

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



Photo Credit Washington Post

Effective: December 22, 2020 through December 21, 2025



Prepared for:

City of Carlton

Prepared by:

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

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FEMA

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Pre-Disaster Mitigation Program
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and

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FEMA

January 20, 2021

The Honorable Casey Kulla
Chair Kulla, Yamhill County Board of Commissioners
535 NE 5th St.
McMinnville, Oregon 97128

Dear Chair Kulla:

On December 22, 2020, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region 10, approved the Yamhill County Hazard Mitigation Plan as a multi-jurisdictional local plan as outlined in Code of Federal Regulations Title 44 Part 201. This approval provides the below jurisdictions eligibility to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's, Hazard Mitigation Assistance grants projects through December 21, 2025, through your state:

Yamhill County	City of Amity	City of Carlton	City of Dayton
City of McMinnville	City of Newberg	City of Sheridan	City of Yamhill

FEMA individually evaluates all application requests for funding according to the specific eligibility requirements of the applicable program. Though a specific mitigation activity or project identified in the plan may meet the eligibility requirements, it may not automatically receive approval for FEMA funding under any of the aforementioned programs.

Approved mitigation plans may be eligible for points under the National Flood Insurance Program's Community Rating System (CRS). For additional information regarding the CRS, please visit: www.fema.gov/national-flood-insurance-program-community-rating-system or contact your local floodplain manager. Over the next five years, we encourage your communities to follow the plan's schedule for monitoring and updating, and to develop further mitigation actions. To continue eligibility, jurisdictions must review, revise as appropriate, and resubmit the plan within five years of the original approval date.

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact Joseph Murray, Planner with Oregon Office of Emergency Management, at (503) 378-2911, who locally coordinates and administers these efforts.

Sincerely,

Kristen Meyers, Director
Mitigation Division

Enclosure

cc: Amie Bashant, Oregon Office of Emergency Management

EG:vl

Resolution # 2020-303

A Resolution Adopting the City of Carlton Representation in the Updates to the Yamhill County Multi-Jurisdictional Natural Hazards Mitigation Plan

Whereas, the City of Carlton recognizes the threat that natural hazards pose to people, property and infrastructure within our community; and

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

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

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

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

Whereas, these proposed projects and programs have been incorporated into the *Yamhill County, Multi-Jurisdictional Natural Hazard Mitigation Plan* that has been prepared and promulgated for consideration and implementation by the cities of Yamhill County; and

Whereas, the Oregon Office of Emergency Management and Federal Emergency Management Agency, Region X officials have reviewed the *City of Carlton addendum* to the *Yamhill County Multi-Jurisdictional Natural Hazard Mitigation Plan* and pre-approved it (dated, September 10, 2020) contingent upon this official adoption of the participating governments and entities;

Whereas, the NHMP is comprised of comprised of three volumes: Volume I: Basic Plan, Volume II: Jurisdictional Addenda, and Volume III: Appendices, collectively referred to herein as the NHMP; and

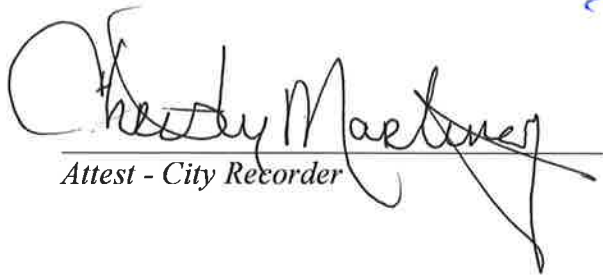
Whereas, the NHMP is in an on-going cycle of development and revision to improve its effectiveness; and

Whereas, City of Carlton adopts the NHMP and directs the City Manager to develop, approve, and implement the mitigation strategies and any administrative changes to the NHMP.

Now, therefore, be it resolved, that the City of Carlton adopts *the Yamhill County Multi-Jurisdictional Natural Hazards Mitigation Plan* as an official plan; and

Be it further resolved, that the City of Carlton will submit this Adoption Resolution to the Oregon Office of Emergency Management and Federal Emergency Management Agency, Region X officials to enable final approval of the *Yamhill County Multi-Jurisdictional Natural Hazards Mitigation Plan*.

Adopted this 6th day of October, 2020


Attest - City Recorder



Mayor

Purpose

This is an update of the Carlton 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 Carlton'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.

Carlton adopted their addendum to the Yamhill County Multi-jurisdictional NHMP on **October 6, 2020**. FEMA Region X approved the Yamhill County NHMP and the City's addendum on **December 22, 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 **December 21, 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 Carlton 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 Carlton NHMP Steering committee also participated in the County NHMP update process (Volume III, Appendix B).

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

Convener and Committee

The Carlton City Administrator serves as the NHMP addendum convener. The convener of the NHMP will take the lead in implementing, maintaining, and updating the addendum to the Yamhill County NHMP in collaboration with the designated convener of the Yamhill County NHMP (Yamhill County Emergency Manager).

Representatives from the City of Carlton 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 Carlton steering committee was comprised of the following representatives:

- Convener, Aimee Amerson, Community and Economic Development Coordinator
- Kevin Martinez, Police Chief
- Dennis Durham, City Manager
- Bryan Burnham, Public Works Director
- Christy Martinez, Director of Administrative Services

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 Carlton 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 Carlton 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 Administrator 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, Carlton 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. Carlton's acknowledged comprehensive plan is the City of Carlton Comprehensive Plan. The City implements the plan through the Community Development Code.

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

- [Comprehensive Plan, Plan Map](#) (2000, amended 2009)
- [Carlton Municipal Code and Development Code](#)
 - Title 7: Emergency Organization and Functions
 - Title 8: Health and Safety
 - [Chapter 8.08 Fire Limits and Fire Prevention](#)
 - [Chapter 8.24 Burning of Grass, Weeds, Refuse or Other Material](#)
 - Title 17: Development Code
 - [Chapter 17.56 Floodplain Management Overlay Zone](#)
- 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*)
- [Public Works Design Standards](#)
- [Transportation System Plan](#) (2009), [Appendices](#)
- [Water Management and Conservation Plan](#) (2014)
- Water System Emergency Response Plan (2004)
- Water Vulnerability Assessment (2002, 2007)
- BLM Landslide Study Carlton Reservoir/Panther Creek (1999)
- Sewer Master Plan
- Stormwater Master Plan
- Parks Master Plan

Other plans:

- [Yamhill County Community Wildfire Protection Plan](#) (2009, revised Nov. 2015)

Government Structure

The Carlton City Charter establishes a 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 Carlton City Council consists of a Mayor, who is elected at-large to serve a two-year term, 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 Carlton currently has the following departments which have a role in natural hazard mitigation:

Administration services are provided by the City Manager and include strategic planning, budget and finance, and development of public policy recommendations to the City Council.

Public Works provides many of the basic urban services to the citizens of Carlton, including water, wastewater, street, and park systems, and their maintenance and repair.

Building services are provided through a contract with Yamhill County and include plan review and inspections on commercial, industrial and residential developments.

Planning services include all long range and current planning for new development, as well as the City's flood plain management zone. Planning is also responsible for implementation of the Comprehensive Plan.

Police services include law enforcement activities, emergency management (emergency preparedness, mitigation, response and recovery efforts for Carlton during emergencies, disasters, or disruptions).

Fire protection services are provided through a contract with Carlton Fire District. The fire station is in Carlton. Services include fire suppression, hazardous materials incidents, and disaster response. Non-emergency services include fire prevention and inspection services, code enforcement, public safety education services/CPR training, and fire extinguisher use.

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.ci.carlton.or.us/>

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?
- Are there new local, regional, state or federal policies influencing natural hazards that should be addressed?

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

- 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 CA-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 CA-1 is located on page CA-2.

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Table CA-I Carlton 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.	Planning	Public Works, Fire District, Police, School District, Administration	General fund, grants	L	Ongoing	✓	✓	✓			✓	✓	
Multi-Hazard #2	Cross reference and incorporate mitigation planning provisions into all community planning processes such as comprehensive, capital improvement, land use, transportation plans, etc to demonstrate multi-benefit considerations and facilitate using multiple funding source consideration.	Planning	Public Works, Administration	General fund, utility rates	M	Medium	✓			✓	✓	✓	✓	
Multi-Hazard #3	Identify critical facilities, especially fire and police departments, without emergency power and encourage these facilities to secure emergency power to mitigate power outage events due to natural hazard events. Consider solar battery options due to PGE policy changes during fire risk. Consider outreach to private property owners.	Public Works	Planning, Fire, Administration, School District, PGE/BPA	General fund, utility rates	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
Multi-Hazard #4	Develop public and private sector partnerships to foster hazard mitigation activities.	Administration	Planning, Public Works, Fire, Police, CBA	General fund, grants	L	Short	✓	✓	✓	✓		✓		✓
Multi-Hazard #5	Perform hydrologic and hydraulic engineering, and drainage studies and analyses. Use information obtained for feasibility determination and project design. This information should be a key component, directly related to a proposed project.	Administration	Planning, Public Works, Tetra Tech	General fund, grants, Utility rates	H	Short	✓	✓	✓	✓		✓		✓
Multi-Hazard #6	Promote resilience, response, mitigation, and recovery planning for local businesses to continue operating after a disaster.	Administration	Planning, Public Works, Police, Fire, CBA	General funds, grants, private investment	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.	Public Works	School District, Fire District, Planning	General funds, utility fees, grants	H	Medium		✓	✓	✓		✓	✓	✓
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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
Earthquake #2	Seismically retrofit (structural and nonstructural) identified high risk critical facilities and infrastructure to meet life safety standards in order to continue operations post-earthquake.	Administration	Public Works, School District, Fire District, Planning, City Engineer	General fund, utility fees, grants	H	Long		✓	✓	✓		✓	✓	✓
Earthquake #3	Encourage utility companies to evaluate and harden vulnerable infrastructure elements for sustainability.	Public Works	Utilities, Planning, Administration	General fund, permit fees	L	Ongoing		✓	✓	✓		✓	✓	✓
Earthquake #4	Educate property owners about structural and non-structural retrofitting of vulnerable buildings and encourage retrofit.	Planning	FEMA, DLCD, OEM	General fund, permit fees	L	Ongoing		✓	✓	✓				
Earthquake #5	Develop an outreach program to educate and encourage homeowners and tenants to secure furnishings, storage cabinets, and utilities to prevent injuries and damage.	Planning	FEMA, DLCD, OEM	General fund, permit fees	L	Ongoing		✓	✓	✓				
Flood Actions														
Flood #1	Ensure continued compliance in the National Flood Insurance Program (NFIP) through enforcement of local floodplain management ordinances.	Planning	Administration, Public Works	General fund	L	Ongoing	✓	✓	✓	✓	✓	✓	✓	✓
Flood #2	Work with FEMA to update FIRMs. Request DOGAMI debris flow and lidar data be included in FIRM updates. Use the updated FIRMS for land use and mitigation planning.	Planning	Public Works, FEMA, DOGAMI, DLCD	General fund, HMA	M	Mid-Term	✓		✓	✓		✓		✓

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 #3	Provide flood protection to mitigate damage and contamination of wastewater treatment systems.	Public Works	Planning	General fund, utility fees	H	Long	✓		✓	✓		✓		✓
Flood #4	Install new streamflow and rainfall measuring gauges to better inform community and emergency responders of flood risk.	Public Works	Planning, Administration	Stormwater utility fees	L	Short Term	✓		✓	✓		✓		✓
Flood #5	Implement mitigation measures identified by critical facilities' owners, and other facility owners, to protect facilities located within the 100-year floodplain.	Administration	Planning, Public Works, Fire District, Police, School District	General fund, HMA	H	Long Term			✓	✓		✓		✓
Landslide Actions														
Landslide #1	Utilize technology, geologic resources and other available data (such as DOGAMI LIDAR data) to identify and map potential areas for landslides - high, moderate and low.	Planning	DOGAMI, Engineering, MW&L	General fund, utility fees, grants	M	Short	✓	✓	✓			✓		✓
Severe Weather Actions (Windstorm and Winter Storms – Snow/Ice)														
Severe Weather #1	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.	Public Works	Planning, Administration	General fund, Utility fees	M	Ongoing		✓	✓	✓		✓		✓
Severe Weather #2	Purchase NOAA weather radios and develop a web portal linking residents to various weather information sites. (NWS, FEMA, The Weather Channel).	Public Works	Planning, Fire District, Police, School District	General funds, utility fees, grants	L	Short		✓		✓		✓		✓

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
Severe Weather #3	Identify and prioritize critical facilities' overhead utilities that could be placed underground to reduce power disruption from windstorm / tree blow down damage.	Public Works	Planning, Utilities, property owners	General funds, utility fees, grants	H	Medium		✓	✓	✓		✓		✓
Severe Weather #4	Implement tree clearing mitigation programs to keep trees from threatening lives, property, and public infrastructure from severe weather events.	Public Works	Planning, Utilities, property owners	General funds, utility fees, grants	M	Ongoing		✓	✓	✓	✓	✓		✓
Volcanic Event Actions														
Volcanic Event #1	Evaluate ash impact on stormwater drainage system, utility infrastructure, transportation network, public facilities, and develop mitigation actions.	Engineering	Public works, Police, Fire District	General funds, utility fees, grants	L	Medium				✓	✓	✓		✓
Wildfire Actions														
Wildfire #1	Coordinate wildfire mitigation action items through the Yamhill County Community Wildfire Protection Plan.	Fire District	Planning	General fund, ODF, grants	M	Ongoing	✓	✓	✓	✓	✓	✓	✓	✓
Wildfire #2	Provide wildland fire information in an easily distributed format for all residents.	Fire District	Planning	General fund, utility fees	L	Ongoing	✓	✓	✓			✓		✓
Wildfire #3	Develop, implement, and enforce vegetation management codes/plans to reduce wildfire risk.	Planning, Fire	Public Works	General fund, grants	L	Short		✓	✓	✓	✓	✓	✓	✓

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
Wildfire #4	Conduct residential audits for wildland and building fire hazard identification then develop an outreach program to disseminate the findings.	Fire	Planning, Public Works	General fund, grants	L	Short		✓	✓	✓	✓	✓	✓	✓

Source: City of Carlton steering committee, 2020.

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

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 CA-1. Ultimately, the goal of hazard mitigation is to reduce the area of risk, where hazards overlap vulnerable systems.

Figure CA-1 Understanding Risk



Hazard Analysis

The Carlton 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 Carlton, which are discussed throughout this addendum.

Table CA-2 shows the HVA matrix for Carlton 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 three chronic hazards (winter storm, windstorm, and flood) rank as the top hazard threats to the City (Top Tier). The wildfire, drought, and crustal earthquake hazards comprise the next highest ranked hazards (Middle Tier), while the landslide and volcanic event hazards comprise the lowest ranked hazards (Bottom Tier).

Table CA-2 Hazard Analysis Matrix

Hazard	Maximum				Total Threat Score	Hazard Rank	Hazard Tiers
	History	Vulnerability	Threat	Probability			
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	
Flood	18	20	60	63	161	#4	
Wildfire	4	20	80	28	132	#5	Middle Tier
Drought	10	15	50	56	131	#6	
Earthquake - Crustal	6	20	60	21	107	#7	
Landslide	6	15	30	21	72	#8	Bottom Tier
Volcanic Event	4	10	30	7	51	#9	

Source: Carlton steering committee, 2019-2020.

Table CA-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 CA-3 Probability and Vulnerability Comparison

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

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

Community Characteristics

Table CA-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 660 people (41%).² According to the State's official coordinated population forecast, between 2019 and 2040 the City's population is forecast to grow by 41% to 3,204.³ *Note: the State is currently updating the official forecast and the proposed 2040 population is 3,152 which represents a 39% increase from 2019 population.*⁴ Median household income increased by 8% 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 Carlton is in the north-central portion of Yamhill County along Highway 47. The economy of Carlton is largely related to agriculture and supporting services. Carlton's commercial areas developed along primary routes, and residential development followed nearby (see Figure CA-2).

Most workers residing in the city (97%, 824 people) travel outside of the city for work primarily to McMinnville, Portland Metro area, Newberg, and Salem.⁶ Most of the city's workforce travels to the city (93% of the workforce, 355 people) primarily from McMinnville, Newbery, and the City of Yamhill.

Carlton residents are employed in a variety of occupations including: construction, extraction, and maintenance (17%), professional (16%), office and administrative support (11%), management, business, and financial operations (9%), and sales (8%) occupations.⁷

The largest employer in the city is the Yamhill Carlton School District.

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 CA-4 Community Characteristics

Population Characteristics		
2012 Population	1,610	
2019 Population	2,270	
2040 Forecasted Pop. [Proposed]*	3,204	[3,152]
Race (non-hispanic) and Ethnicity (Hispanic)		
White	85%	
Black/ African American	0%	
American Indian and Alaska Native	< 1%	
Asian	1%	
Native Hawaiian and Other Pacific Islander	0%	
Some Other Race	< 1%	
Two or More Races	5%	
Hispanic or Latino	9%	
Limited or No English Spoken	19	1%
Vulnerable Age Groups		
Less than 15 Years	445	23%
65 Years and Over	212	11%
Disability Status		
Total Population	257	13%
Children	29	5%
Seniors	48	23%
Income Characteristics		
Households by Income Category		
Less than \$15,000	40	6%
\$15,000-\$29,999	70	11%
\$30,000-\$44,999	69	11%
\$45,000-\$59,999	95	15%
\$60,000-\$74,999	104	16%
\$75,000-\$99,999	108	17%
\$100,000-\$199,999	150	24%
\$200,000 or more	-	-
Median Household Income	\$63,875	
Poverty Rates		
Total Population	122	6%
Children	44	8%
Seniors	13	6%
Housing Cost Burden		
Owners with Mortgage	120	25%
Renters	62	42%

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	644	93%
Multi-Family	23	3%
Mobile Homes	29	4%
Year Structure Built		
Pre-1970	300	43%
1970-1989	112	16%
1990-2009	263	38%
2010 or later	21	3%
Housing Tenure and Vacancy		
Owner-occupied	489	70%
Renter-occupied	147	21%
Seasonal	9	1%
Vacant	51	7%

Carlton is in the north-central portion of Yamhill County. The North Yamhill River and Hawn Creek are the two drainage basins within the city.

Carlton is generally flat with hills located to the west of the city and in the area of the city's water treatment plant and reservoir. Soils in Carlton are moderately well-drained silt loam of the Woodburn series and the poorly drained Wapato silt loam series. The area is largely agricultural with uncultivated vegetation consisting of scattered Oak and Douglas Fir.

Carlton's temperatures range from a monthly average low of 34-38°F in the winter months to average highs of 75-83°F in the summer months. The coolest month is December and the warmest months are July and August. The average annual precipitation is about 42 inches and approximately 74% falls between November and March.

The City has an educated population with 88% of residents 25 years, and older holding a high school degree and 15% have a bachelor's degree or higher.

Carlton includes industrial and commercial development but is zoned primarily residential.

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 Carlton.

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 CA-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 CA-5 Critical and Essential Facilities

Facility Name	Address	
Government		
<i>See Table CA-6 for information on seismic vulnerability.</i>		
City Hall/EOC	191 E Main St	Critical
Water Treatment Plant	21511 NW Panther Creek Rd	Critical
Carlton Reservoir (not in City)	8-miles west (Panther Creek)	Critical
Public Works	945 W Grant	Critical
Sewage Lagoons (not in City)	1-mile west of city limits	Critical
US Post Office	438 W Main St	Essential
Emergency Response		
Fire District Station	343 W Roosevelt St	Critical
Police (City Hall)	191 E Main St	Critical
Educational (Public)		
Elementary School	300 Rice Ln	Essential
Community Assets		
Carlton Swimming Pool	225 W Grant St	

Transportation/Infrastructure

Mobility plays an important role in Carlton, and the daily experience of its residents, and businesses. Motor vehicles represent the dominant mode of travel through, and within Carlton. Carlton is served by Yamhill County Transit (route 33 connects Carlton to Forest Grove to the north and McMinnville to the south).

Infrastructure that provides critical and essential services include:

Railroads

There is no freight or passenger rail service in the city.

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. The closest municipal airport is in McMinnville.

Roads/Seismic lifelines

The Tualatin Valley Highway (OR 47) is the major north-south transportation route through the city. Main St/Meadow Lake Rd/Hendricks Rd is the major east-west transit route in the city (see Figure CA-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 Carlton:

- Tier I: None
- Tier II: None
- Tier III: None

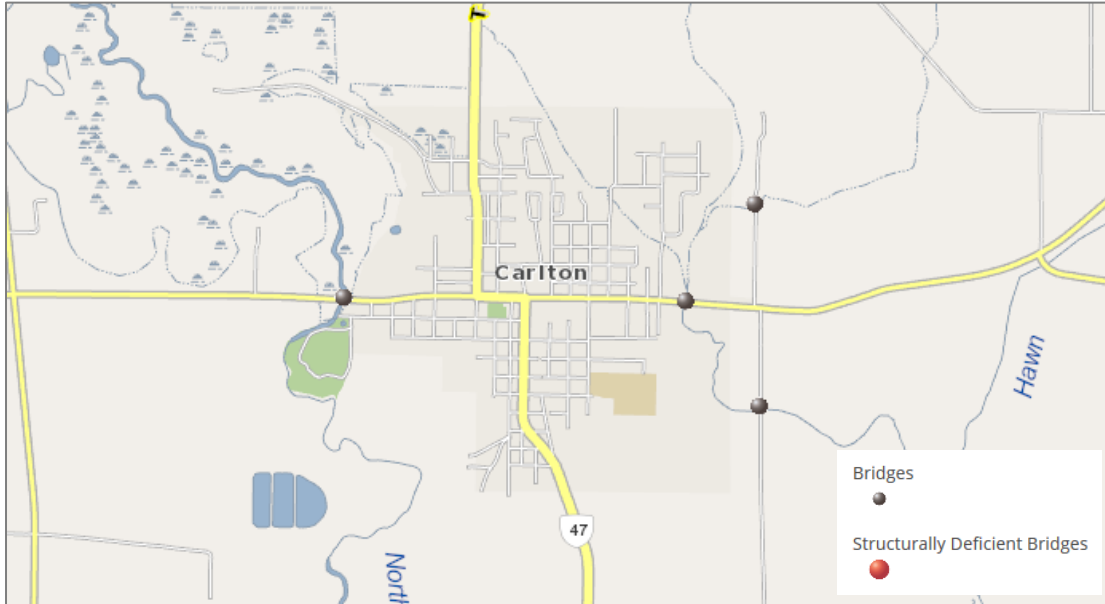
Bridges

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:

- North Yamhill River, Meadow Lake Rd (ODOT 20066)
- Hawn Creek, Hendricks Rd (ODOT 11594A)

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

Figure CA-3 Oregon Bridges and Structurally Deficient Bridges



Source: Oregon Department of Transportation, ODOT TransGIS, accessed April 29, 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:

- Panther Creek Reservoir (8 miles west of the city on Panther Creek)
- Water treatment plant (21511 NW Panther Creek Road)
- Two water storage tanks (1.38 MG, 1 mile west of the city)
- Lift station 1 (Howe) and Lift station 2 (Hahn)
- Approx. 47,000 feet transmission pipes
- Approx. 63,000 feet of distribution pipes
- 3 Sewer treatment lagoons (1 mile west of the city)
- Pump stations

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

Environmental Assets/Parks:

Environmental assets are those parks, green spaces, wetlands, and rivers that provide an aesthetic, and functional ecosystem services for the community include: Ladd Park, Wennerberg Park (Disc Golf), and Hawn Creek Park.

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

Yamhill Carlton Together Cares Learning for Life Preschool
Yamhill Carlton Child Development Center

Adult Care Facilities

None

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 Carlton 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 Carlton:

Carlton State Bank and Savings Building (NW corner of Main and Pine)
Westerlook Farm (Charles Ladd Estate)
Wennerberg Wooden Barn (SW corner of Park and Taft)
Brooks Hotel and theater building (116 W Main Street)
Carlton Elementary school (229 E Monroe Street)
Southern Pacific Railroad Depot (120 N Pine Street)
Carlton Grain Elevator (168 S Pine Street)

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's primary water source is from Panther Creek Reservoir and Panther Creek. The City also has a water right permit for a potential source on Fall Creek and from the Willamette

River via the Yamhill Regional Water Authority (although infrastructure is not yet developed to access this source).

The city has one water reservoir (Panther Creek Reservoir) that holds 66-acre feet. The city's water treatment plant (ca. 2002) has the capacity of to treat 1.2 million gallons per day (MGD). The city has two storage tanks that hold a combined 1.38 million gallons (MG) that are located one mile west of the city. The city has approximately 63,000 feet of distribution pipes and 47,000 feet of transmission pipes. The City has adequate capacity for existing needs.

Vulnerability Assessment

Due to insufficient data and resources, Carlton 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 Carlton's local economy such as agriculture, and timber have historically been affected, and any future droughts would have tangible economic and potentially human impacts.

Mitigation Activities

The City engages in water conservation measures including water line leak detection and repair, replacement of deteriorating pipe (including major transmission and distribution line improvements in 2015), and replacement/repair of older and under-registering water meters and reducing dead end lines in order to increase water circulation throughout the system.

Carlton Codes Pertaining to Droughts

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

1. Carlton Comprehensive Plan, "Water Resources" and "Natural Hazards".
2. Carlton provides water conservation tips to residents that include voluntary measures individuals and households can take to increase conservation of water during times of low water availability.
3. The City has a Water Management and Conservation Plan.

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 Carlton 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 Carlton as well.

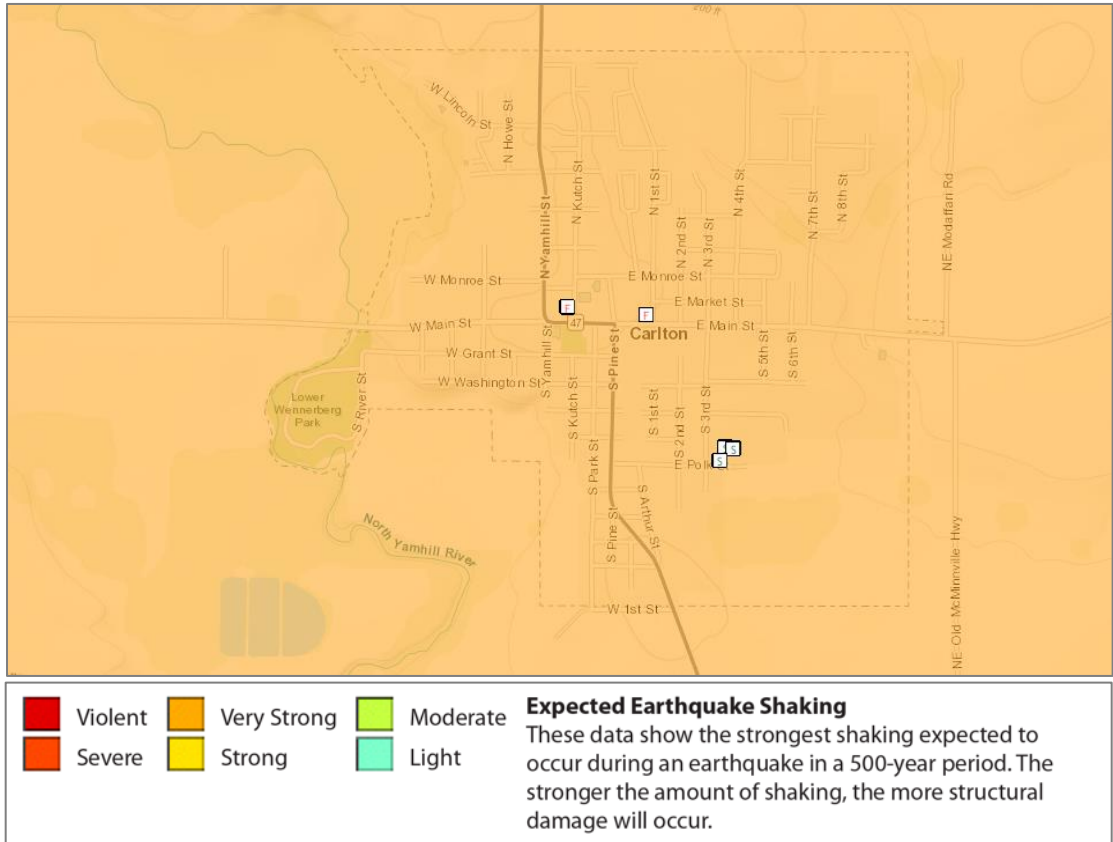
Within the Northern Willamette Valley are that includes Yamhill County, two potential faults and/or zones can generate high-magnitude earthquakes. These include the Cascadia Subduction Zone and the Gales Creek-Newberg-Mt. Angel Structural Zone (including the Newberg Fault).

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.¹⁰

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

Figure CA-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.

¹⁰ The Cascadia Region Earthquake Workgroup, 2005. Cascadia Subduction Zone Earthquakes: A magnitude 9.0 earthquake scenario. <http://www.crew.org/PDFs/CREWSubductionZoneSmall.pdf>

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 Carlton within the "Valley Zone" (Valley Zone, from the summit of the Coast Range to the summit of the 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 **low** 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 Carlton 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 Carlton as well.

Figure CA-5 shows a generalized geologic map of the Carlton 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 (High liquefaction hazard). The inset map shows the county including the Newberg Fault and hazard history.

Vulnerability Assessment (subduction zone and crustal)

Due to insufficient data and resources, Carlton 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.

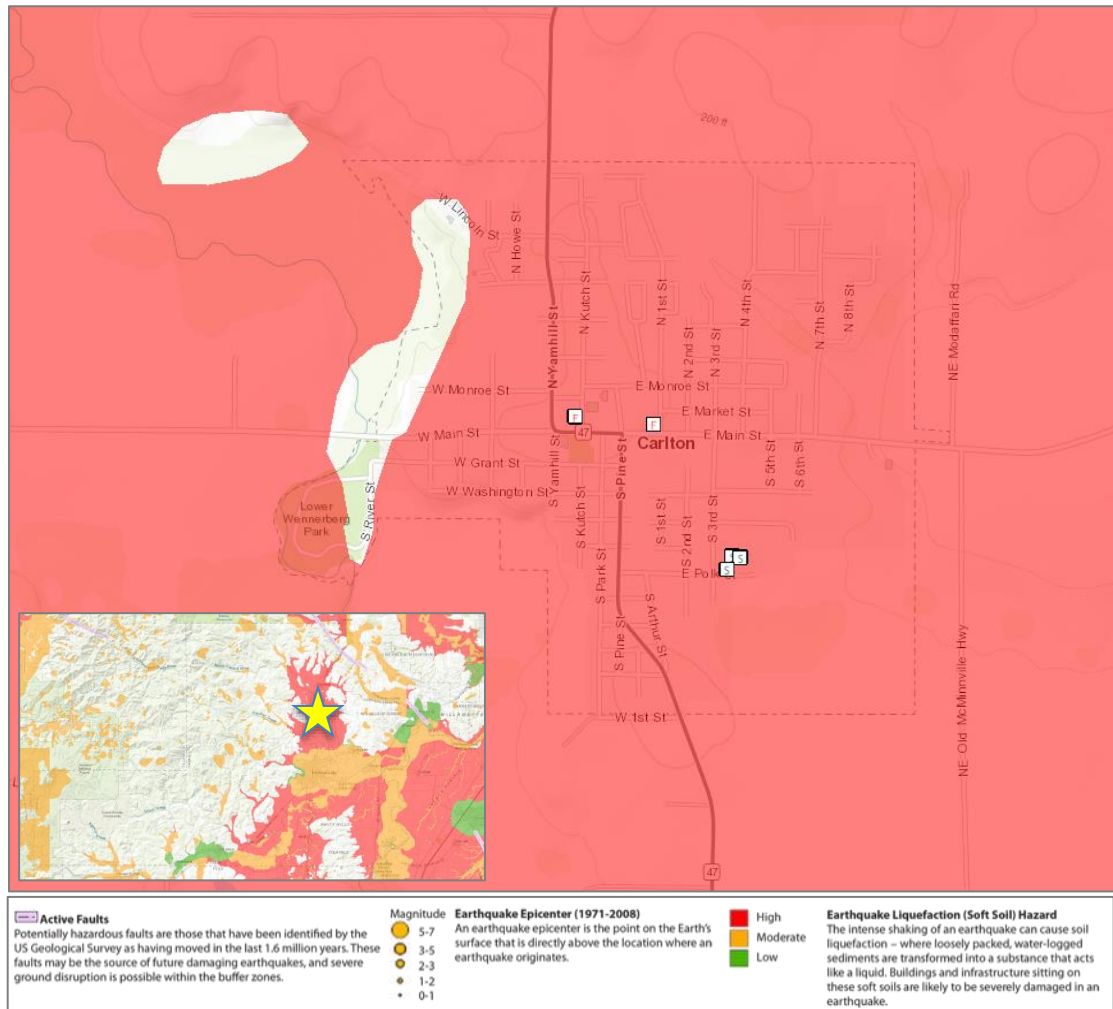
The City of Carlton is in the north-central portion of Yamhill County, in a region likely to experience strong shaking should a subduction zone or significant crustal earthquake occur. This rating represents the peak acceleration of the ground caused by the earthquake, and for a strong designation corresponds to 9-20 percent of the acceleration of gravity. The City is also in an area prone to liquefaction (soft soils) during either a subductions zone or crustal earthquake event. Carlton is located more distant from crustal earthquake faults (the closest is the Newberg fault approximately 10 miles to the east) and has not experienced a damaging earthquake.

Ground movement 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.

Panther Creek Reservoir and the city's water mains are vulnerable to seismic activity. The drainage basin above the dam is 3.19 square miles. There has been some erosion caused by tree removal activities by local landowners during the rainy season. There is a main 4.5

mile, 10-inch diameter transmission line to the city, and includes a 6-inch emergency connection to the McMinnville Water and Light main transmission line.

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



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

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

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.

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 CA-4), approximately 59% 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 CA-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, three buildings, two at Carlton Elementary School and the Carlton Fire Station, have a high (greater than 10% chance) collapse potential.

Table CA-6 Rapid Visual Survey Scores

Facility	Site ID*	Level of Collapse Potential			
		Low (<1%)	Moderate (>1%)	High (>10%)	Very High (100%)
Schools					
Carlton Elementary (420 S 3rd)	Yamh_sch02	X		X,X	
Public Safety					
Carlton Fire (209 N Kutch St)	Yamh_fir04			X	
Carlton Police/City Hall/EOC (191 E Main St)	Yamh_pol09	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 Carlton 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](#)¹¹ are available via the Oregon Infrastructure Finance Authority.

Carlton Codes Pertaining to Earthquakes

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

1. Carlton Comprehensive Plan, "Natural Hazards".
2. The City of Carlton enforces the [Oregon Building Code](#) which includes provisions for earthquakes.

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

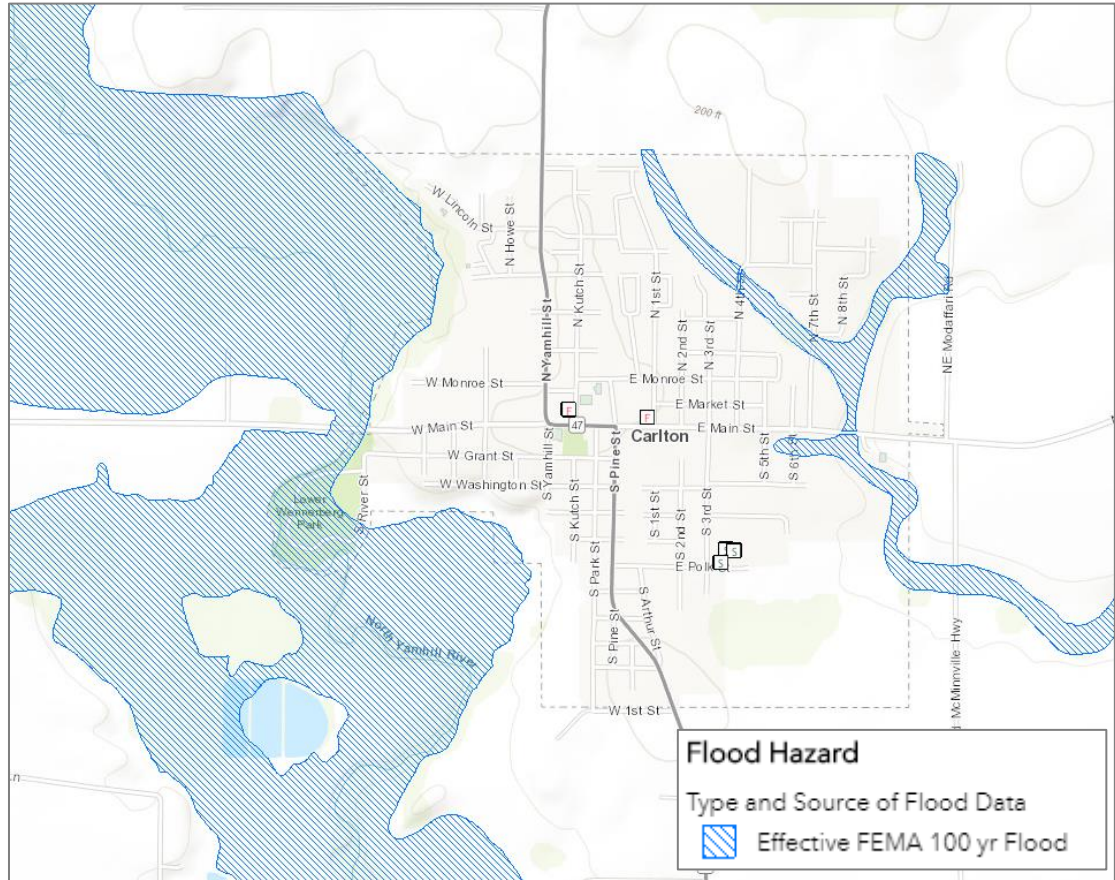
¹¹ The Seismic Rehabilitation Grant Program (SRGP) is a state of Oregon competitive grant program that provides funding for the seismic rehabilitation of critical public buildings, particularly public schools and emergency services facilities.

Flood

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

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 Carlton have areas of floodplains (special flood hazard areas, SFHA). These include areas include the North Yamhill River along the city’s west boundary and the Hawn Creek in the northeast section of the city (Figure CA-6).

Figure CA-6 Special Flood Hazard Area



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

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

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 Carlton 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.

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 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.

Vulnerability Assessment

Due to insufficient data and resources, Carlton 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 Carlton. The 100-year floodplain delineates an area of high risk, while the 500-year floodplain delineates an area of moderate risk. Most special flood hazard areas are within agricultural or open space use. Commercial development is generally located in the center of Carlton and is outside the special flood hazard area. The city's sewage lagoons are in an area susceptible to flooding from the North Yamhill River. A few residential properties to the east are susceptible to flooding of under one-foot flooding from Hawn Creek. Additionally, the city's water supply at Panther Creek Reservoir is within a special flood hazard area.

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 CA-7 shows that as of August 2019, Carlton has one (1) National Flood Insurance Program (NFIP) policies in force for a single-family residential property built after the initial FIRMs. The city has never had a Community Assistance Visit (CAV) and does not participate in the Community Rating System (CRS). 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 Carlton identifies no Repetitive Loss Properties¹² or Severe Repetitive Loss Properties¹³.

Mitigation Activities

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

Carlton Codes Pertaining to Flooding

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

1. Carlton Comprehensive Plan, "Natural Hazards".

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

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

2. Carlton Development Code Chapter 17.56 *Floodplain Management Overlay Zone*. This portion of the Community Development Code implements the Goal 7 policies of the Comprehensive Plan and regulates development within the floodplain.

Table CA-7 Flood Insurance Detail

	Yamhill County	Carlton
Effective FIRM and FIS	3/2/2010	3/2/2010
Initial FIRM Date	-	6/30/1976
Total Policies	446	1
Pre-FIRM Policies	153	0
Policies by Building Type		
Single Family	401	1
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	\$350,000
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	1	0
CRS Class Rating	-	NP
Last Community Assistance Visit	-	NA

Source: Department of Land Conservation and Development, August 2019. Repetitive Flood Loss information provided by FEMA correspondence on September 10, 2020.
 NP = Not Participating, NA = Not Applicable

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**.

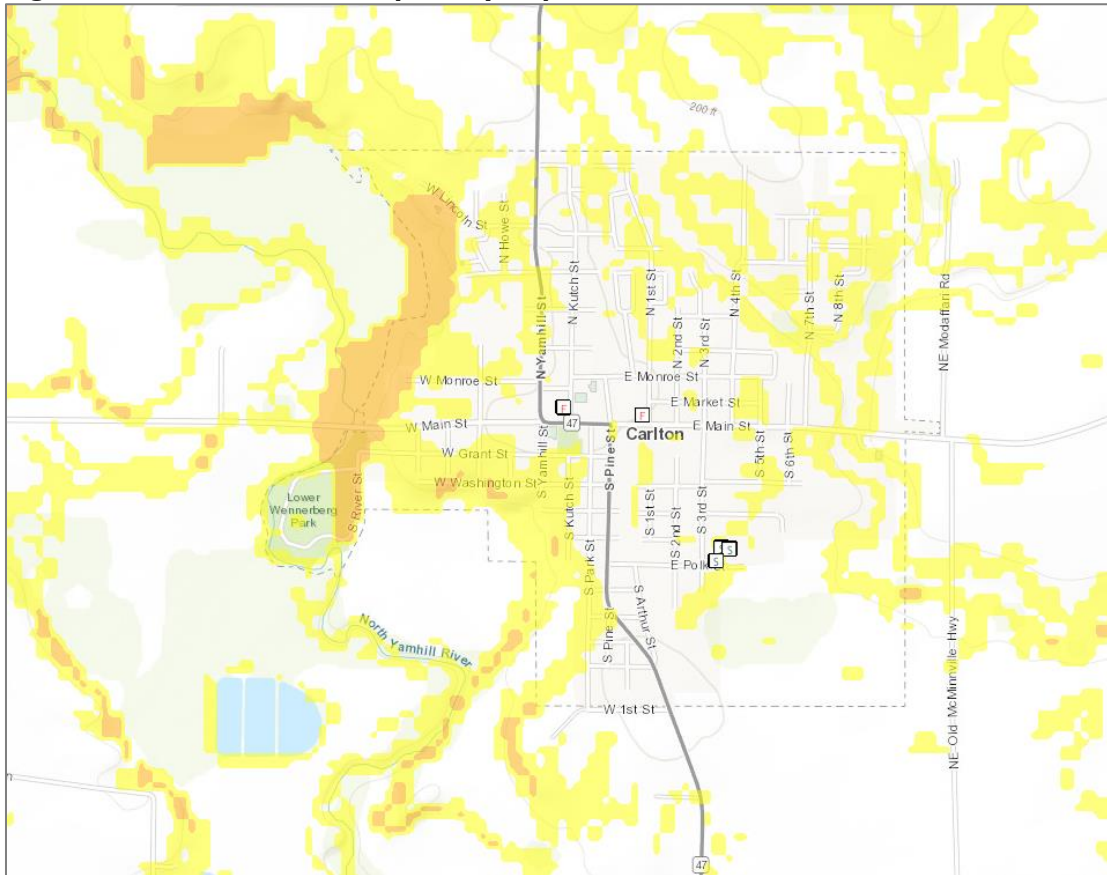
Volume I, Section 2 describes the characteristics of landslide hazards, history, as well as the location, extent, and probability of a potential event within the region.

Landslide susceptibility exposure for Carlton is shown in Figure CA-7. Approximately 5% of Carlton has very high or high, and approximately 33% moderate, landslide susceptibility exposure.¹⁴ Within the City areas of higher landslide risk tend to be located adjacent to the North Yamhill River and Hawn Creek and indicate erosion potential. In general, the areas of greater risk are located outside of the city to the west. *Note that even if a jurisdiction has a*

¹⁴ DOGAMI. [Open-File Report, O-16-02](#), *Landslide Susceptibility Overview Map of Oregon* (2016)

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.

Figure CA-7 Landslide Susceptibility Exposure



Low	Landsliding unlikely. Areas classified as Landslide Density = Low (less than 7%) and areas classified as Slopes Prone to Landsliding = Low.
Moderate	Landsliding possible. Areas classified as Landslide Density = Low to Moderate (less than 17%) and areas classified as Slopes Prone to Landsliding = Moderate OR areas classified as Landslide Density = Moderate (7%-17%) and areas classified as Slopes Prone to Landsliding = Low.
High	Landsliding likely. Areas classified as Landslide Density = High (greater than 17%) and areas classified as Slopes Prone to Landsliding = Low and Moderate OR areas classified as Landslide Density = Low and Moderate (less than 17%) and areas classified as Slopes Prone to Landsliding = High.
Very High	Existing landslides Landslide Density and Slopes Prone to Landsliding data were not considered in this category. Note: the quality of landslide inventory (existing landslides) mapping varies across the state.

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

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

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, Carlton 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 CA-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 may need treatment to quickly improve water quality by reducing excessive water turbidity and reestablishing waste disposal capability.

Mitigation Activities

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

City of Carlton Codes Pertaining to Landslides

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

1. Carlton Comprehensive Plan, “Natural Hazards”.
2. The City of Carlton enforces the [Oregon Building Code](#) which includes provisions that address the potential of geologic hazards including landslides.

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

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 Carlton.

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, Carlton 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 Carlton 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 Carlton agencies or organizations.

- ODOT is responsible for sanding and de-icing state managed roads including: OR 47 within city limits.
- The City requires that all new utility lines, cables or wires, on new development be placed underground.
- The City via Yamhill County provides education on winter weather preparedness
- The City encourages 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 Carlton Codes Pertaining to Windstorms and Winter Storms

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

1. The City of Carlton Development Code provides standards for public infrastructure and utilities, including design.
2. The City of Carlton enforces the [Oregon Building Code](#) which 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 Carlton as well. Several volcanoes are located near Carlton, the closest of which are Mount Hood, Mount Adams, Mount Saint Helens, Mount Rainier, and the Three Sisters.

Due to Carlton'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 Carlton 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 Carlton, 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, Carlton 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 Carlton 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

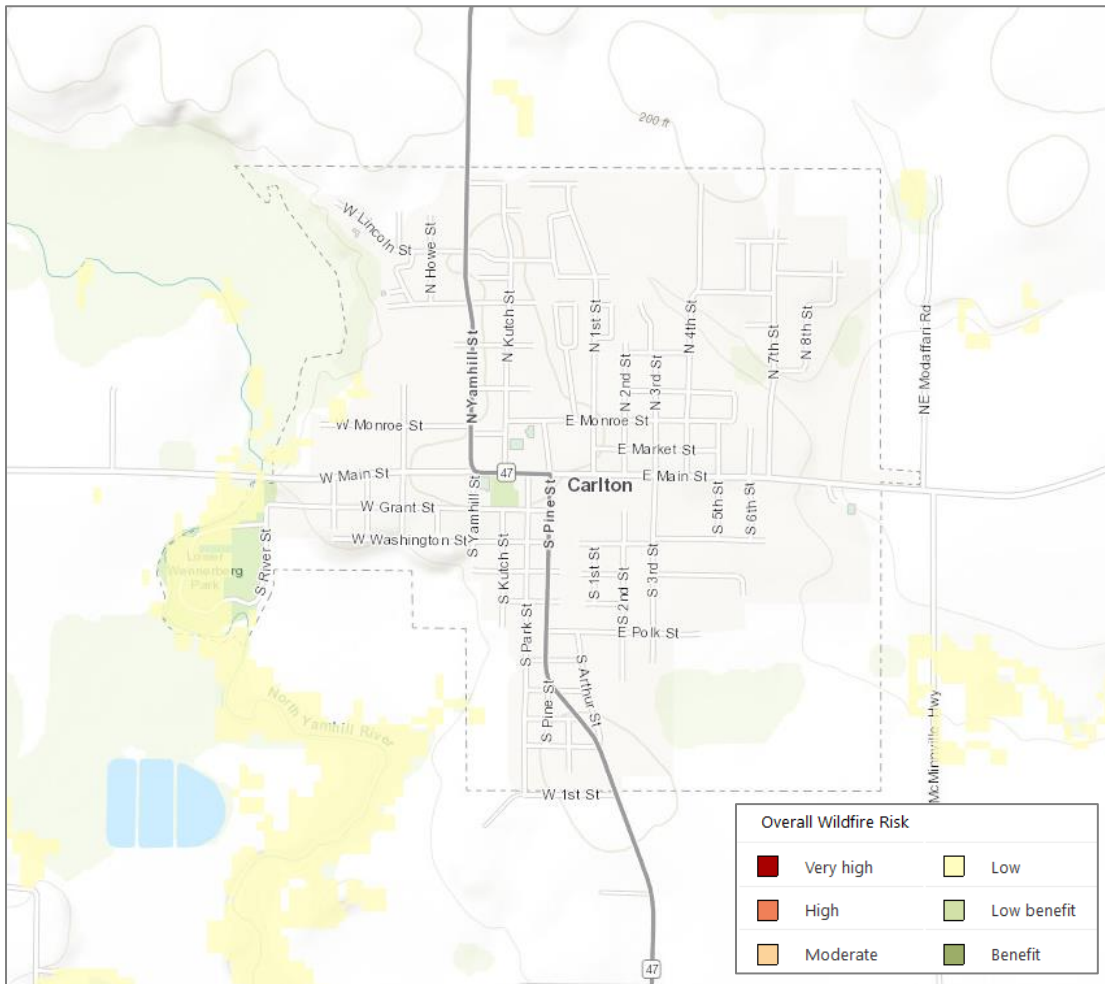
The steering committee determined that the City's probability for wildfire is **low** and that their vulnerability to wildfire is **low**.

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. Carlton has not experienced a wildfire within City limits. The city is surrounded by irrigated agricultural

land. However, some wooded areas are a concern in the case of a wildfire event. Figure CA-8 shows overall wildfire risk in Carlton.

Figure CA-8 Overall Wildfire Risk



Source: [Oregon Wildfire Risk Explorer](#), date accessed April 29, 2020.

There have been no wildfires in the City, however, several small wildfires have occurred west of the city in the regions near the city’s water treatment plant and Panther Creek Reservoir. Wildland fires can be a problem in late summer to early fall and are usually caused by human activity (illegal brush burning, etc.).

The forested areas within, and surrounding Carlton are interface areas. These areas (outside of the city) 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 to none) wildfire burn probability that includes expected flame lengths less than four feet under normal weather conditions.¹⁵ However, conditions vary widely and with local topography, fuels, and local weather (including wind)

¹⁵ [Oregon Wildfire Risk Explorer](#).

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.

Carlton's fire response is provided by Carlton Fire District. 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). However, several identified projects are located near the city or within the city's watershed including moderate priority defensible space projects at the BPA and PGE substations located to the west of the city, and a high priority survey/defensible space project for the Panther Creek Area near the city's water reservoir. The City will update the City's wildfire risk assessment if the CWPP presents better 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, Carlton is currently unable to perform a quantitative risk assessment for this hazard.

The potential community impacts, and vulnerabilities described in Volume I, Section 2 are generally accurate for the City as well.

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 Carlton Fire 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 Carlton agencies or organizations.

City of Carlton Codes Pertaining to Wildfires

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

1. The City of Carlton Development Code provides standards for public infrastructure and utilities, including design.
2. The City of Carlton enforces the [Oregon Building Code](#) which regulates building material requirements and includes provisions for fire.

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

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ATTACHMENT A: ACTION ITEM FORMS

Table CA-1 provides a summary list of 2020 NHMP Actions for the city. Each high priority 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 #1

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 Carlton 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:		Planning	
Internal Partners:		External Partners:	
Public Works, Fire District, Police, School District, Administration		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:	
Cross reference and incorporate mitigation planning provisions into all community planning processes such as comprehensive, capital improvement, land use, transportation plans, etc to demonstrate multi-benefit considerations and facilitate using multiple funding source consideration.		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:	
Public Works, Administration		DLCD	
Potential Funding Sources:		Estimated cost:	Timeline:
General fund, utility rates		Medium	<input type="checkbox"/> Short (0-2 years) <input checked="" 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:	
Seismically retrofit (structural and nonstructural) identified high risk 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:		Administration	
Internal Partners:		External Partners:	
Public Works, Planning, City Engineer		DOGAMI, School District, Fire District	
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		

Flood #3

Proposed Action Item:		Alignment with Plan Goals:	
Provide flood protection to mitigate damage and contamination of wastewater treatment systems.		Goal 1, Goal 3, Goal 4, Goal 6, Goal 8	
Alignment with Existing Plans/Policies:			
Sewer Master Plan			
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)]. Mitigating flood impacts to the wastewater treatment system will allow for continuous operation during a flood event and decrease interruptions during and after a hazard event.			
Ideas for Implementation:			
Implement improvements identified in the Sewer Master Plan.			
Coordinating Organization:		Public Works	
Internal Partners:		External Partners:	
Planning			
Potential Funding Sources:		Estimated cost:	Timeline:
General funds, HMA, utility fees		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		

Severe Weather #1

Proposed Action Item:		Alignment with Plan Goals:	
Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.		Goal 2, Goal 3, Goal 4, Goal 6, Goal 8	
Alignment with Existing Plans/Policies:			
2020 Status/Rationale for Proposed Action Item:			
<p>Currently, all new facilities and infrastructure must comply with development standards including undergrounding.</p> <p>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)]. Reducing risk to public infrastructure will decrease service interruptions during and after a hazard event.</p>			
Ideas for Implementation:			
<p>Develop, implement, and maintain partnership with electric utilities to underground existing utilities where and when possible.</p> <p>Mitigate impacts to public infrastructure snow, ice, wind, and rain events.</p> <p>Consider possible incentives.</p> <p>Develop a tree clearing program to mitigate related threats to infrastructure, people, and property.</p>			
Coordinating Organization:		Public Works	
Internal Partners:		External Partners:	
Planning, Administration		Oregon Energy Trust, Pacific Power, ODOT	
Potential Funding Sources:		Estimated cost:	Timeline:
General funds, utility fees		Medium	<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		

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:			
Yamhill County Community Wildfire Protection Plan			
2020 Status/Rationale for Proposed Action Item:			
The wildfire mitigation action items provide direction on specific activities that organizations and residents in Carlton 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:		Carlton Fire District	
Internal Partners:		External Partners:	
Planning		ODF	
Potential Funding Sources:		Estimated cost:	Timeline:
General fund, ODF grants		Medium	<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		

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 county's website and was discussed during the City Council work session on September 1, 2020 (it was previously noticed and provided in the Council agenda packet on August 4, 2020). Residents and adjoining jurisdictions had opportunities to comment.

During the public review period there were no comments provided.



The mission of Yamhill County Emergency Management is to provide a program that educates County residents in the Mitigation of, Preparedness for, Response to and Recovery from all hazards either natural or manmade.

Yamhill County seeks additional public input on update to Natural Hazard Mitigation Plan

(Posted July 14, 2020)

Yamhill County is currently in the process of updating their existing Natural Hazard Mitigation Plan (NHMP). This work is being performed in cooperation with the University of Oregon's Community Service Center - Oregon Partnership for Disaster Resilience and the Oregon Military Department's Office of Emergency Management utilizing funds obtained from the Federal Emergency Management Agency's (FEMA) Pre-Disaster Mitigation Grant Program. With re-adoption of the plan, Yamhill County will maintain its eligibility to apply for federal funding towards natural hazard mitigation projects. This local planning process includes a wide range of representatives from city and county government, emergency management personnel, and outreach to members of the public in the form of an electronic survey. This NHMP also affects the cities of Amity, Carlton, Dayton, McMinnville, Newberg, Sheridan, Willamina, and Yamhill.

A natural hazard mitigation plan provides communities with a set of goals, action items, and resources designed to reduce risk from future natural disaster events. Engaging in mitigation activities provides jurisdictions with a number of benefits, including reduced loss of life, property, essential services, critical facilities, and economic hardship; reduced short-term and long-term recovery and reconstruction costs; increased cooperation and communication within the community through the planning process; and increased potential for state and federal funding for recovery and reconstruction projects.

The electronic draft is available [here](#); to submit any comments or questions you have regarding the draft plan, please email Brian Young, Yamhill County Emergency Manager emergencymanagement@co.yamhill.or.us

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