certain soils subject to liquefaction, and amplification combine to give the City a high-risk profile. Due to the expected pattern of damage resulting from a CSZ event, the Oregon Resilience Plan divides the State into four distinct zones, and places Newberg within the "Valley Zone" (Valley Zone, from the summit of the Coast Range to the summit of the

¹¹ The Cascadia Region Earthquake Workgroup, 2005. Cascadia Subduction Zone Earthquakes: A magnitude 9.0 earthquake scenario. <http://www.crew.org/PDFs/CREWSubductionZoneSmall.pdf>

Cascades). Within the Northwest Oregon region, damage, and shaking is expected to be strong, and widespread - an event will be disruptive to daily life, and commerce, and the main priority is expected to be restoring services to business, and residents.

Earthquake (Crustal)

The steering committee determined that the City's probability for a crustal earthquake is **moderate** and that their vulnerability to crustal earthquake is **moderate**.

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

A 4.0 magnitude earthquake struck Molalla (28 miles southeast of Newberg) on December 13, 2017. While the earthquake was felt by residents in Newberg there was not widespread damage, except for a city waterline break (at 9th St and College St).

Figure NA-5 **Error! Reference source not found.** shows a generalized geologic map of the Newberg area that includes the areas for potential regional active faults, earthquake history (1971-2008), and soft soils (liquefaction) hazard. The figure shows the areas of greatest concern within the City limits as red and orange and shows the Newberg Fault.

Vulnerability Assessment (subduction zone and crustal)

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment for this hazard.

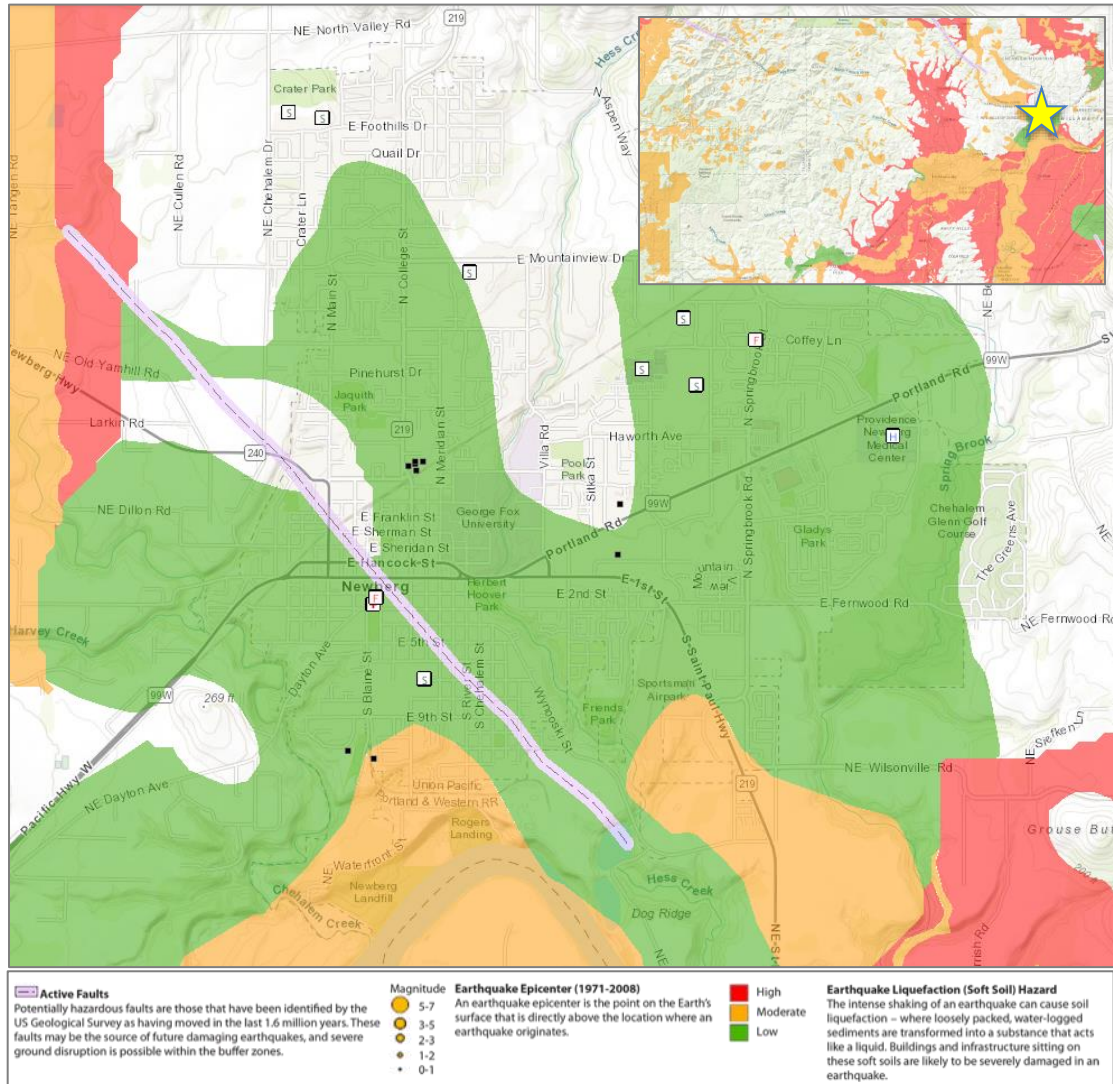
The western portion of Yamhill County is likely to experience higher levels of shaking than the eastern portion, as a result of its proximity to the Cascadia Subduction Zone.

The City of Newberg is in the eastern portion of Yamhill County, in a region likely to experience strong shaking should a subduction zone or significant crustal earthquake occur. This rating represents the peak acceleration of the ground caused by the earthquake, and for a strong designation corresponds to 9-20 percent of the acceleration of gravity.

Ground movement in both areas, however, is likely to cause damage to weak, unreinforced masonry buildings, and to induce small landslides along unstable slopes. As well as landslide, earthquakes can trigger other hazards such as dam failure and disruption of transportation and utility systems.

Utility systems will be significantly damaged, including damaged buildings, and damage to utility infrastructure, including water treatment plants, and equipment at high voltage substations (especially 230 kV or higher which are more vulnerable than lower voltage substations). Buried pipe systems will suffer extensive damage with approximately one break per mile in soft soil areas. There would be a much lower rate of pipe breaks in other areas. Restoration of utility services will require substantial mutual aid from utilities outside of the affected area. Transportation systems (bridges, pipelines) are also likely to experience significant damage. There is a low probability that a major earthquake will result in failure of upstream dams.

Figure NA-5 Active Crustal Faults, Epicenters (1971-2008), and Soft Soils



Source: [Oregon HazVu: Statewide Geohazards Viewer \(DOGAMI\)](https://www.oregon.gov/oha/ohaz/vu/)

Note: To view detail click the link above to access Oregon HazVu.

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 NA-4), approximately 60% 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, determined by DOGAMI in 2007, is shown in Table NA-6; each "X" represents one building within that ranking category. Of the facilities evaluated by DOGAMI using their Rapid Visual Survey (RVS), none have a very high (100% chance) collapse potential, however, three (3) schools have a high (greater than 10% chance) collapse potential.

Table NA-6 Rapid Visual Survey Scores

		Level of Collapse Potential			
		Low (<1%)	Moderate (>1%)	High (>10%)	Very High (100%)
Facility	Site ID*				
Schools					
Antonia Crater Elementary (203 W Foothills Dr)	Yamh_sch21	X			
Edwards Elementary (715 E 8 th)	Yamh_sch25			X	
Ewing Young Elementary (17600 NE North Valley Rd)	Yamh_sch34	X			
Joan Austin Elementary (2200 N Center St)	Yamh_sch33	X			
Mabel Rush Elementary (1441 Deborah Rd)	Yamh_sch05			X	
Chehalem Valley Middle (403 W Foothills Dr)	Yamh_sch22	X			
Mountain View Middle (2015 N Emery Dr)	Yamh_sch06			X	
Newberg Senior High (2400 Douglas Rd)	Yamh_sch27		X		
Public Safety					
Newberg FD Station 20 (414 E 2 nd St)	Yamh_fir02		X		
Newberg FD Station 201 (3100 Middlebrook Dr)	Yamh_fir11	X			
Public Safety Building (EOC) (401 E 3 rd St)	Yamh_pol01	X	SRGP 2017-19 Phase I: \$815,687		
Hospital					
Providence Hospital (1001 Providence Dr)	Yamh_hos02	X			

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

Mitigation Activities

Earthquake mitigation activities listed here include current mitigation programs and activities that are being implemented by Newberg agencies or organizations.

A primary mitigation objective is to construct or upgrade critical and essential facilities and infrastructure to withstand future earthquake events. Seismic retrofit grant awards per the

[Seismic Rehabilitation Grant Program](#)¹² have been funded to retrofit the Public Safety Building (2017-19, Phase I, grant award, \$815,687). North Valley Water Reservoir No. 2 was retrofitted in 2017.

The City of Newberg website refers to the Yamhill County [Community Emergency Response Team](#) (CERT) program that trains members in mitigation as well as preparedness and response. The City's Emergency Management Program works with community groups, businesses, residential facilities, and public and private schools in promoting earthquake preparedness and mitigation.

Newberg Codes Pertaining to Earthquakes

The following Newberg codes, plans, and policies pertain to earthquakes:

1. Newberg Comprehensive Plan, Goal 7 - Areas Subject to Natural Disasters and Hazards, goal is: "To protect life and property from flooding and other natural hazards."
2. The City of Newberg Building Code (Municipal Code Chapter 14) regulates building material requirements and includes provisions for earthquakes.

Please review Volume I, Section 2 for additional information on this hazard.

Flood

The steering committee determined that the City's probability for flood is **moderate** and that their vulnerability to flood is **low**.

Volume I, Section 2 describes the characteristics of flood hazards, history, as well as the location, extent, and probability of a potential event. Portions of Newberg have areas of floodplains (special flood hazard areas, SFHA). These include areas include along Willamette River, Chehalem Creek, Hess Creek, and Spring Brook (Figure NA-6).

For mitigation planning purposes, it is important to recognize that flood risk for a community is not limited only to areas of mapped floodplains. Other portions of Newberg outside of the mapped floodplains may also be at relatively high risk from over bank flooding from streams too small to be mapped by FEMA or from local storm water drainage.

The Willamette River is just south of city limits and does not overflow into the city, however, it does contribute to other streams to back up and flood in the city (including the Chehalem and Hess creeks). Chehalem Creek rises rapidly after intense rainfall.

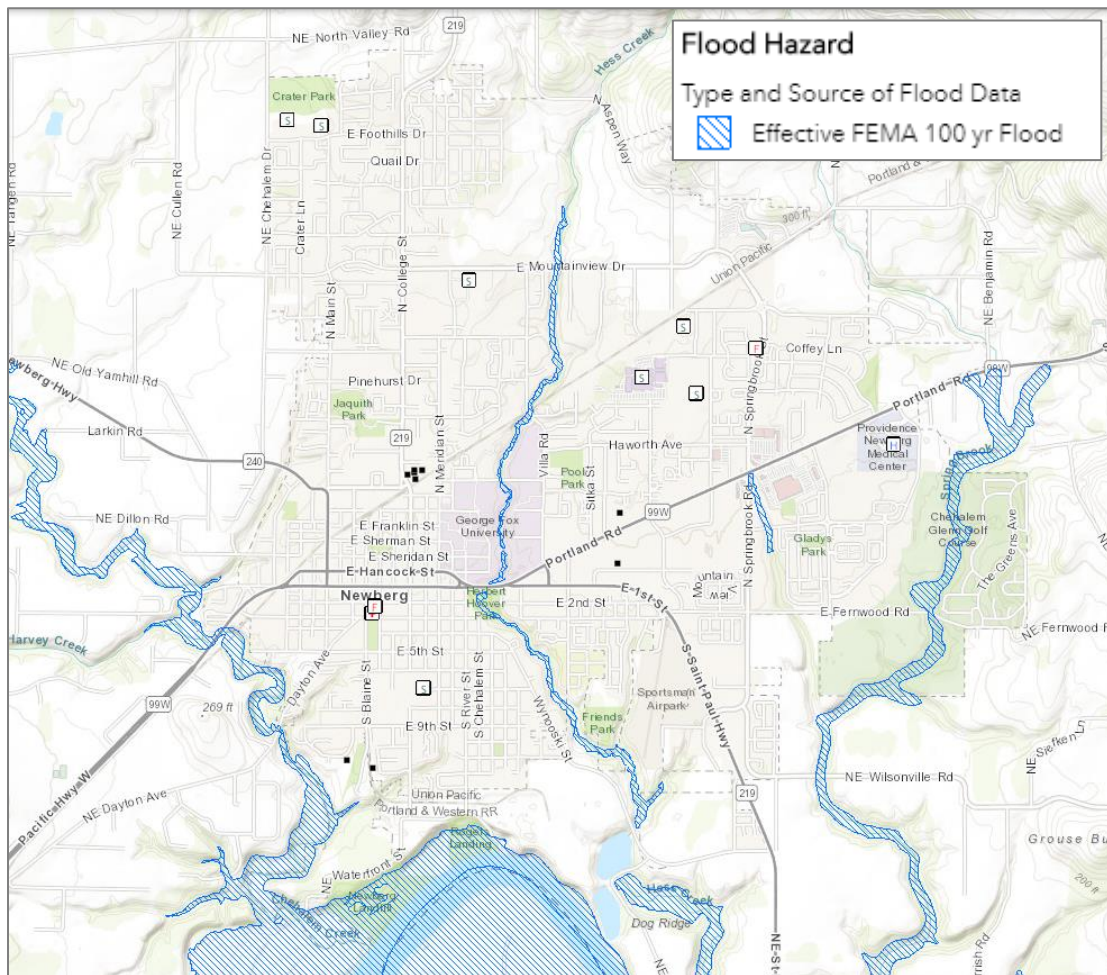
Floods can have a devastating impact on almost every aspect of the community, including private property damage, public infrastructure damage, and economic loss from business interruption. It is important for the City to be aware of flooding impacts and assess its level of risk. The City has been proactive in mitigating flood hazards by purchasing floodplain property.

The economic losses due to business closures often total more than the initial property losses that result from flood events. Business owners, and their employees are significantly

¹² The Seismic Rehabilitation Grant Program (SRGP) is a state of Oregon competitive grant program that provides funding for the seismic rehabilitation of critical public buildings, particularly public schools and emergency services facilities.

impacted by flood events. Direct damages from flooding are the most common impacts, but indirect damages, such as diminished clientele, can be just as debilitating to a business.

Figure NA-6 Special Flood Hazard Area



Source: [Oregon HazVu: Statewide Geohazards Viewer \(DOGAMI\)](#)

Note: To view detail click the link above to access Oregon HazVu.

Vulnerability Assessment

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment for this hazard. FEMA FIRMs were used to outline the 100-year and 500-year floodplains for the City of Newberg. The 100-year floodplain delineates an area of high risk, while the 500-year floodplain delineates an area of moderate risk. Commercial, industrial, and residential development is largely on higher ground outside of the special flood hazard area (SFHS). However, localized flooding can occur due to various factors including blocked stream channels or storm drains.

National Flood Insurance Program (NFIP)

FEMA's Flood Insurance Study (FIS), and Flood Insurance Rate Maps (FIRMs) are effective as of March 2, 2010. Table NA-7 shows that as of August 2019, Newberg has seven (7) National Flood Insurance Program (NFIP) policies in force. Of those, one (1) is for a property that was constructed before the initial FIRMs. The last Community Assistance Visit (CAV) for Newberg

was on March 28th, 1991. Newberg does not participate in the Community Rating System (CRS). The table shows that all flood insurance policies are for residential structures, all single-family homes. There have been no paid flood insurance claims. The City complies with the NFIP through enforcement of their flood damage prevention ordinance and their floodplain management program.

The Community Repetitive Loss record for Newberg identifies no Repetitive Loss Properties¹³ or Severe Repetitive Loss Properties¹⁴.

Table NA-7 Flood Insurance Detail

	Yamhill County	Newberg
Effective FIRM and FIS	3/2/2010	3/2/2010
Initial FIRM Date	-	3/1/1982
Total Policies	446	7
Pre-FIRM Policies	153	1
Policies by Building Type		
Single Family	401	7
2 to 4 Family	14	0
Other Residential	10	0
Non-Residential	21	0
Minus Rated A Zone	72	0
Insurance in Force	\$100,617,300	\$2,310,000
Total Paid Claims	81	0
Pre-FIRM Claims Paid	68	0
Substantial Damage Claims	3	0
Total Paid Amount	\$1,166,076	\$0
Repetitive Loss Structures	4	0
Severe Repetitive Loss Properties	0	0
CRS Class Rating	-	NP
Last Community Assistance Visit	-	3/28/1991

Source: Information compiled by Department of Land Conservation, and Development, August 2019.
NP = Not Participating

Mitigation Activities

Flood mitigation activities listed here include current mitigation programs and activities that are being implemented by Newberg agencies or organizations.

¹³ 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.

¹⁴ 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.

Newberg Codes Pertaining to Flooding

The following Newberg codes, plans, and policies pertain to flooding:

1. Newberg Comprehensive Plan, Goal 7 - Areas Subject to Natural Disasters and Hazards, goal is: "To protect life and property from flooding and other natural hazards."
2. Newberg Municipal Code chapter 15.343 *Areas of Special Flood Hazard Overlay*. This portion of the Community Development Code implements the Goal 7 policies of the Comprehensive Plan and regulates development within the floodplain.

Please review Volume I, Section 2 for additional information on this hazard.

Landslide

The steering committee determined that the City's probability for landslide is **low** and that their vulnerability to landslide is **low**.

Volume I, Section 2 describes the characteristics of landslide hazards, history, as well as the location, extent, and probability of a potential event within the region.

Landslide susceptibility exposure for Newberg is shown in Figure NA-7. Approximately 5% of Newberg has very high or high, and approximately 20% moderate, landslide susceptibility exposure.¹⁵ In general, the areas of greater risk are located outside of the city to the north and northeast. *Note that even if a jurisdiction 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.*

Potential landslide-related impacts are adequately described within Volume I, Section 2, 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, and thoroughfares beyond City limits are susceptible to obstruction as well.

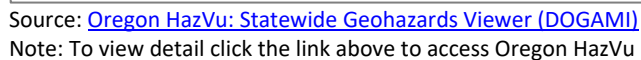
The most common type of landslides are slides caused by erosion. Slides move in contact with the underlying surface, are generally slow moving, and can be deep. Rainfall-initiated landslides tend to be smaller; while earthquake induced landslides may be quite large. All soil types can be affected by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

Vulnerability Assessment

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment for this hazard. DOGAMI completed a statewide landslide susceptibility assessment in 2016 ([O-16-02](#)), general findings from that report are provided above and within Figure NA-7. Response and recovery efforts will likely vary from minor cleanup to more extensive utility system rebuilding. Utility disruptions are usually local and terrain dependent. Damages may require reestablishing electrical, communication, and gas pipeline connections occurring from specific breakage points. Initial debris clearing from emergency routes and high traffic areas may be required. Water and wastewater utilities

¹⁵ DOGAMI. [Open-File Report, O-16-02](#), *Landslide Susceptibility Overview Map of Oregon* (2016)

Figure NA-7 Landslide Susceptibility Exposure



Landslide mitigation activities listed here include current mitigation programs and activities that are being implemented by the City of Newberg agencies or organizations.

Page NA-35

The following Newberg codes, plans, and policies pertain to landslides:

1. Newberg Comprehensive Plan, *Areas Subject to Natural Hazards*. The section goal is to “To protect life and property from flooding and other natural hazards.”, Policies that support this goal in relation to landslides include:

Policy 5. In other areas of potential or existing hazards, development shall be subject to special conditions. Reasonable development may be permitted in these areas when it can be shown, based on sound engineering and planning criteria, that adverse impacts can be mitigated and kept to a minimum. Hazardous areas shall be lands with slopes 20% or greater, potential and existing slide areas, fault areas, and areas with severe soil limitations.

Policy 6. The City will discourage development on hazardous slope areas and natural resource areas in the Riverfront District. (Ordinance 2002-2564, April 15, 2002)

2. The following portions of the Municipal Code implement the Goal 7 policies of the Comprehensive Plan, regulating development on steep slopes, erosion control, and earthwork control:

- Municipal Code, Chapter 13.25, *Stormwater Management*, Article II *Erosion and sediment controls*.

Please review Volume I, Section 2 for additional information on this hazard. Additional information on how to prepare and mitigate for landslide hazards can be found in the DLCD and DOGAMI [“Landslide Hazards Lane Use Guide for Oregon Communities”](#).

Severe Weather

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

Windstorm

The steering committee determined that the City’s probability for windstorm is **high** and that their vulnerability to windstorm is **moderate**.

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

Volume I, Section 2 describes the impacts caused by windstorms, including power outages, downed trees, heavy precipitation, building damages, and storm-related debris. Additionally, transportation, and economic disruptions result as well.

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

Please review Volume I, Section 2 for additional information on this hazard.

Winter Storm (Snow/Ice)

The steering committee determined that the City's probability for winter storm is **high** and that their vulnerability to winter storm is **high**.

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

Vulnerability Assessment

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment, or exposure analysis, for the windstorm and winter storm hazards. All areas within the City of Newberg are equally at risk of a windstorm or winter storm event.

Mitigation Activities

The City works to mitigate problems regarding windstorm and winter storm issues when they arise. Mitigation activities listed here include current mitigation programs and activities that are being implemented by Newberg agencies or organizations.

- ODOT is responsible for sanding and de-icing state managed roads including: Illinois Street, OR 99W, OR 219, and OR 240 within city limits.
- The City provides education on winter weather preparedness
- The City provides sandbags during times of flooding
- The City sands and removes snow from roads.
- The City closes roads prone to icy conditions and post hazard signs at other roads.
- The City has a tree trimming program to encourage property owners to trim hazard trees, and to maintain trees within public rights-of-way. Utility companies maintain trees along their utility easements.

City of Newberg Codes Pertaining to Windstorms and Winter Storms

The following Newberg codes, plans, and policies pertain to windstorms and winter storms:

1. The City of Newberg Municipal Code Chapter 15.500 provides standards for public infrastructure and utilities.
2. The City of Newberg Building Code (Municipal Code Chapter 14) regulates building material requirements and includes provisions for windstorms and winter storms.

Please review Volume I, Section 2 for additional information on this hazard.

Volcanic Event

The steering committee determined that the City's probability for a volcanic event is **low** and that their vulnerability to a volcanic event is **low**.

Volume I, Section 2 describes the characteristics of volcanic hazards, history, as well as the location, extent, and probability of a potential event within the region. Generally, an event that affects the Eastern portion of the County is likely to affect Newberg as well. Several volcanoes are located near Newberg, the closest of which are Mount Hood, Mount Adams, Mount Saint Helens, Mount Rainier, and the Three Sisters.

Due to Newberg's relative distance from volcanoes, the city is unlikely to experience the immediate effects that eruptions have on surrounding areas (i.e., mud and debris flows, or lahars). Although the City of Newberg is unlikely to experience lahars or lava flows, tephra (sand- sized or finer particles of volcanic rock that is ejected rapidly into the air from volcanic vents) drifts downwind from the explosions and can form a blanket-like deposit of ash. The eruption of Mount St. Helens in 1980, for example, coated the Willamette Valley with a fine layer of ash. If Mount Hood erupts, however, the city could experience a heavier coating of ash. Tephra is a public health threat, and can damage agriculture and transportation systems (i.e., aircraft and on- the-ground vehicles). Tephra can also clog drainage systems and create major debris management problems. Within Newberg, public health would be a primary concern, and keeping transportation routes open/accessible would be important as well.

Vulnerability Assessment

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment, or exposure analysis, for this hazard.

Mitigation Activities

The existing volcanic event hazard mitigation activities are conducted at the county, regional, state, and federal levels and are described in the Yamhill County NHMP.

City of Newberg Codes Pertaining to Volcanic Events

The City does not have specific codes, plans, or policies that pertain to volcanic events:

Please review Volume I, Section 2 for additional information on this hazard.

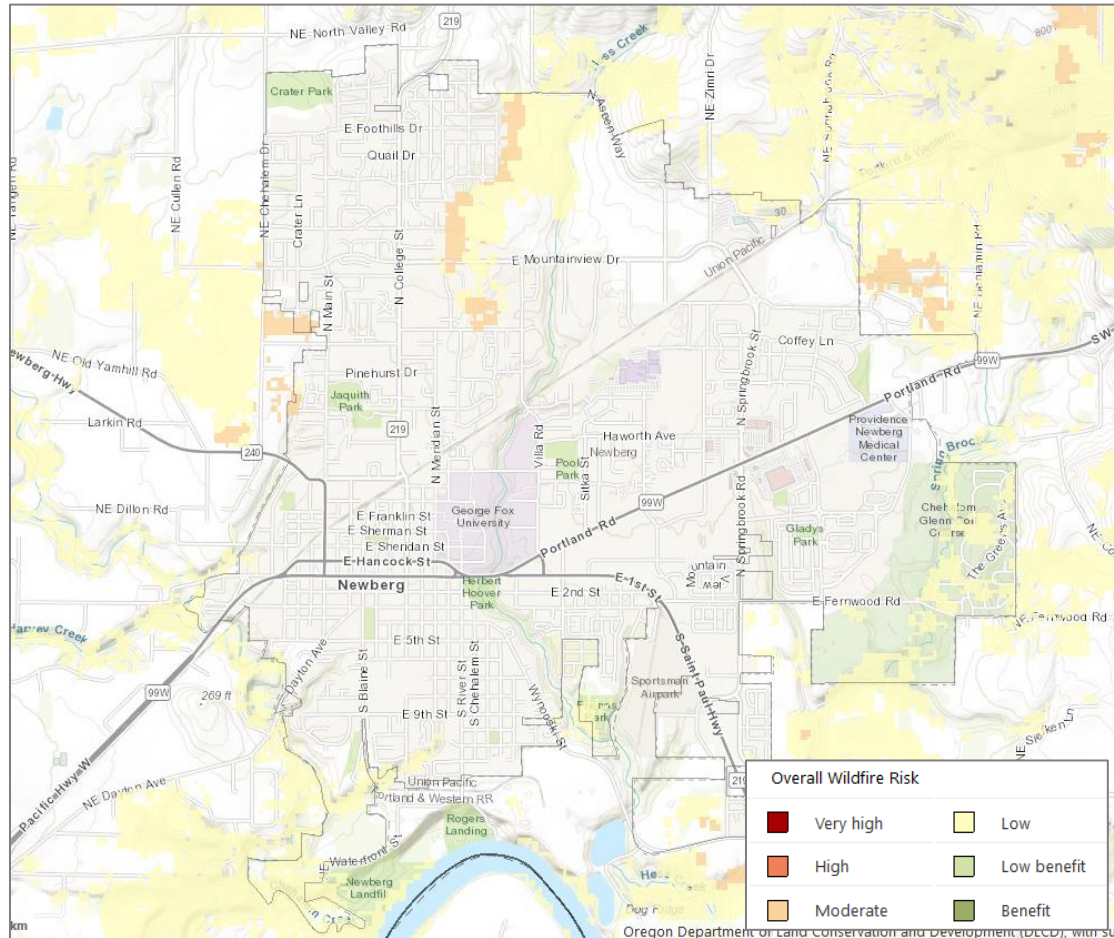
Wildfire

The steering committee determined that the City's probability for wildfire is **low** and that their vulnerability to wildfire is **low**.

The [Yamhill County Community Wildfire Protection Plan \(CWPP\)](#) was completed in August 2009 and revised in 2015. The CWPP is hereby incorporated into this NHMP addendum by reference, and it will serve as the wildfire section for this addendum.

Volume I, Section 2 describes the characteristics of wildland fire hazards, history, as well as the location, extent, and probability of a potential event within the region. The location, and extent of a wildland fire vary depending on fuel, topography, and weather conditions. Weather, and urbanization conditions are primarily at cause for the hazard level. Newberg has not experienced a wildfire within City limits. The city is surrounded by developed land and/or irrigated agricultural land. However, some wooded areas are a concern in the case of a wildfire event. Figure NA-8 shows overall wildfire risk in Newberg.

Figure NA-8 Overall Wildfire Risk



Source: [Oregon Wildfire Risk Explorer](#), date accessed April 16, 2020.

The forested areas within, and surrounding Newberg are interface areas. These areas are characterized by varying housing structures (often large houses on small lots, some with shake roofs), natural, and ornamental vegetation, and topography that may increase the risk for wildfire spreading (particularly to the north and northeast).

Most of the city has less severe (low) wildfire burn probability that includes expected flame lengths less than four feet under normal weather conditions.¹⁶ However, conditions vary widely and with local topography, fuels, and local weather (including wind) conditions. Under warm, dry, windy, and drought conditions expect higher likelihood of fire starts, higher intensity, more ember activity, and a more difficult to control wildfire that will include more fire effects and impacts. The potential community impacts, and vulnerabilities described in Volume I, Section 2 are generally accurate for the City as well. Newberg's fire response is provided by Tualatin Valley Fire & Rescue from Station 20 (downtown) and Station 21 (northeast). The CWPP assesses wildfire risk, maps wildland urban interface areas, and includes actions to mitigate wildfire risk (all identified actions are outside the city limits). The City will update the City's wildfire risk assessment if the CWPP presents better

¹⁶ [Oregon Wildfire Risk Explorer](#).

data during future updates (an action item is included to participate in future updates to the CWPP).

Vulnerability Assessment

Due to insufficient data and resources, Newberg is currently unable to perform a quantitative risk assessment for this hazard.

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

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.

Mitigation Activities

The Tualatin Valley Fire & Rescue District works to mitigate problems regarding wildfire issues when they arise. Wildfire mitigation activities listed here include current mitigation programs and activities that are being implemented by Newberg agencies or organizations.

City of Newberg Codes Pertaining to Wildfires

The following Newberg codes, plans, and policies pertain to wildfires:

1. The City of Newberg Municipal Code Chapter 15.500 provides standards for public infrastructure and utilities.
2. The City of Newberg Building Code (Municipal Code Chapter 14) regulates building material requirements and includes provisions for Fire Prevention and Protection (Article 6).

Please review the [Yamhill County Community Wildfire Protection Plan \(CWPP\)](#) and Volume I, Section 2 for additional information on this hazard.

ATTACHMENT A: ACTION ITEM FORMS

Each action item has a corresponding action item worksheet describing the activity, identifying the rationale for the project, identifying potential ideas for implementation, and assigning coordinating and partner organizations. The action item worksheets can assist the community in pre-packaging potential projects for grant funding. The worksheet components are described below.

ALIGNMENT WITH EXISTING PLANS/POLICIES

The City NHMP includes a range of action items that, when implemented, will reduce loss from hazard events in the City. Within the plan, FEMA requires the identification of existing programs that might be used to implement these action items. The City addresses statewide planning goals and legislative requirements through its comprehensive land use plan, capital improvements plan, mandated standards and building codes. To the extent possible, the City will work to incorporate the recommended mitigation action items into existing programs and procedures. Each action item identifies related existing plans and policies.

STATUS/RATIONALE FOR PROPOSED ACTION ITEM

Action items should be fact-based and tied directly to issues or needs identified throughout the planning process. Action items can be developed at any time during the planning process and can come from several sources, including participants in the planning process, noted deficiencies in local capability, or issues identified through the risk assessment. The rationale for proposed action items is based on the information documented in this addendum and within Volume I, Section 2. The worksheet provides information on the activities that have occurred since the previous plan for each action item.

IDEAS FOR IMPLEMENTATION

The ideas for implementation offer a transition from theory to practice and serve as a starting point for this plan. This component of the action item is dynamic, since some ideas may prove to not be feasible, and new ideas may be added during the plan maintenance process. Ideas for implementation include such things as collaboration with relevant organizations, grant programs, tax incentives, human resources, education and outreach, research, and physical manipulation of buildings and infrastructure.

COORDINATING (LEAD) ORGANIZATION:

The coordinating organization is the public agency with the regulatory responsibility to address natural hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring and evaluation.

INTERNAL AND EXTERNAL PARTNERS:

The internal and external partner organizations listed in the Action Item Worksheets are potential partners recommended by the project steering committee but not necessarily contacted during the development of the plan. The coordinating organization should

contact the identified partner organizations to see if they are capable of and interested in participation. This initial contact is also to gain a commitment of time and/or resources toward completion of the action items.

Internal partner organizations are departments within the City or other participating jurisdiction that may be able to assist in the implementation of action items by providing relevant resources to the coordinating organization.

External partner organizations can assist the coordinating organization in implementing the action items in various functions and may include local, regional, state, or federal agencies, as well as local and regional public and private sector organizations.

PLAN GOALS ADDRESSED:

The plan goals addressed by each action item are identified as a means for monitoring and evaluating how well the mitigation plan is achieving its goals, following implementation.

TIMELINE:

All broad scale action items have been determined to be ongoing, as opposed to short (0 to 2 years), medium (2-5 years), or long (6 or more years). This is because the action items are broad ideas, and although actions may be implemented to address the broad ideas, the efforts should be ongoing.

POTENTIAL FUNDING SOURCE

Where possible potential funding sources have been identified. Example funding sources may include: Federal Hazard Mitigation Assistance programs, state funding sources such as the Oregon Seismic Rehabilitation Grant Program, or local funding sources such as capital improvement or general funds. An action item may include several potential funding sources.

ESTIMATED COST

A rough estimate of the cost for implementing each action item is included. Costs are shown in general categories showing low, medium, or high cost. The estimated cost for each category is outlined below:

Low - Less than \$50,000

Medium - \$50,000 – \$100,000

High - More than \$100,000

Multi-Hazard #I

Proposed Action Item:		Alignment with Plan Goals:	
Develop, enhance, and implement public education and information materials concerning mitigation, preparedness and safety procedures for identified natural hazards.		Gopal 1, Goal 2, Goal 3, Goal 6, Goal 8	
Alignment with Existing Plans/Policies:			
Emergency Operations Plan, Community Wildfire Protection Plan			
2020 Status/Rationale for Proposed Action Item:			
<p>The natural hazard sections of the City's addendum (Volume II) to the Yamhill Co. NHMP and Yamhill County's risk assessment (Volume I, Section 2 and Volume III, Appendix C) identify vulnerable populations and property within the various identified hazard areas. Increasing public outreach to educate residents about their risk to natural hazards affecting their community as well as what to do in the event of a natural hazard will help decrease their vulnerability to natural hazards.</p> <p>The Disaster Mitigation Act of 2000 requires communities to identify how the community will continue to involve the public in the plan maintenance process [201.6(c)(4)(iii)]. Educating landowners on how to mitigate the effects of natural hazards helps keep the public informed of what is being done with the plan, how the City is working to mitigate its risk to natural hazards, and allows for feedback and suggestions from the public for improving, updating, and maintaining the plan.</p>			
Ideas for Implementation:			
<p>Distribution of natural hazard information describing dangers and evacuation routes for visitors to Newberg and continued educational outreach for residents and business owners.</p> <p>Update brochures with new information provided as part of reports provided by DOGAMI, ODF, DLCD, and FEMA (among others).</p> <p>Identify and use existing mechanisms for public outreach (e.g., SWCD, NRCS, watershed councils, OSU Extension, etc.).</p>			
Coordinating Organization:		TVF&R, Emergency Management	
Internal Partners:		External Partners:	
Public Works		DOGAMI, DLCD, FEMA, ODF	
Potential Funding Sources:		Estimated cost:	Timeline:
General fund, grants		Low	<input type="checkbox"/> Short (0-2 years) <input type="checkbox"/> Medium (2-5 years) <input type="checkbox"/> Long (6+ years) <input checked="" type="checkbox"/> Ongoing
Form Submitted by:	2019-20 NHMP Steering Committee		
Priority:	High		

Multi-Hazard #2

Proposed Action Item:		Alignment with Plan Goals:	
Integrate the Mitigation Plan findings into planning & regulatory documents & programs and into enhanced emergency planning.		Goal 1, Goal 4, Goal 5, Goal 6, Goal 7, Goal 8	
Alignment with Existing Plans/Policies:			
Comprehensive Plan, Development Code, Building Code			
2020 Status/Rationale for Proposed Action Item:			
<p>Comprehensive plans provide the framework for the physical design of a community. They shape overall growth and development while addressing economic, environmental and social issues. Oregon's statewide goals are accomplished through local comprehensive plans. State Law requires local governments to adopt a comprehensive plan and the zoning and land-division ordinances needed to put the plan into action.</p> <p>Integration of NHMPs into comprehensive plans and other plans will help to reduce a community's vulnerability to natural hazards, support in mitigation activities, help to increase the speed in which action items are implemented and therefore the speed in which communities recover from natural disasters.</p> <p>Integration of NHMPs into local plans gives the action items identified in the NHMP legal status for guiding local decision-making regarding land use and/ or capital expenditures. .</p>			
Ideas for Implementation:			
<p>Conduct a policy crosswalk of the NHMP, the comprehensive plan, and other planning documents, to identify areas of possible integration.</p> <p>Integrate natural hazards information and policies into the comprehensive plan and other plans.</p> <p>Engage in collaborative planning and integration.</p> <p>Coordinate future NHMP and comprehensive plan reviews and updates.</p>			
Coordinating Organization:	Planning		
Internal Partners:		External Partners:	
Emergency Management		DLCD	
Potential Funding Sources:	Estimated cost:	Timeline:	
General fund, utility rates/fees	Low	<input checked="" type="checkbox"/> Short (0-2 years) <input type="checkbox"/> Medium (2-5 years) <input type="checkbox"/> Long (6+ years) <input type="checkbox"/> Ongoing	
Form Submitted by:	2019-20 NHMP Steering Committee		
Priority:	High		

Multi-Hazard #3

Proposed Action Item:		Alignment with Plan Goals:	
Develop early warning test program: partnering with NOAA, city police, fire department to coordinate test.		Goal 1, Goal 3, Goal 4, Goal 6, Goal 8	
Alignment with Existing Plans/Policies:			
2020 Status/Rationale for Proposed Action Item:			
The Disaster Mitigation Act of 2000 requires communities to identify actions and projects that reduce the effects of hazards on the community [201.6(c)(3)(ii)]. Improving technology capacity will allow widespread dissemination of information, thus decreasing risk to residents and visitors during a hazard event.			
Ideas for Implementation:			
Develop coordinated early warning system between the City, TVF&R, Police, 911, and NOAA.			
Coordinating Organization:		Emergency Management	
Internal Partners:		External Partners:	
TVF&R, Police, 911		NOAA	
Potential Funding Sources:		Estimated cost:	Timeline:
General fund		Low	<input checked="" type="checkbox"/> Short (0-2 years) <input type="checkbox"/> Medium (2-5 years) <input type="checkbox"/> Long (6+ years) <input type="checkbox"/> Ongoing
Form Submitted by:	2019-20 NHMP Steering Committee		
Priority:	High		

Earthquake #1

Proposed Action Item:		Alignment with Plan Goals:	
Conduct seismic strength evaluations of critical facilities and infrastructure to identify vulnerabilities and seismically retrofit (structural and nonstructural) identified critical facilities and infrastructure to meet life safety standards in order to continue operations post-earthquake.		Goal 2, Goal 3, Goal 4, Goal 6, Goal 7, Goal 8	
Alignment with Existing Plans/Policies:			
2020 Status/Rationale for Proposed Action Item:			
<p>Currently, all new facilities must comply with and meet seismic standards. If someone moves into an old building, they must upgrade to current standards.</p> <p>DOGAMI did a windshield survey of schools, fire stations, police, and city halls (2007 RVS). The focus was on action of existing buildings and information was shared with participants.</p>			
Ideas for Implementation:			
<p>Provide information to government building and school facility managers and teachers on nonstructural mitigation techniques including: securing bookcases, filing cabinets, light fixtures, and other objects that can cause injuries and block exits;</p> <p>Encourage facility managers, business owners, and teachers to refer to FEMA's practical guidebook: Reducing the Risks of Nonstructural Earthquake Damage;</p> <p>Encourage homeowners and renters to use Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit (IBHS) for economic and efficient mitigation techniques;</p> <p>Use the FEMA 154 seismic evaluations generated by DOGAMI to prioritize critical and essential buildings for upgrades;</p> <p>Explore partnerships to provide retrofitting classes for homeowners, renters, building professionals, and contractors; and</p> <p>Target development located in potential fault zones or in unstable soils for intensive education and retrofitting resources.</p>			
Coordinating Organization:		Emergency Management	
Internal Partners:		External Partners:	
Administration, Community Development, Public Works, TVF&R, Police		DOGAMI	
Potential Funding Sources:		Estimated cost:	Timeline:
General funds, utility fees, grants (SRGP, HMA)		High	<input type="checkbox"/> Short (0-2 years) <input type="checkbox"/> Medium (2-5 years) <input checked="" type="checkbox"/> Long (6+ years) <input type="checkbox"/> Ongoing
Form Submitted by:	2019-20 NHMP Steering Committee		
Priority:	High		

Wildfire #1

Proposed Action Item:		Alignment with Plan Goals:	
Coordinate wildfire mitigation action items through the Yamhill County Community Wildfire Protection Plan.		Goal 1, Goal 2, Goal 3, Goal 4, Goal 5, Goal 6, Goal 7, Goal 8	
Alignment with Existing Plans/Policies:			
2020 Status/Rationale for Proposed Action Item:			
The wildfire mitigation action items provide direction on specific activities that organizations and residents in Newberg/Yamhill County can take to reduce wildfire hazards.			
Ideas for Implementation:			
Implement high and medium priority projects including defensible space and fuels reduction projects identified in the CWPP.			
Coordinating Organization:		TVF&R	
Internal Partners:		External Partners:	
Community Development		ODF	
Potential Funding Sources:		Estimated cost:	Timeline:
General fund		Low	<input type="checkbox"/> Short (0-2 years) <input type="checkbox"/> Medium (2-5 years) <input type="checkbox"/> Long (6+ years) <input checked="" type="checkbox"/> Ongoing
Form Submitted by:	2019-20 NHMP Steering Committee		
Priority:	High		

This page intentionally left blank.

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.

To provide the public information regarding the draft NHMP addendum, and provide an opportunity for comment, an announcement (see text below) was announced on the city's website and an email contact was provided for public comment.

During the public review period there were **no** comments provided.

To be updated after review.

This page intentionally left blank.