



# PLANNING COMMISSION MEETING

Monday, April 21, 2025  
7:00 PM

Community Auditorium, 1915 Main Street

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Dave Andersen  
Seth Berdahl  
Brandon Culbertson  
Nicole Ellis

Tim Farrell  
Virginia "Ginny" Sanderson, Chair  
Julie Stenberg

[Zoom Meeting Link](#)

Zoom Meeting ID: 773 853 4788  
Pass Code: 042125

## A. Call to Order and Roll Call

## B. Public Meeting

1. Public Comment Period for Non-Agenda Items: Anyone wishing to speak on an item not on the agenda may be heard at this time. In the interest of time, please limit comments to three minutes or less.
2. Work Session: TV Highway Bus Rapid Transit Locally Preferred Alternative and Intergovernmental Agreement
3. Public Hearing: File Number 311-25-000005-PLNG - Proposed Development Code Amendments to add the Federal Emergency Management Agency (FEMA) Model Floodplain Management Model Floodplain Management Ordinance

## C. Business Meeting

1. Approval of Minutes from March 3, 2025
2. Director's Report: Bryan Pohl
3. Announce Next Meeting

## D. Adjournment

**Americans with Disabilities Act (ADA) Notice:** The City of Forest Grove will make reasonable accommodations for participation in the meeting. Requests for assistance can be made by contacting the City Recorder's Office, 503-992-3235, [mwoods@forestgrove-or.gov](mailto:mwoods@forestgrove-or.gov), at least 48-hours in advance of the meeting.



Metro



# TV Highway Transit and Safety Project

Forest Grove Planning Commission | April 21, 2025

# Agenda

- Project overview
- Locally Preferred Alternative (LPA)
- Next steps



# Project overview

# Project location



# Why address the Line 57?

**Safety:** More serious and fatal crashes than other roads, including near transit stops

**Ridership:** Most daily boardings in Washington County; highest bounce back in ridership since COVID-19

**Rider experience:** Many stops have no shelter, seating or lighting

**Travel times:** Bus can take up to 2x longer than driving





# Project process

- Government and community partners
- Design and cost refinement
- Community outreach
- Steering Committee LPA recommendation



# TV Highway Equity Coalition (TEC)



**CENTRO**



**APANO**  
ASIAN PACIFIC AMERICAN NETWORK OF OREGON



Virginia Garcia Memorial  
**HEALTH CENTER**



**Individual civic leaders**

# Project benefits: safety & accessibility

- Enhanced crossing or traffic signal at all stations
- Eliminate partial pullout stop design
- Station platforms with curbs and waiting areas



# Project benefits: rider experience

- Stations with shelters, lighting, seating, real-time arrival info
- Increased speed and reliability
- Access for people using mobility devices
- Zero emission buses



# Project benefits: service enhancement

- TV Highway would be upgraded to **12-minute service** every day of the week, most hours of the day



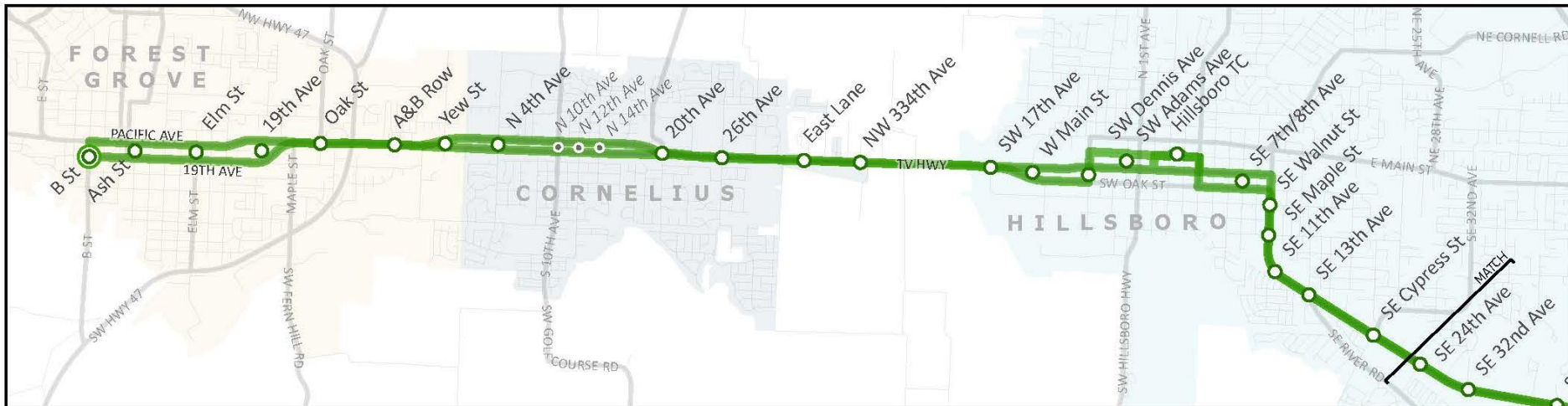
# Locally Preferred Alternative

# Station location process

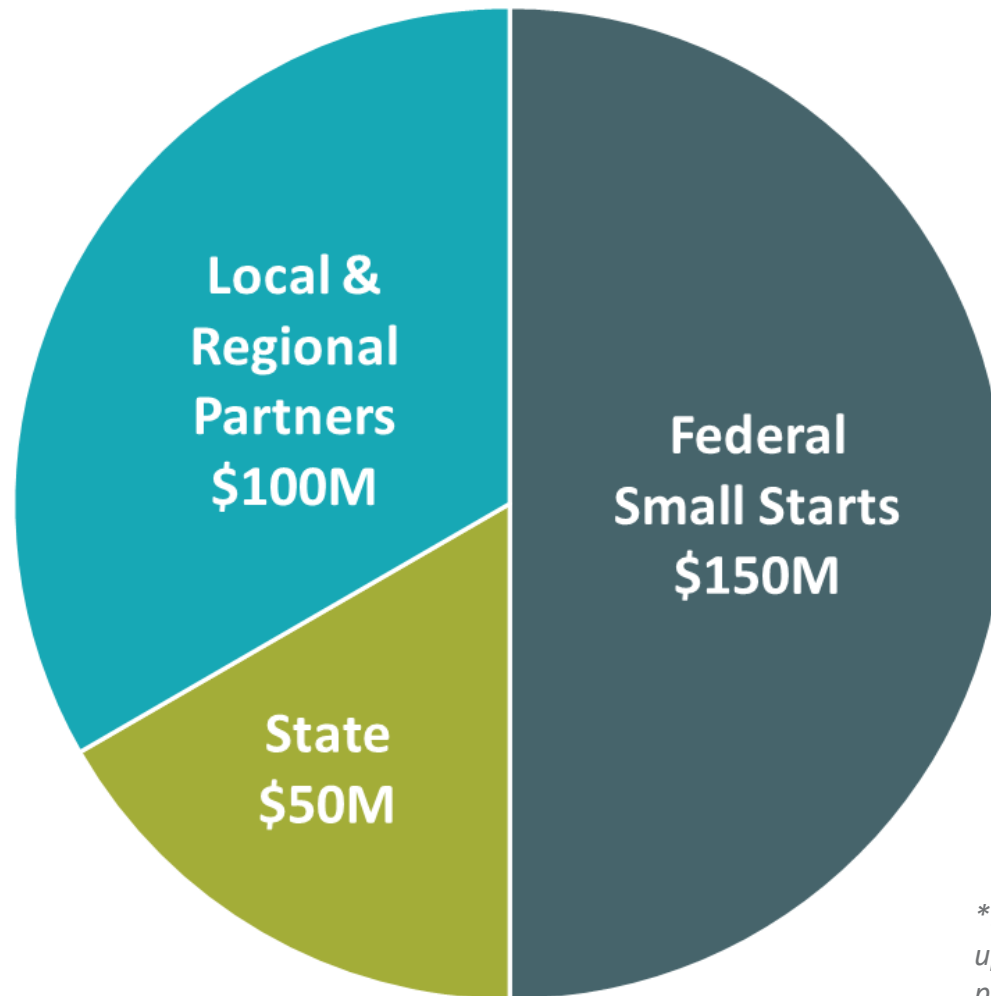
- Key factors guiding station locations
  - High-ridership stops
  - Transfers to TriMet and Ride Connection
  - Stops with more riders using mobility devices
  - Community-identified priorities: access to daily needs, e.g., grocery stores



# Recommended LPA map



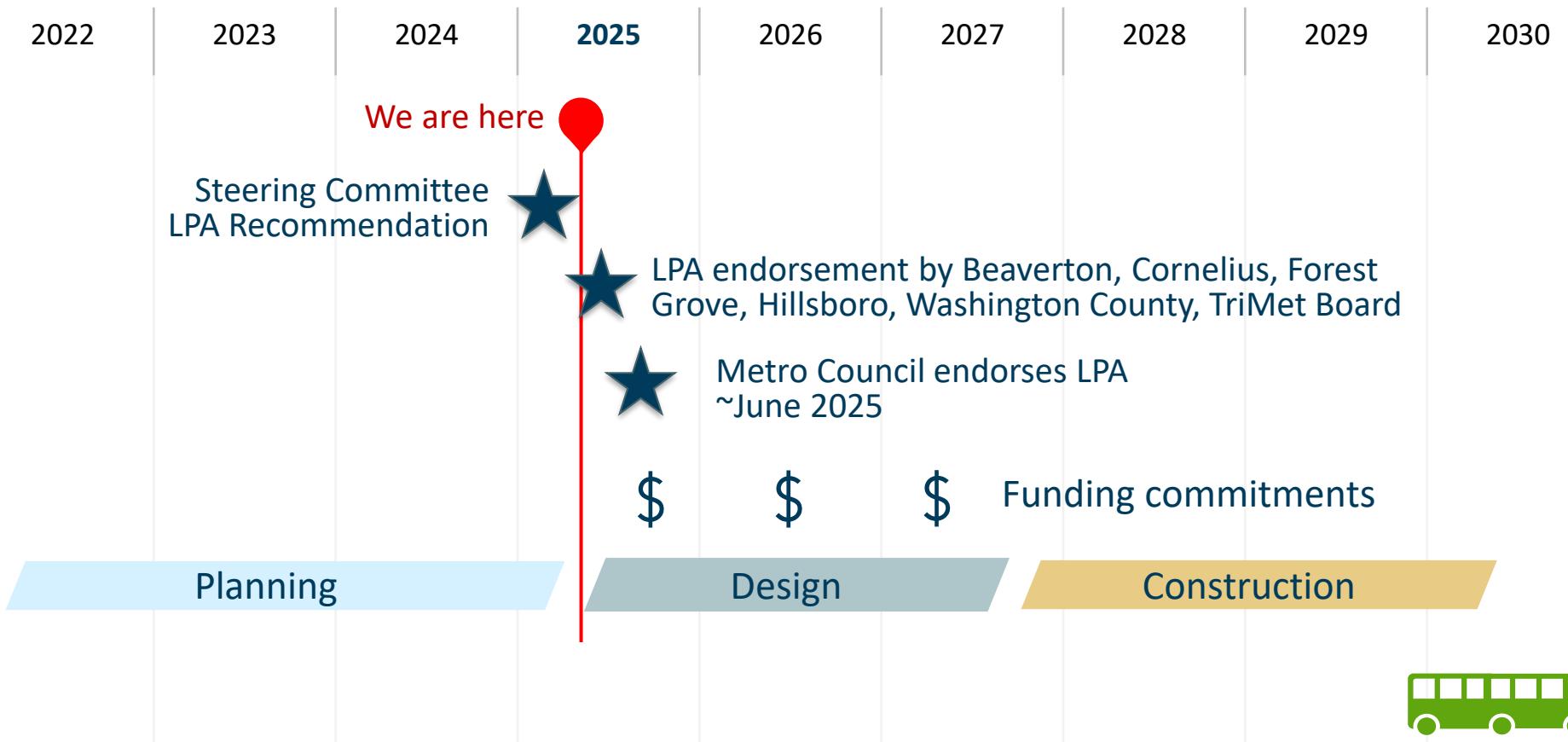
# Funding strategy



*\*Note: funding sources contingent upon jurisdiction/agency approval processes*

# Next Steps

# Project timeline



# Questions?

***Kate Hawkins***

*Senior Transportation  
Planner, Metro*

*kate.hawkins@oregonmetro.gov*

***David Aulwes***

*Capital Planning Manager,  
TriMet*

*aulwesd@trimet.org*

**Learn more**

**[oregonmetro.gov/tv/  
highwaytransit](https://oregonmetro.gov/tv/highwaytransit)**

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**NOTICE OF PUBLIC HEARING  
FOREST GROVE PLANNING COMMISSION  
PROPOSED DEVELOPMENT CODE AMENDMENTS  
FILE NUMBER 311-25-000005-PLNG**

**NOTICE IS HEREBY GIVEN** that the Forest Grove Planning Commission will hold a public hearing on **Monday, April 21, 2025**, or thereafter, at the Community Auditorium, 1915 Main Street and via Zoom video conferencing, to consider amendments to the Forest Grove Development Code to add the Federal Emergency Management Agency (FEMA) 2024 model floodplain management ordinance. This is a legislative amendment to the Forest Grove Development Code and the Planning Commission will consider this proposal and base its decision on applicable review criteria described in Forest Grove Development Code §17.2.630 (Development Code Text Amendment):

- A. The text amendment is consistent with the relevant goals and policies of the Forest Grove Comprehensive Plan; and
- B. The text amendment is consistent with relevant statewide and regional planning goals, programs and rules.

At the time and place noted above, all persons will be given reasonable opportunity to give testimony about the proposal and how the proposal addresses the review criteria. If an issue is not raised in the hearing (by person or by letter) or if the issue is not explained in sufficient detail to allow the Planning Commission to respond to the issue, then that issue cannot be used for an appeal to the Land Use Board of Appeals.

The hearings will be held in a “hybrid” format allowing the public to attend the meeting virtual via Zoom and in-person. A copy of the meeting agenda with Zoom instructions and staff report are available seven days prior to the hearing and are published on the City's website at [www.forestgrove-or.gov](http://www.forestgrove-or.gov). To provide testimony via Zoom, please email [sreynolds@forestgrove-or.gov](mailto:sreynolds@forestgrove-or.gov) at least 24 hours prior to the hearing. Written comments or testimony must be submitted at the hearings or sent prior to the hearings to the attention of the Planning Commission Coordinator, P.O. Box 326, 1924 Council Street, Forest Grove, OR 97116, [sreynolds@forestgrove-or.gov](mailto:sreynolds@forestgrove-or.gov). Additional information about the proposal is available for review at [www.forestgrove-or.gov](http://www.forestgrove-or.gov) [Projects and Land Use](#). Questions about the proposal should be directed to Daniel Riordan, Senior Planner, at (503) 992-3226 or [driordan@forestgrove-or.gov](mailto:driordan@forestgrove-or.gov).

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Mariah S. Woods, City Recorder  
City of Forest Grove  
To be published in the News-Times on April 10, 2025



*A place where families and businesses thrive.*

**PLANNING COMMISSION REPORT**

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**TO:** *Planning Commission*

**FROM:** *Bryan W. Pohl, CFM, Community Development Director*

**PROJECT TEAM:** *Daniel Riordan, Senior Planner  
Byran W. Pohl, CFM, Community Development Director  
Gregory Robertson, P.E., AICP, CFM, Public and Engineering Director*

**DATE:** *April 21, 2025*

**SUBJECT:** *Public Hearing on Proposed Amendments to Development Code Articles 8 and 12 to Revise the City's Floodplain Management Regulations and Related Definitions Necessary to Adopt the FEMA Model Floodplain Management Ordinance; File Number 311-25-00005-PLNG*

**ACTION REQUESTED:**

Ordinance	Order	Resolution	X	Motion	Informational
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**ISSUE STATEMENT:** In 2009, several non-profit environmental groups filed a lawsuit against the Federal Emergency Management Agency (FEMA) arguing that FEMA violated the Endangered Species Act by not consulting with the National Marine Fisheries Services (NMFS) about how the National Flood Insurance Program (NFIP) could jeopardize threatened species. FEMA resolved the lawsuit by formally consulting with NMFS to review the impact of the NFIP. In April 2016, NMFS issued a Biological Opinion (BiOp) that concludes that the NFIP in Oregon jeopardizes the survival of several threatened species. The BiOp contained a reasonable and prudent alternative (RPA) with recommendations from NMFS to FEMA on how to reduce the negative impacts of the NFIP on threatened species.

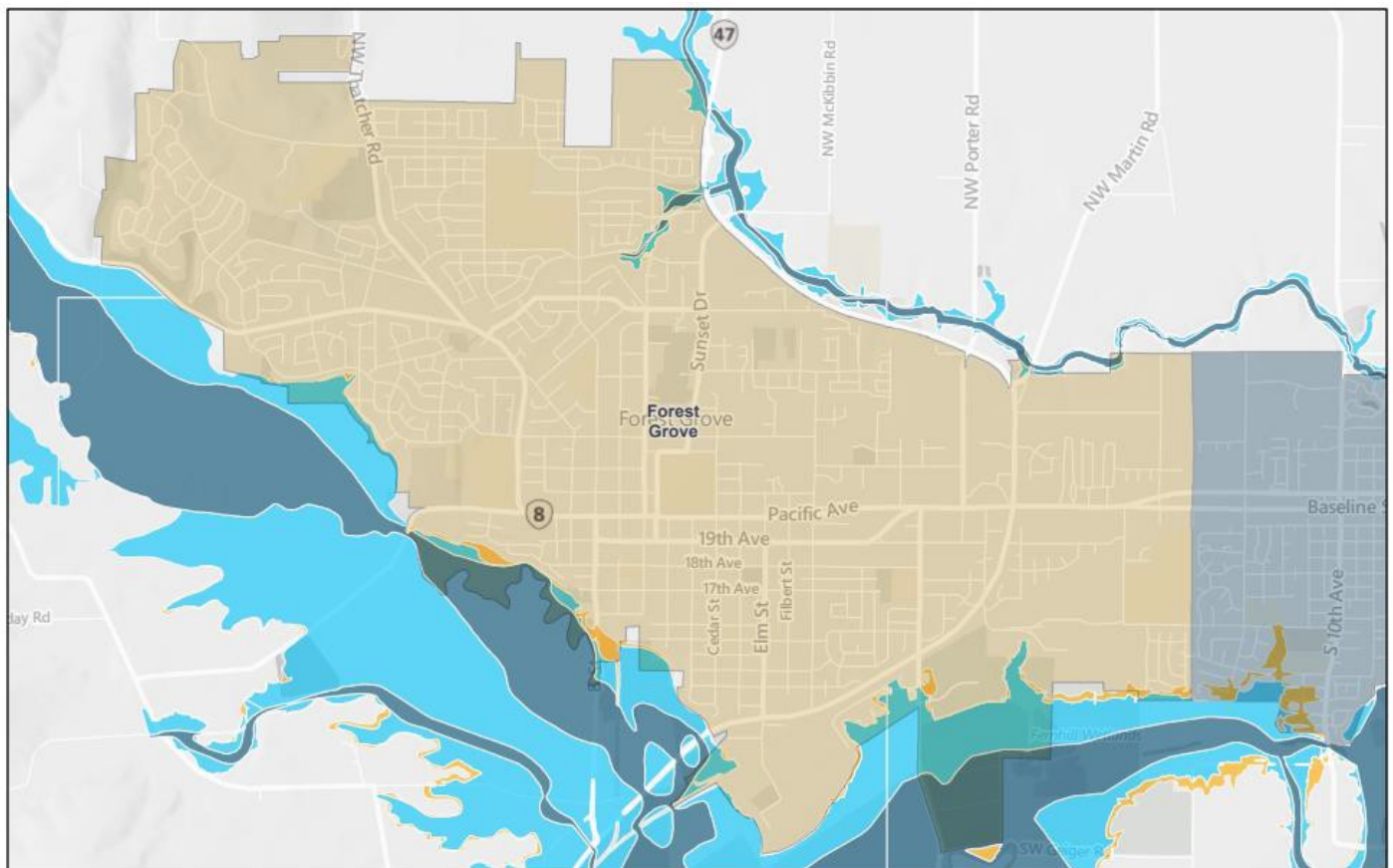
In 2023, FEMA initiated the draft implementation plan using a National Environmental Policy Act (NEPA) process which is still underway. In September 2023, environmental organizations filed a lawsuit alleging that FEMA has been too slow to implement the BiOp. As result FEMA announced a new program of pre-implementation compliance measures (PICMs) for the BiOp. Communities participating in the NFIP must are required to select one of three PICM options to demonstrate that floodplain development is compliant with the Endangered Species Act in Special Flood Hazard Areas (SFHAs). The PICM options are described in detail further in this report.

If adopted by City Council, the attached ordinance would amend the Forest Grove Development Code to implement the model floodplain ordinance. Adoption of the model

ordinance would ensure continued local compliance with the standards for participation in the National Flood Insurance Program (NFIP) and will enable Forest Grove to avoid suspension from the NFIP, FEMA is requiring that the code revisions be in effect by July 1, 2025. Suspension from the NFIP means that no property owner or renter will be able to purchase a flood insurance policy and existing flood insurance policies will not be renewed.

**BACKGROUND:** The City's Development Code has been amended several times to address evolving FEMA regulations for floodplain management and to ensure ongoing compliance with NFIP requirements. The most recent amendments occurred in 2016 and 2018. The 2016 amendments were based on a model code developed by the Oregon Department of Land Conservation and Development. The 2018 amendments were made in response to FEMA comments after review of the 2016 amendments.

The map below shows areas within Forest Grove subject to floodplain management requirements.



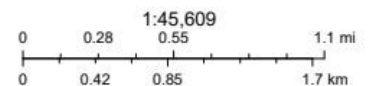
2/11/2025

FEMA Flood Hazard Areas

1% Annual Chance Flood Hazard

Regulatory Floodway

0.2% Annual Chance Flood Hazard



Metro DRC

Although there is little developable land within the limits that are within the floodplain the City must still select a PICM option to maintain NFIP eligibility. Under PICM, there are three options available for implementation:

1. Adopt the PICM model floodplain management ordinance that consider impacts to fish habitat and requires mitigation to a no net loss standard defined in the model ordinance;
2. Review individual development proposals and require permit-by-permit habitat mitigation to achieve no net loss; or
3. Prohibit all new development in the floodplain.

Option 1: Option 1 is the staff recommended approach since it ensures compliance with the ESA and ensures continued participation by the City in the National Flood Insurance Program. Under Option 1, communities do not need to go through a separate process to ensure ESA compliance. In addition, Option 1 provides specific development standards for development review in advance of land use applications consistent with land use laws.

Option 2: Option 2 is an ad-hoc approach that does not meet requirements for clear and objective development standards applicable to residential development. This creates potential for appeals of development decisions issued by the City. The City Attorney advised City staff that this option is not advisable.

Option 3: Option 3 is the most stringent approach. Under Option 3, all development is prohibited with limited exceptions. Permitted exceptions include habitat restoration projects and activities identified as exempt from no net loss. Exempt activities must be specified at time of implementation. Option 3 presents risk of taking property for a public purpose depending on how much property is impacted by the floodplain.

Based on initial evaluation of the three PICM options City staff, after consultation with the City Attorney, notified FEMA on November 25, 2024, that the City decided to proceed with implementation of Option 2, adoption of the model code with an effective date of no later than July 1, 2025. The City further notified FEMA on January 16, 2025, that the City will implement the FEMA model floodplain ordinance, and the City is taking the steps necessary to do so. Until the model ordinance is effective the City will review each application for a floodplain permit in manner consistent with City Code and State of Oregon law.

The draft ordinance includes the proposed amendments to Development Code Article 8 for floodplain management that are necessary to implement the FEMA Model Code. The Article 12 amendments remove floodplain related definitions related to floodplain management. Several definitions are proposed for modification for consistency with the Model Code.

The proposed changes to the Development Code needed to include the FEMA model ordinance are shown in Attachments A and B. The proposed Development Code amendments affect Development Code Article 8 (General Development Standards) and the flood related definitions in Development Code Article 12 (Definitions). The flood related definitions will be

removed from Article 12 and will be added to Article 8 with the flood management development standards.

Attachment C includes the adoption findings addressing the criteria for text amendments in Development Code §17.2.630. The review criteria include:

- A. The text amendment is consistent with relevant goals and policies of the Forest Grove Comprehensive Plan; and
- B. The text amendment is consistent with the relevant statewide and regional planning goals, programs and rules.

Attachment D includes the draft wording for City Council ordinance that is required to amend the Development Code to include the FEMA model ordinance. The ordinance includes the proposed code amendments and the adoption findings for Planning Commission approval.

#### FEMA Model Floodplain Management Model Ordinance Overview

The FEMA Model Floodplain Management Ordinance (Attachment E) is intended to protect life and health, minimize expenditures of public money for costly flood control projects, preserve natural and beneficial floodplain functions, minimize the need for rescue and relief efforts associated with flooding and ensures eligibility for flood insurance and disaster relief. The model ordinance includes development standards for reducing flood losses including restricting or prohibiting development which is dangerous to health, safety and property. The model ordinance also requires that development vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction. In addition, the model ordinance includes standards to control the alteration of natural floodplains and stream channels which handle flood waters.

The model ordinance establishes development controls to achieve a “no net loss” of natural floodplain functions. To achieve no net loss adverse development impacts must be avoided or offset through compliance with certain requirements so there is not net change in the function from the existing conditions when a development application submitted. Floodplain functions include floodwater storage, water quality, and vegetation.

In addition to standards affecting new development, the model ordinance includes provisions for floodplain management administration and compliance. This includes requirements for designating a floodplain administrator responsible for permit review, processing variances, and reporting to FEMA.

**STAFF RECOMMENDATION:** Staff recommends that the Planning Commission recommend City Council approval of the ordinance to amend Forest Grove Development Code Articles 8 and 12 to revise the Hazards and Resources (flood damage prevention) regulations and related definitions to include the FEMA model floodplain management ordinance. Staff further recommends that the Planning Commission adopt the findings and decision attached as Attachment C.

**ATTACHMENTS:**

- A. Proposed Development Code Article 8 (General Development Standards) Amendments
- B. Proposed Development Code Article 12 (Definitions) Amendments
- C. Draft Planning Commission Adoption Findings
- D. Draft City Council Ordinance
- E. FEMA Floodplain Management Mode Ordinance Guidance Document

**DEVELOPMENT CODE ARTICLE 8**

~~HAZARDS AND RESOURCES~~

RESOURCE AREAS, HAZARD AREAS AND FLOODPLAIN MANAGEMENT

**§ 17.8.300 PURPOSE.**

The purpose of this subarticle is to establish standards and requirements where development is subject to resources or hazards as defined by these provisions. This subarticle also implements provisions contained in the Model Floodplain Management Ordinance prepared by the Federal Emergency Management Agency.

**§ 17.8.305 RESOURCE AREAS.**

A. Wetlands, Wetland Buffer Areas, Wildlife Conservation Areas and Vegetated Corridors subject to the provisions of § 17.5.005 shall be left undisturbed unless:

1. Division of State Lands has issued a permit to allow fill in a wetland; or
2. Enhancements that are required or allowed either by the report approved by the city for Wildlife Conservation Areas pursuant to §-17.5.025 or by the Service Provider Letter issued by Clean Water Service.

B. Wetland buffer areas and vegetated corridors shall be provided consistent with the requirements of Clean Water Service (CWS) Design and Construction Standards. Pursuant to §-17.5.025A., a service provider letter from CWS shall be issued prior to filing for a land use permit with the city-.

C. All development with Natural Resource Areas shall attempt to design development through avoidance of the resource area. If that cannot be achieved through standard development requirements, then the requirements of §§-17.5.005 et seq. shall apply and shall override any conflicting development requirements established by other portions of the Development Code in order to minimize intrusion into the NRA.

D. All wetlands-, wetland buffers, vegetated corridors and wildlife habitats shall be established as follows.

1. For divisions of land, the area shall be placed in an open space tract separate from areas intended for development-. The open space tract is subject to the requirements of §§ 17.8.200 et seq.

2. For development not involved in a division of land, the area shall be held in common for residential condominiums or by the primary land owner for apartment-complexes or non-residential development-. The area shall be placed within an easement and adequate maintenance provisions shall be provided consistent with the requirements of § 17.8.200.

E. Historic structures and trees-. Any modification of historic structures or the removal of trees shall comply with the requirements of §§ 17.5.200 et seq. and 17.5.100 et seq. respectively.

**§ 17.8.310 HAZARD AREAS.**

A. Information and studies for hazards shall be provided as follows.

1. For development sites partially or totally within ~~Flood Management Areas or~~ areas of special flood hazard ~~as determined by § 17.8.315B, as defined in §17.8.320(C)~~, there shall be provided a study prepared by an engineer certified by the State of Oregon to provide hydraulic, flood plain elevation and any other necessary analysis to meet the requirements of ~~§ 17.8.325D~~ §17.8.330(B)(2). as determined by the City Engineer.

2. For development sites having slopes of 10% or more, the following requirements shall be met. To ensure compliance with the provisions of this Code, prior to the issuance of a building permit for the construction of any new building (as defined by § 17.12.210B.8. within the city , and prior to any grading, excavation or filling or other site modification within areas having a slope of 10% or greater, there shall be submitted to the Community Development Department for review and approval, or approval with modifications:

a. A site plan (showing any grading, excavating or filling) drawn to scale of the entire property developed and of the proposed construction; and

b. The submission of a geological assessment and geotechnical report prepared and stamped by a Certified Engineering Geologist who is a registered geologist certified in the specialty of Engineering Geology under provisions of O.R.S. 672.505 to 672.705 and a Geotechnical Engineer under provisions of O.R.S. 672.002 to 672.325. The assessment and report shall address the entire site and meet the following requirements:

i. The geological and engineering assessment shall include information and data regarding the nature, distribution of underlying geology, and the physical and chemical properties of existing soils; an opinion as to stability of the site-, and conclusions regarding the effect of geo-logic conditions on the proposed development.

ii. The geotechnical report shall include a comprehensive description of the site topography and geology; an opinion as to the adequacy of the proposed development from an engineering standpoint; and opinion as to the extent that instability on adjacent properties may adversely affect the project; a description of the field investigation and findings ; conclusions regarding the effect of geologic conditions on the proposed development ; and specific requirements for plan modification, corrective grading and special techniques and systems to facilitate a safe and stable development . The report shall provide other recommendations as necessary, commensurate with the project grading and development.

iii. Address the requirements of § 17.8.310B.

B. Through hazard study(ies) required pursuant to § 17.8.310A., the applicant shall establish methods to minimize hazards to acceptable risks by:

1. Site design approaches that avoids development within hazard area;

2. Grading, erosion control and other site preparation techniques to minimize hazard impacts;
3. Techniques to minimize impacts from utility installation; and/or
4. Building and foundation techniques to minimize hazard impacts.

**C. Where a hazard area is proposed to be avoided:**

1. For divisions of land, the area shall be placed in an open space tract separate from areas intended for development. The open space tract is subject to the requirements of §§ 17.8.200 et seq.
2. For development not involved in a division of land, the area shall be held in common for residential condominiums or by the primary land owner for apartment complexes or non-residential development. The area shall be placed within an easement and adequate maintenance provisions shall be provided consistent with the requirements of § 17.8.200.
3. The tract or easement area shall be restricted to open space. Utilities may be located within the area provided that the report proposes acceptable measures to minimize hazard impacts. Open space tracts are subject to the provisions of § 17.8.200.

**§ 17.8.315 FLOODPLAINS AND FLOOD MANAGEMENT AREAS. FLOODPLAIN MANAGEMENT CODE**

- A. Statutory Authorization. The State of Oregon has in ORS 197.175 designated responsibility to local governmental units to adopt floodplain management regulations design to promote the public health, safety, and general welfare of its residents.
- B. Purpose. It is the purpose of the floodplain management code to promote public health, safety and general welfare, and to minimize public and private losses due to flooding in special flood hazard areas by provisions designed to:
  1. Protect human life and health;
  2. Minimize expenditure of public money for costly flood control projects;
  3. Preserve natural and beneficial floodplain functions;
  4. Minimize the need for rescue and relief efforts associated with flooding and generally undertake at the expense of the general public;
  5. Minimize prolonged business interruptions.
  6. Minimize damage to public facilities and utilities such as water and gas mains; electrical, telephone and sewer lines; and streets and bridges located in special flood hazard areas;

7. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas so as to minimize blight areas caused by flooding;

8. Notify potential buyers that the property is in a special flood hazard area;

9. Notify those who occupy special flood hazard areas that they assume responsibility for their actions;

10. Participate in and maintain eligibility for flood insurance and disaster relief.

C. Methods of Reducing Flood Losses. In order to accomplish its purposes, this code includes methods and provision for:

1. Restricting or prohibiting development which is dangerous to health, safety, and property due to water and erosion hazards, or which result in damaging increases in erosion or in flood heights and velocities.

2. Requiring that development vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.

3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters.

4. Controlling filling, grading, dredging, and other development which may increase flood damage;

5. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas;

6. Employment an standard of "no net loss" of natural and beneficial floodplain functions.

#### **§17.8.320 FLOODPLAIN MANAGEMENT DEFINITIONS**

A. APPEAL: For floodplain management purposes, an appeal is a request for a review of the interpretation of any provision of the Floodplain Management Ordinance Code or a request for a variance.

B. AREA OF SHALLOW FLOODING: A designated zone AO, AH, AR/AO or AR/AH on a community's Flood Insurance Rate Map (FIRM) with a one percent or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

A-C. AREA OF SPECIAL FOOD HAZARD: The land in the floodplain within a community subject to a 1percent or greater chance of flooding in any given year. It is shown on the Flood Insurance Rate Map (FIRM) as Zone A, AO, AH, A1-30, AE, A99, AR (V, V1-30, VE). "Special flood hazard area"

is synonymous in meaning and definition with the phrase “area of special flood hazard.”

- D. BASE FLOOD: The flood having a one percent chance of being excluded or exceeded in any given year.
- E. BASE FLOOD ELEVATION (BFE): The elevation to which floodwater is anticipated to rise during the base flood.
- F. BASEMENT: For floodplain management purposes, any area of the building having its floor subgrade (below ground level) on all sides.
- G. BREAKAWAY WALL: A wall that is nor part of a structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.
- H. DEVELOPMENT: Any human-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
- I. FILL: Placement of any materials such as soil, gravel, crushed stone, or other materials that change the elevation of the floodplain. The placement of fill is considered “development.”
- J. FISH ACCESSIBLE SPACE: The volumetric space available to fish to access.
- K. FISH EGRESS-ABLE SPACE: The volumetric space available to fish to exit or leave from.
- L. FLOOD OR FLOODING:
  - a. A general and temporary condition or partial or complete inundation of normally dry land areas from:
    1. The overflow of inland or tidal waters.
    2. The unusual and rapid accumulation or runoff of surface waters from any source.
    3. Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (a)(2) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.
  - b. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclic levels

or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph (a)(1) of this definition.

- M. FLOOD ELEVATION STUDY: An examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation, and determination of mudslide (i.e. mudflow) and/or flood-related erosion hazards.
- N. FLOOD INSURANCE RATE MAP: The official map of a community, on which the Federal Insurance Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).
- O. FLOOD INSURANCE STUDY (FIS): See "Flood elevation study."
- P. FLOODWAY: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Also referred to as "Regulatory Floodway."
- Q. FUNCTIONALLY DEPENDENT USE: A use which cannot perform its intended purpose unless it is located or carried out in proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading cargo or passengers, and ship repair facilities, but does not include long-term storage or related manufacturing facilities.
- R. GREEN INFRASTRUCTURE: Use of natural or human-made hydrologic features to manage water and provide environmental and community benefits. Green infrastructure uses management approaches and technologies that use, enhance, and/or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration, and reuse. At a large scale, it is an interconnected network of greenspace that conserves natural systems and provides assorted benefits to human populations. At a local scale, it manages stormwater by infiltrating it into the ground where it is generated using vegetation or porous surfaces, or by capturing it for later reuse. Green infrastructure practices can be used to achieve no net loss of pervious surface by creating infiltration of stormwater in an amount equal to or greater than the infiltration lost by the placement of new impervious surface.
- S. HABITAT RESTORATION ACTIVITIES: Activities with the sole purpose of restoring habitats that have only temporary impacts and long-term

benefits to habitat. Such projects cannot include ancillary structures such as a storage shed for maintenance equipment, must demonstrate that no rise in the BFE would occur as a result of the project and obtain a CLOMR and LOMR, and have obtained any other required permit (e.g., CWA Section 404 Permit).

- T. HAZARD TREES: For floodplain management purposes, standing dead, dying or diseased trees or ones with a structural defect that makes it likely to fail in whole or in part and that present a potential hazard to a structure or as defined by the City.
- U. HIGHEST ADJACENT GRADE: The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.
- V. HISTORIC STRUCTURE: For floodplain management purposes, any structure that is:
- a. Listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting requirements for individual listing on the National Register;
  - b. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district.
  - c. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
  - d. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
    1. By an approved state program as determined by the Secretary of the Interior or
    2. Directly by the Secretary of the Interior in states without approved programs.
- W. HYDRAULICALLY EQUIVALENT ELEVATION: A location (e.g., a site where no net loss standards are implemented) that is approximately equivalent to another (e.g., the impacted site) relative to the same 100-year water surface elevation contour or base flood elevation. This may be estimated based on a point that is along the same approximate line perpendicular to the direction of flow.

- X. HYDROLOGICALLY CONNECTED: The interconnection of groundwater and surface water such that they constitute one water supply and use of either results in an impact to both.
- Y. IMPERVIOUS SURFACE: A surface that cannot be penetrated by water and thereby prevents infiltration and increases the amount and rate of surface water runoff, leading to erosion of stream banks, degradation of habitat, and increased sediment loads in streams. Such surfaces can accumulate large amounts of pollutants that are then "flushed" into local water bodies during storms and can also interfere with recharge of groundwater and the base flows of water bodies.
- Z. LETTER OF MAP CHANGE (LOMC): An official FEMA determination, by letter, to amend or revise effective Flood Insurance Rate Maps (FIRM) and/or Flood Insurance Studies (FIS). LOMCs are issued in the following categories:
  - a. Letter of Map Amendment: An amendment to the Flood Insurance Rate Maps based on technical data showing that an existing structure or parcel of land that has not been elevated by fill (natural grade) was inadvertently included in the special flood hazard area because of an area of naturally high ground above the base flood.
  - b. Letter of Map Revision (LOMR):
    1. LOMR-F (Letter of Map Revision Based on Fill). A letter from FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood.
    2. A LOMR revises the current FIRM and/or FIS to show changes to the floodplains, floodways or flood elevations. LOMRs are generally based on manmade alterations that affected the hydrologic or hydraulic characteristics of a flood source and thus result in modification to the existing regulatory floodway, the effective Base Flood Elevation, of the Special Flood Hazard Area. It is recommended a Conditional Letter of Map Revision be approved (CLOMR) be approved by FEMA prior to issuing a permit to start a project if the project has a potential to affect the special flood hazard area.
- AA. LOW IMPACT DEVELOPMENT: An approach to land development (or redevelopment) that works with nature to manage stormwater as close to its source as possible. It employs principles such as preserving and recreating natural landscape features and minimizing effective imperviousness to create functional and appealing site drainage that

treats stormwater as a resource rather than a waste product. Low Impact Development refers to designing and implementing practices that can be employed at the site level to control stormwater and help replicate the predevelopment hydrology of the site. Low Impact Development helps achieve no net loss of pervious surface by infiltrating stormwater in an amount equal to or greater than the infiltration lost by placement of new impervious surface. Low Impact Development is a subset of Green Infrastructure.

BB. LOWEST FLOOR: The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this Code.

CC. MANUFACTURED DWELLING: A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured dwelling" does not include a "recreational vehicle" and is synonymous with "manufactured home."

DD. MANUFACTURED DWELLING PARK OR SUBDIVISION: A parcel (or contiguous parcels) of land divided into two or manufactured dwelling lots for rent or sale.

EE. MEAN HIGHER-HIGH WATER: The average of the higher-high water height of each tidal day observed over the National Tidal Epoch.

FF. MEAN SEA LEVEL: For purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which Base Flood Elevations shown on a community's Flood Insurance Rate Map are referenced.

GG. NEW CONSTRUCTION: For floodplain management purposes, "new construction" means structures for which the "Start of construction" commenced on or after the effective date of a floodplain management regulation adopted by the City of Forest Grove and includes any subsequent improvement to such structures.

HH. NO NET LOSS: A standard where adverse impacts must be avoided or offset through adherence to certain requirements so that there is no net change in the function from the existing condition when a development application is submitted to the state, tribal, or local jurisdiction. The floodplain functions of floodplain storage, water quality and vegetation must be maintained.

II. OFFSITE: For floodplain management purposes, mitigation occurring outside the project area.

II. ONSITE: For floodplain management purposes, mitigation occurring within the project area.

KK. ORDINARY HIGH WATER MARK: The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.

LL. QUALIFIED PROFESSIONAL: For floodplain management purposes, an appropriate subject matter expert that is defined by the City.

MM. REACH: A section of a stream or river along which similar hydrologic conditions exist, such as discharge, depth, area, and slope. It can also be the length of a stream or river (with varying conditions) between major tributaries or two stream gages, or a length of river for which the characteristics are well described by readings at a single stream gage.

NN. RECREATIONAL VEHICLE: A vehicle which is:

- a. Built on a single chassis;
- b. 400 square feet or less when measured at the largest horizontal projection;
- c. Designed to be self-propelled or permanently towable by a light duty truck; and
- d. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

OO. RIPARIAN: Of, adjacent to, or living on, the bank of a river, lake, pond, or other water body.

PP. RIPARIAN BUFFER ZONE (RBZ): The outer boundary of the riparian buffer zone is measured from the ordinary high-water line of a fresh waterbody (lake; pond; ephemeral, intermittent, or perennial stream) or mean higher-high water line of a marine shoreline or tidally influenced river reach to 170 feet horizontally on each side of the stream or 170 feet inland from the Mean Higher-High Water (MHHW). The riparian buffer zone includes the area between these outer boundaries on each side of the stream, including the stream channel. Where the RBZ is larger than the special flood hazard area, the no net loss standards shall only apply to the area within the special flood hazard area.

QQ. RIPARIAN BUFFER ZONE FRINGE: The area outside of the RBZ and Floodway but still within the Special Flood Hazard Area (SFHA).

RR.SILVICULTURE: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands.

SS. SPECIAL FLOOD HAZARD AREA (SFHA): See "AREA OF SPECIAL FLOOD HAZARD" for this definition.

TT.START OF CONSTRUCTION: For floodplain management purposes, includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days from the date of the permit The actual start means either first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured dwelling on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or sidewalks; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds no occupied as dwelling units or nor part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not the alteration affects the external dimensions of a building.

UU. STRUCTURE: For floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground as well as a manufactured dwelling.

VV.SUBSTANTIAL DAMAGE: Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

WW. SUBSTANTIAL IMPROVEMENT: For floodplain management purposes, Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the Start of Construction of the improvement. The term includes structures which have incurred SUBSTANTIAL DAMAGE, regardless of the actual work per. The term does not, however, include either:

a. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code

specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or

- b. Any alteration of a Historic Structure, provided that the alteration will not preclude the structure's continued designation as a Historic Structure.

XX. UNDEVELOPED SPACE: The volume of flood capacity and fish accessible/egress-able habitat from the existing ground to the Base Flood Elevation that is undeveloped. Any form of development including, but not limited to, the addition of fill, structures, concrete structures (vaults or tanks), pilings, levees and dikes, or any other development that reduces flood storage volume and fish accessible/egress-able habitat must achieve no net loss.

YY. VARIANCE: For floodplain management purposes, a grant of relief by the City from the terms of a floodplain management regulation.

ZZ. VIOLATION: For floodplain management purposes, the failure of structure or other development to be fully compliant with the City's floodplain management regulations. A structure or other development with the elevation certificate, other certifications, or other evidence of compliance required in this ordinance Code is presumed to be in violation until such time as the documentation is provided.

#### **§17.8.325 FLOODPLAIN MANAGEMENT PROVISIONS**

- A. Lands to which this Code applies. This code applies to all areas of special flood hazard within the jurisdiction of the City of Forest Grove.

B. Basis for establishing ~~areas of the~~ special flood hazard ~~areas~~. The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Washington County and Incorporated Areas" dated November 4, 2016, and as subsequently revised, with accompanying Flood Insurance Rate Maps (FIRM) are hereby adopted by reference and declared to be a part of this Code. The Flood Insurance Study- and FIRM panels is are on file at the Forest Grove Engineering Department located at Forest Grove City Hall. ~~The best available information for flood hazard area identification as outlined in § 17.8.325C. shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under § 17.8.325C.~~

~~—C. Warning and disclaimer of liability.~~

~~—The degree of flood protection required by this Code is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes.~~

~~—This code does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This code shall not create liability on the part of the City of Forest Grove, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this Code or any administrative decision lawfully made hereunder.~~

C. Coordination with State of Oregon Specialty Codes. Pursuant to the requirement established in Oregon Revised Statutes Chapter 455 that the City administers and enforces the State of Oregon Specialty Codes, the City does hereby acknowledge that the Oregon Specialty Codes contain certain provisions that apply to the design and construction of building and structures located in special flood hazard areas (SFHAs). Therefore, this ordinance Code is intended to be administered in conjunction with the Oregon Specialty Codes.

D. Compliance.

1. All development within special flood hazard areas is subject to the terms of this Code and required to comply with its provisions and all other applicable regulations.
2. Penalties for noncompliance. No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Code and other applicable regulations. Violations of the provisions of this Code by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute and infraction subject to the penalties described in Forest Grove Code of Ordinances §10.99. Nothing contained herein shall prevent the City from taking such lawful actions as necessary to prevent or remedy any violation.

~~—Penalties for noncompliance.~~

E. Abrogation and Severability.

1. Abrogation. This Code is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Code and another code, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
2. Severability. This Code and the various parts thereof are hereby declared to be severable. If any section, clause, sentence, or phrase of the Code is held to be invalid or unconstitutional by any court of competent jurisdiction, then the said holding shall in no way effect the validity of the remaining portions of this Code.

F. Interpretation. In the interpretation and application of this Code, all provisions shall be:

1. Considered as minimum requirements;
2. Liberally construed in favor of the governing body; and

3. Deemed neither to limit nor repeal any other powers granted under state statutes.

G. Warning and Disclaimer of Liability.

1. Warning. The degree of flood protection required by this Code is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Code does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages.

1.2. Disclaimer of Liability. This Code shall not create liability on the part of the City of Forest Grove, any officer or employee thereof, or the Federal Insurance Administrator for any flood damages that result from reliance on this Code or any administrative decision lawfully made hereunder.

**§ 17.8.325 17.8.330 DESIGNATION, DUTIES AND RESPONSIBILITIES OF THE CITY ENGINEER FLOODPLAIN MANAGEMENT ADMINISTRATION.**

A. Designation of the Floodplain Administrator. The City Engineer is hereby appointed to administer, ~~and~~ implement, ~~and enforce~~ this Code by granting or denying development permits, ~~applications~~ in accordance with its provisions. The Floodplain Administrator may delegate authority to impvisions.

B. Duties and Responsibilities of the Floodplain Administrator. The duties of the ~~City Engineer Floodplain Administrator, or their designee,~~ shall include, but not be limited to:

1. — 1. — Permit Review. Reviewing all development permits to:

a. ~~d~~ Determine that the permit requirements of this ~~Code Code~~ have been satisfied;

b. ~~— 2. — Reviewing all development permits to d~~ Determine that all other required necessary permits have been obtained from those federal, state or local, state, and federal permits have been obtained and approved governmental agencies from which prior approval is required;

c. Determine if the proposed development is located in a floodway. — 3. — Reviewing all development permits to determine if the proposed development is located in the floodway.

i. If located in the floodway, ensure assure that the eneroachmentfloodway provisions of § 17.8.345 the Floodways section this Code are met; and

ii. Determine if the proposed development is located in an area where Base Flood Elevation (BFE) data is available either through the Flood Insurance Study (FIS) or from another authoritative source. If BFE data is not available then ensure compliance with the provisions of the Use of Other Base Flood Elevation Data section of this Code; and;

iii. Provide to building officials the Base Flood Elevation (BFE) applicable to any building requiring a development permit.

~~4. Providing the base flood elevation as has been determined in accordance with § 17.8.315B., Basis for Establishing Areas of Special Flood Hazard to the Building Official, along with any freeboard requirements established in § 17.8.335B., Specific Standards.~~

d. Determine if the proposed development qualifies as a substantial improvement as defined in the Floodplain Management Code.

e. Determine if the proposed development is a watercourse alteration. If a watercourse alteration is proposed, ensure compliance with the provisions of the Alteration of Watercourses section of this Code.

f. Determine if the proposed development activity includes the placement of fill or excavation.

a-g. Determine whether the proposed development activity complies with No Net Loss standards of this Code.

~~C. Use of other base flood data in "A" Zones. When base flood elevation data has not been provided in accordance with § 17.8.315B., Basis for Establishing the Areas of Special Flood Hazard, the City Engineer shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer §§ 17.8.335B., Specific Standards and 17.8.345, Floodways.~~

2. D. Information to be obtained and maintained. The following information shall be obtained and maintained and shall be made available for public inspection as needed:

a. The actual elevation (in relation to mean sea level) of the lowest floor (including basements) and all attendant utilities of all new or substantially improved structures where Base Flood Elevation (BFE) data is provided through the Flood Insurance Study (FIS), Flood Insurance Rate Map (FIRM) or obtained in accordance with the Use of Other Base Flood Elevation Data section of this Code.

~~1. Where base flood elevation data is provided through the Flood Insurance Study, FIRM or as required in § 17.8.325, the City Engineer shall obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basements and below-grade crawlspaces.)~~

~~of all new or substantially improved structures, and whether or not the structure contains a basement.~~

- ~~b. The elevation (in relation to mean sea level) of the natural grade of the building site for a structure prior to the start of construction and the placement of any fill and ensure that the requirements of §17.8.350(B)(1)(b) and, §17.8.340, are adhered to.~~
- ~~c. Upon placement of the lowest floor of a structure (including basement) but prior to further vertical construction, documentation, prepared and sealed by a professional licensed surveyor or engineer, certifying the elevation (in relation to mean sea level) of the lowest floor (including basement).~~
- ~~d. Where base flood elevation data are utilized, As-built certification of the elevation (in relation to mean sea level) of the lowest floor including basement) prepared and sealed by a professional licensed surveyor or engineer, prior to final inspection.~~
- ~~e. Maintain all Elevation Certificates (EC) submitted to the City of Forest Grove.~~
- ~~f. The elevation (in relation to mean sea level) to which the structure and all attendant utilities were floodproofed for all new or substantially improved floodproofed structures where allowed under this Code and where Base Flood Elevation (BFE) data is provided through the FIS, FIRM, or obtained in accordance with §17.8.335(A)(7).~~
- ~~g. All floodproofing certificates required under this Code.~~
- ~~h. All variance actions, including justification for their issuance.~~
- ~~i. All hydrologic and hydraulic analyses performed as required under this section.~~
- ~~j. All Substantial Improvement and Substantial Damage calculations and determinations as required under §17.8.330(B)(3)(d).~~
- ~~k. Documentation of how no net less standards have been met. (see §17.8.350).~~
- ~~l. All records pertaining to the provisions of this Code.~~

~~2. For all new or substantially improved floodproofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM or as required in § 17.8.325, the City Engineer shall:~~

- ~~a. Verify and record the actual elevation (in relation to mean seal level);~~
- ~~b. Maintain the floodproofing certifications required in § 17.8.320B.3.; and~~

**Commented [DR1]:** Insert revised code section citation here.

**Commented [DR2]:** Add revised code section here.

~~—c. Maintain for public inspection all records pertaining to the provisions of this Code.~~

~~—E. Alteration of watercourses.~~

~~—1. Development shall not diminish the flood-carrying capacity of a watercourse. If any watercourse will be altered or relocated as a result of the proposed development, the applicant shall submit certification by a registered professional engineer that the flood-carrying capacity of the watercourse will not be diminished.~~

~~—2. The City Engineer shall:~~

~~—a. Notify adjacent communities, the Department of Land Conservation and Development and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration; and~~

~~—b. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.~~

~~—3. Applicants shall obtain a Conditional Letter of Map Revision (CLOMR) from FEMA before any encroachment, including fill, new construction, substantial improvement or other development, in the regulatory floodway is permitted. The applicant shall be responsible for preparing technical data to support the CLOMR application any paying any processing or application fees to FEMA.~~

~~F-3. Requirement to notify other entities and submit new technical data.~~

~~a4. Community Boundary Alterations. The Floodplain Administrator shall notify the Federal Insurance Administrator in writing whenever the boundary of the City is modified by annexation or the City has otherwise assumed authority or no longer has authority to adopt and enforce floodplain management regulations for a particular area, to ensure that all Flood Hazard Boundary Maps (FHBM) and Flood Insurance Rate Maps (FIRM) accurately represent the City's boundaries. Notification shall include a copy of the map of the City suitable for reproduction, clearly delineating the new City limits or new area for which the community has assumed or relinquished floodplain management regulation authority.~~

~~b. Watercourse Alterations.~~

~~i. Notify adjacent communities, the Oregon Department of Land Conservation and Development, and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration. This notification shall be provided by the applicant to the Federal Insurance Administration as a Letter of Map Revision (LOMR) along with either:~~

1. A proposed maintenance plan to assure the flood carrying capacity within the altered or relocated portion of the watercourse is maintained; or

2. Certification by a registered professional engineer that the project has been designed to retain its flood carrying capacity without periodic maintenance.

ii. The applicant shall be required to submit a Conditional Letter of Map Revision (CLOMR) when required under §17.8.330(B)(3)(c). Ensure compliance with all applicable requirements in §17.8.330(B)(3)(c) and §17.8.335(A)(1).

c. Requirement to submit new technical data.

i. The City's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but no later than six months after the date such information becomes available, a community shall notify the Federal Insurance Administrator of the changes by submitting technical or scientific data in accordance with Title 44 of the Code of Federal Regulations (CFR), Section 65.3. The City may require the applicant to submit such data and review fees required for compliance with this section through the applicable FEMA Letter of Map Change (LOMC) process.

ii. The Floodplain Administrator shall require a Conditional Letter of Map Revision prior to the issuance of a floodplain development permit for:

1. Proposed floodway encroachments that increase the base flood elevation; and

2. Proposed development which increases the base flood elevation by more than one foot in areas where FEMA provided base flood elevations but no floodway.

iii. An applicant shall notify FEMA within six (6) months of project completion when an applicant has obtained a Conditional Letter of Map Revision (CLOMR) from FEMA. This notification to FEMA shall be provided as a Letter of Map Revision (LOMR).

—The City Engineer shall:

a. Notify FEMA within six months of project completion when an applicant had obtained a Conditional Letter of Map Revision (CLOMR) from FEMA, or when development altered a watercourse, modified floodplain boundaries or modified base flood elevations. This notification shall be provided as a Letter of Map Revision (LOMR); and

~~—b. Be under no obligation to sign the Community Acknowledgment Form, which is part of the CLOMR /LOMR application, until the applicant demonstrates that the project will or has met the requirements of this Code and all applicable State and Federal laws.~~

~~—2. The applicant shall be responsible for preparing technical data to support the LOMR application and paying any processing or application fees to FEMA.~~

d. Substantial improvement and substantial damage assessments and determinations. Conduct Substantial Improvement (SI) (as defined in §17.8.320 reviews for all structural development proposal applications and maintain a record of SI calculations within permit files in accordance with §17.8.330(B)(2). Conduct Substantial Damage (SD) (as defined in §17.8.320) assessments when structures are damaged due to a natural hazard event of other causes. Make SD determinations whenever structures within the Special Flood Hazard Area (as established in §17.8.325(B) are damaged to the extent that the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

~~—G. Non-conversion of enclosed areas below the lowest floor. To ensure that enclosed areas below the lowest floor continue to be used solely for parking vehicles, limited storage, or access to the building and not be finished for use as human habitation/recreation/bathrooms, etc., the City Engineer shall:~~

~~—1. Determine which applicants for new construction and/or substantial improvements have fully enclosed areas below the lowest floor that are five feet or higher; and~~

~~—2. Require such applicants to enter in a “Non-Conversion Deed Declaration for Construction within Flood Hazard Areas” or equivalent. The deed declaration shall be recorded with Washington County and shall be in a form acceptable to the City Engineer.~~

~~—H. Interpretation of FIRM boundaries. The City Engineer shall make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in § 17.8.330.~~

#### **§ 17.8.320 ESTABLISHMENT OF DEVELOPMENT PERMIT.**

##### C. Establishment of Development Permit

~~—A. 1. Floodplain Development permit required. A development permit shall be obtained before construction or development begins within any area of special flood hazard established in § 17.8.315B. The permit shall be for all structures including manufactured homes dwellings, as set forth in the definitions and for~~

all other development ~~including fill and other activities, also as set forth in the definitions defined in §17.8.320, including fill and other development activities.~~

~~B2.~~ Application for development permit. Application- for a development -permit shall be made on forms furnished by the ~~Engineering Department~~ City's Floodplain Administrator and may include but not be limited to plans in duplicate drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, ~~fill, storage of materials, drainage facilities and the location of the foregoing.~~ Specifically, the following information is required:

~~1.a.~~ In riverine flood zones, the proposed Elevation (in relation to mean sea level), of the lowest floor (including basement-) of all structures and all attendant utilities of all new and substantially improved structures; in accordance with the requirements of §17.8.330(B)(2);

~~2b.~~ Proposed Elevation in relation to mean sea level to which any non-residential structure will be floodproofed, of floodproofing in any structure;

~~3c.~~ Certification by a registered professional engineer or architect licensed in the State of Oregon that the floodproofing methods for any nonresidential structure meet the floodproofing criteria for non-residential structures in § 17.8.335(B)(3); and

~~d.~~ Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

~~e.~~ Base Flood Elevation data for subdivision proposals or other

~~f.~~ Substantial improvement calculation for any improvement, addition, reconstruction, renovation, or rehabilitation of an existing structure.

~~g.~~ The amount and location of any fill or excavation activities proposed.

~~C.~~ Land below the elevation of the base flood shall be placed in open space or parking lot and landscaped areas if within the developed portion of the site.

#### ~~§ 17.8.330 VARIANCE PROCEDURE.~~

~~D.~~ Variance procedure. The issuance of a variance under this section is for floodplain management purposes only. Flood insurance premium rates are determined by federal statute according to actuarial risk and will not be modified by the granting of a variance.

##### 1. Conditions for variances

~~a.~~ Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed

below the base flood level, in conformance with the provisions of §17.8.330(D)(1)(c) and (e) and §17.8.330(D)2). As the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases.

b. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

c. Variances shall not be issued within any floodway if any increase in flood levels during the base flood discharge would result.

d. Variances shall only be issued upon:

i. A showing of good and sufficient cause;

ii. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

iii. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.

e. Variances may be issued by the City for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of section 4.4.1B – D are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

f. Variances shall not be issued unless it is demonstrated that the development will not result in net loss of the following proxies for the three floodplain functions in the SFHA: undeveloped space; pervious surface; or trees 6 inches dbh or greater.

2. Variance notification. Any applicant to whom a variance is granted shall be given written notice that the issuance of a variance to construct a structure below the Base Flood Elevation will result in increased premium rates for flood insurance and that such construction below the base flood elevation increases risks to life and property. Such notification and a record of all variance actions, including justification for their issuance shall be maintained in accordance with §17.8.330(B)(2).

A. Appeal Board. The Planning Commission shall hear and decide appeals and requests for variances from the requirements of this Code. The Planning Commission shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination made by the City of Forest Grove in the enforcement or administration of this Code.

~~—B. Any affected party may appeal the decision of the Planning Commission to the City Council, as provided in § 17.1.640.~~

~~—C. In passing upon such applications, the Planning Commission shall consider all technical evaluations, all relevant factors, standards specified in other sections of this Code, and:~~

~~—1. The danger that materials may be swept onto other lands to the injury of others;~~

~~—2. The danger to life and property due to flooding or erosion damage;~~

~~—3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;~~

~~—4. The importance of the services provided by the proposed facility to the community;~~

~~—5. The necessity to the facility of a waterfront location, where applicable;~~

~~—6. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;~~

~~—7. The compatibility of the proposed use with existing and anticipated development;~~

~~—8. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;~~

~~—9. The safety of access to the property in times of flood for ordinary and emergency vehicles;~~

~~—10. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and~~

~~—11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, and streets and bridges.~~

~~—D. Upon consideration of the factors of § 17.8.330C. and the purposes of this Code, the Planning Commission may attach such conditions to the granting of variances as it deems necessary to further the purposes of this Code.~~

~~—E. The City Engineer shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.~~

~~—F. Conditions for variances:~~

~~—1. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (1-11) in § 17.8.330C. have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.~~

~~—2. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the Statewide Inventory of Historic Properties, without regard to the procedures set forth in this section.~~

~~—3. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.~~

~~—4. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.~~

~~—5. Variances shall only be issued upon:~~

~~—a. A showing of good and sufficient cause;~~

~~—b. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and~~

~~—c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in § 17.8.330C., or conflict with existing local laws or codes.~~

~~—6. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece or property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances, they primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.~~

~~—7. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except § 17.8.330F.1., and otherwise complies with § 17.8.335A.1.3. of the General Standards.~~

~~—8. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.~~

#### **§ 17.8.335 PROVISIONS FOR FLOOD HAZARD REDUCTION.**

~~A. General standards. In all areas of special flood hazards areas, the no net loss standards and the following standards are required shall be adhered to:~~

- ~~1. 1.Alteration of watercourses. Require that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained. Require that maintenance is provided within the altered or relocated portion of said watercourse to ensure that the flood carrying capacity is not diminished. Require compliance with Section §17.8.330(B)(3)(b) and §17.8.330(B)(3)(c).~~

2. Anchoring.

a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

~~b. All manufactured homes dwellings shall be anchored per §17.8.335(B)(3)(d) must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over the top or frame ties to ground anchors (Refer to FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).~~

~~2.3. Construction materials and methods.~~

a. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

~~c. Electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.~~

3.4. Utilities and equipment.

a. Water Supply, Sanitary Sewer, and On-Site Waste Disposal Systems

a.i. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

b.ii. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and

c.iii. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with the Oregon Department of Environmental Quality.

b. Electrical, Mechanical, Plumbing, and Other Equipment.

i. Electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall be elevated at or above the base flood elevation or shall be designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding.

- ii. In addition, electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall, if replaced as part of a substantial improvement meet all the requirements of this section and not be mounted on or penetrate through breakaway walls.

5. Tanks

- a. Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.
- b. Above ground tanks shall be installed at or above the base flood level or shall be anchored to prevent flotation, collapse, and lateral movement under conditions of the base flood.

4.6. Subdivision proposals and other proposed developments.

- a. — a. All new subdivision proposals and other proposed developments, including proposals for manufactured dwelling parks and subdivisions, greater than 50 lots or 5 acres, whichever is the lesser, shall include within such proposals Base Flood Elevation data, shall be consistent with the need to minimize flood damage;
- b. All new subdivision proposals and other proposed new developments, including proposals for manufactured dwelling parks and subdivisions shall:
  - i. Be consistent with the need to minimize flood damage.
  - ii. Have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.
  - iii. Have adequate drainage provided to reduce exposure to flood hazards.
  - iv. Comply with no net loss standards in §17.8.350.

~~— b. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage;~~

~~— c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and~~

~~— d. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or five acres (whichever is less).~~

~~— 5. Review of building permits. Where elevation data is not available either through the Flood Insurance Study, FIRM or from another authoritative source (§ 17.8.325C.);~~

~~applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.~~

~~—B. Specific standards. In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH and AE) as set forth in § 17.8.315B., Basis for Establishing the Areas of Special Flood Hazard, or § 17.8.325C., Use of Other Base Flood Data in “A” Zones, the following provisions are required:~~

~~—1. Residential construction.~~

~~—a. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation.~~

~~—b. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be either certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:~~

~~—i. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.~~

~~—ii. The bottom of all openings shall be no higher than one foot above grade.~~

~~—iii. Openings may be equipped with screens, louvers or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.~~

~~—2. Manufactured dwellings.~~

~~—a. Manufactured dwellings supported on solid foundation walls shall be constructed with flood openings that comply with § 17.8.335A.1.b. above.~~

~~—b. The bottom of the longitudinal chassis frame beam in “A” zones, shall be at or above BFE;~~

~~—c. The manufactured dwelling shall be anchored to prevent flotation, collapse and lateral movement during the base flood. Anchoring methods may include, but are not limited to, use of over the top or frame ties to ground anchors (Refer to FEMA’s “Manufactured Home Installation in Flood Hazard Areas” guidebook for additional techniques); and~~

~~—d. Electrical crossover connections shall be a minimum of 12 inches above BFE.~~

~~—3. Nonresidential construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor,~~

~~including basement, elevated at or above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:~~

~~— a. Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;~~

~~— b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;~~

~~— c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in § 17.8.320B.3;~~

~~— d. Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in § 17.8.335B.1.b.;~~

~~— e. Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g., a building floodproofed to the base flood level will be rated as one foot below.~~

~~— f. Applicants shall supply a Maintenance Plan for the entire structure to include but not limited to: exterior envelope of structure; all penetrations to the exterior of the structure; all shields, gates, barriers or components designed to provide floodproofing protection to the structure; all seals or gaskets for shields, gates, barriers or components; and, the location of all shields, gates, barriers and components as well as all associated hardware, and any materials or specialized tools necessary to seal the structure.~~

~~— g. Applicants shall supply an Emergency Action Plan (EAP) for the installation and sealing of the structure prior to a flooding event that clearly identifies what triggers the EAP and who is responsible for enacting the EAP.~~

~~— 4. Recreational vehicles. Recreational vehicles placed on sites are required to:~~

~~— a. Be on the site for fewer than 180 consecutive days; and~~

~~— b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or~~

~~— c. Meet the requirements of § 17.8.335B.2. above and the elevation and anchoring requirements for manufactured homes.~~

~~— 5. Accessory structures. Relief from elevation or floodproofing as required in § 17.8.335B.1. or B.3. above may be granted for accessory structures that are:~~

~~— a. Less than 200 square feet and do not exceed one story;~~

~~— b. Not temperature controlled;~~

~~—c. Not used for human habitation and are used solely for parking of vehicles or storage of items having low damage potential when submerged; not used to store toxic material, oil or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality unless confined in a tank installed in compliance with this Code or stored at least one foot above Base Flood Elevation;~~

~~—d. Located and constructed to have low damage potential;~~

~~—e. Constructed with materials resistant to flood damage;~~

~~—f. Anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood; and~~

~~—g. Constructed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater. Designs for complying with this requirement must be certified by a licensed professional engineer or architect or:~~

~~—i. Provide a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;~~

~~—ii. The bottom of all openings shall be no higher than one foot above the higher of the exterior or interior grade or floor immediately below the opening;~~

~~—iii. The openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwater in both directions without manual intervention; and~~

~~—iv. Be constructed with electrical and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.~~

~~—6. Below-grade crawl spaces. Below-grade crawlspaces are allowed subject to the following standards as found in FEMA Technical Bulletin 11-01 Crawlspaces Construction for Buildings Located in Special Flood Hazard Areas:~~

~~—a. The building must be designed and adequately anchored to resist flotation, collapse and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in subsection b. below. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas:~~

~~—b. The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one foot above the lowest adjacent exterior grade.~~

—c. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.

—d. Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.

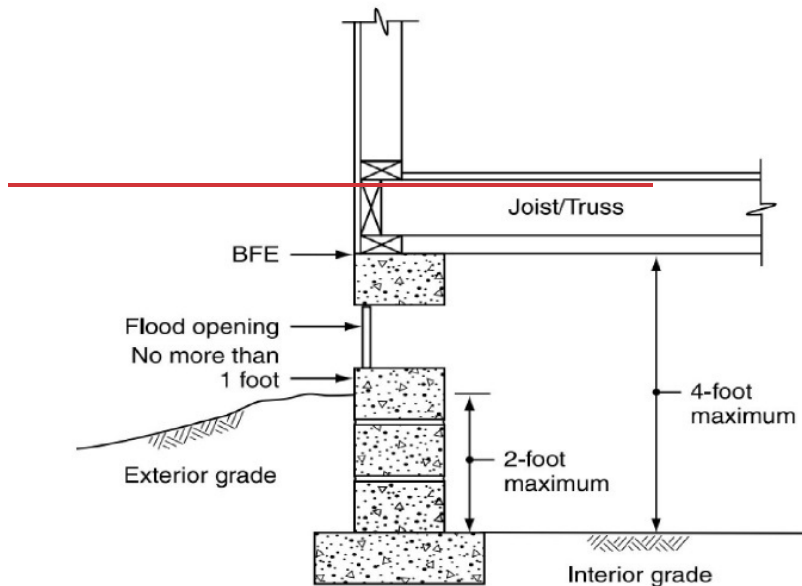
—e. The interior grade of a crawlspace below the BFE must not be more than two feet below the lowest adjacent exterior grade.

—f. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed four feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.

—g. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel or crushed stone drainage by gravity or mechanical means.

—h. The velocity of floodwaters at the site should not exceed five feet per second for any crawlspace. For velocities in excess of five feet per second, other foundation types should be used. For more detailed information, refer to FEMA Technical Bulletin 11-01.

Figure 8-6: Limitations on Below-Grade Crawlspaces



~~Residential structures must be elevated a minimum of one foot above the Base Flood Elevation (BFE).~~

i. Use of base flood elevation data

- a. When base flood elevation data has not been provided in accordance with §17.8.325(B) the local floodplain administrator shall obtain, review, and reasonably utilize any Base Flood Elevation data available from a federal, state, or other source, in order to administer §17.8.335. All new subdivision proposals and other proposed new development developments, including proposals for manufactured dwelling parks and subdivisions, must meet the requirements of §17.8.335(A)(6).
- b. Base Flood Elevations shall be determined for development proposals that are 5 acres or more in size or are 50 lots or more, whichever is the lesser in any A zone that does not have an established base flood elevation. Development proposals located within a riverine unnumbered A Zone shall be reasonably safe from flooding; the test of reasonableness includes use of historical data, high water marks, FEMA provided Base Level Engineering data, and photographs of past flooding, etc. where available. The elevation of

residential structures and non-residential structures that are not dry floodproofed must be at least two feet above highest adjacent grade. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

j. Structures located in multiple or partial flood zones. In coordination with the State of Oregon Specialty Codes:

a. When a structure is located in multiple flood zones on the community's Flood Insurance Rate Maps (FIRM) the provisions for the more restrictive flood zones shall apply.

b. When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for new construction and substantial improvements.

B. Specific Standards for Riverine Including All Non-Coastal Flood Zones. These specific standards shall apply to all new construction and substantial improvements in addition to the General Standards contained on §17.8.335(A) of this Code and no net loss standards in §17.8.350.

1. Flood openings. All new construction and substantial improvements with fully enclosed areas below the lowest floor, excluding basements, are subject to the following requirements. Enclosed areas below the Base Flood Elevation, including crawl spaces shall:

a. Be designed to automatically equalize hydrostatic flood forces on walls by allowing for entry and exit of floodwaters.

b. Be used solely for parking, storage, or building access.

c. Be certified by a registered professional engineer or architect or meet or exceed all of the following minimum criteria:

i. A minimum of two openings;

ii. The total net are of non-engineered openings shall be not less than one square inch for each square foot of enclosed area, where the enclosed area is measured on the exterior of the enclosure walls;

iii. The bottom of all openings shall be no higher than one foot above grade;

iv. Openings may be equipped with screens louvers, valves or other coverings or devices provided that they shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area; and

v. All additional higher standards for flood openings in the State of Oregon Residential Specialty Codes Section R322.2 shall be complied with when applicable.

## 2. Garages

a. Attached garages may be constructed with the garage floor slab below the Base Flood Elevation (BFE) in riverine flood zones, if the following requirements are met:

i. If located within a floodway the proposed garage must comply with the requirements of §17.8.340;

ii. The floors are at or above grade on not less than one side;

iii. The garage is used solely for parking; building access, and/or storage;

iv. The garage is constructed with flood openings in compliance with §17.8.335(B)(1) to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit to floodwater;

v. The portions of the garage constructed below Base Flood Elevation are constructed with materials resistant to flood damage.

vi. The garage is constructed in compliance with the standards in §17.8.335(A); and

vii. The garage is constructed with electrical and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.

b. Detached garages must be constructed in compliance with the standards for appurtenant structures in §17.8.335(B)(3)(f) or non-residential structures in §17.8.335(B)(3)(c) depending on the square footage of the garage.

2.3. Riverine (Non-Coastal Special Flood Hazard Areas With Base Flood Elevations. In addition to the general standards listed in §17.8.335(A) the following specific standards shall apply in Riverine (non-coastal) special flood hazard areas with Base Flood Elevations (BFE): Zones A1-A30, AH, and AE.

### **§ 17.8.340 BEFORE REGULATORY FLOODWAY.**

a. Before Regulatory Floodway. In areas where a regulatory floodway has not been designated, no new construction, substantial

improvements or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM , unless it is demonstrated that the cumulative effect of the proposed development , when combined with all other existing and anticipated development , will not increase the water surface elevation of the base flood more than one foot at any point within the community and will not result in the net loss of storage volume. When determined that structural elevation is not possible and where the placement of fill cannot meet the above standard, impacts to undeveloped space must adhere to the no net loss standards in §17.8.350(3).

b. Residential construction.

- i. New construction, conversion to, and substantial improvement of any residential structure shall have the lowest floor, including basement elevated at least one foot above the Base Flood Elevation.
- ii. Enclosed areas below the lowest floor shall comply with the flood opening requirements in §17.8.335(B)(1).

c. Non-residential construction.

- i. New construction, conversion to and substantial improvement of any commercial, industrial, or other on-residential structure shall:
  1. Have the lowest floor, including basement elevated at or above the Base Flood Elevation; or
  2. Together with the attendant utility and sanitary facilities:
    - a. Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
    - b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
    - c. Be certified by a registered professional engineering or architect that the design methods of construction are in accordance with accepted standards of practice for meeting provisions of this section based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Floodplain Administrator as set forth in §17.8.330(B)(2).

3. Non-residential structures that are elevated, not floodproofed, shall comply with the standards for enclosed areas below the lowest floor in §17.8.335(B)(1).

4. Applicants floodproofing non-residential building shall be notified that flood insurance premiums will be based on rates that are one foot below floodproofed level (e.g. building floodproofed to the base flood level will be rates as one foot below).

d. Manufactured Dwellings.

1. Manufactured dwellings to be placed (new or replacement) or substantially improved that are supposed on solid foundation walls shall be constructed with flood openings that comply with §17.8.335(B)(1).

2. The bottom of the longitudinal chassis frame beam shall be at or above Base Flood Elevation;

3. Manufactured dwellings to be placed (new or replacement) or substantially improved shall be anchored to prevent flotation, collapse, and lateral movement during the base flood. Anchoring methods may include but are not limited to, use of over-the-top or frame ties to ground anchors. See FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques, and;

4. Electrical crossover connections shall be a minimum of twelve inches above Base Flood Elevation.

e. Recreational Vehicles. Recreation vehicles placed on sites are required to:

1. Be on the site for fewer than 180 consecutive days; and

2. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions.

3. Meet the requirements of §17.8.335(B)(3)(d), including the anchoring and elevation requirements for manufactured dwellings.

f. Appurtenant (Accessory) Structures. Relief from floodproofing requirements for residential and non-residential structures in Riverine (Non-Coastal) flood zones may be granted for appurtenant structures that meet the following requirements:

1. Appurtenant structures located partially or entirely within the floodway must comply with requirements for development within a floodway found in §17.8.340.
2. Appurtenant structures must only be used for parking, access, and/or storage and shall not be used for human habitation.
3. In compliance with State of Oregon Specialty Codes, appurtenant structures on properties that are zoned residential are limited to one-story structures less than 200 square feet, or 400 square feet if the property is greater than two acres in area and the proposed appurtenant structure will be located a minimum of 20 feet from all property lines. Appurtenant structures on properties that are zoned as non-residential are limited to 120 square feet.
4. The portions of the appurtenant structure located below the Base Flood Elevation must be built using flood resistant materials;
5. The appurtenant structure must be adequately anchored to prevent flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood;
6. The appurtenant structure must be designed and constructed to equalize hydrostatic flood forces on exterior walls and comply with the requirements for flood openings in §17.8.335(B)(1);
7. Appurtenant structures shall be located and constructed to have low damage potential;
8. Appurtenant structures shall not be used to store toxic material, oil, or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality unless confined to a tank installed in compliance with §17.8.335(A)(5); and
9. Appurtenant structures shall be constructed with electrical, mechanical, and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.

**§ ~~17.8.345~~17.8.340. STANDARDS FOR FLOODWAYS.**

Located within areas of special flood hazard established in § 17.8.315B, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the

velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions apply:

A. ~~Except as provided in paragraph C. below, p~~Prohibit encroachments, including fill, new construction, ~~substantial improvements,~~ and other development within the adopted regulatory floodway unless:

1. ~~C~~ertification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels within the community during the occurrence of the base flood discharge; ~~or~~

2. The City may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that conditional approval has been obtained by the Federal Insurance Administrator through the Conditional Letter of Map Revision (CLOMR) application process, all requirements established under 44 CFR 65.12 are fulfilled, and the encroachment(s) comply with the no net loss standards in §17.8.350.

B. If the requirements of §17.8.340(A) are satisfied, all new construction, substantial improvements, and other development shall comply with all other applicable flood hazard provisions of §17.8.335 and §17.8.350.

~~B. If § 17.8.345A. is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of § 17.8.335, Provisions for Flood Hazard Reduction.~~

~~C. Temporary structures placed in the floodway - Relief from no-rise evaluation, elevation or dry flood-proofing standards may be granted for a non-residential structure placed during the dry season (June—October) and for a period of less than 90 days. A plan for the removal of the temporary structure after the dry season or when a flood event threatens shall be provided. The plan shall include disconnecting and protecting from water infiltration and damage all utilities servicing the temporary structure.~~

~~D. Temporary storage of goods and materials, not including hazardous materials, is allowed in the floodway for a period of less than 90 days within the dry season (June—October).~~

### §17.8.345 STANDARDS FOR SHALLOW FLOODING AREAS

Shallow flooding areas appear on FIRMs as AO zones with depth designations or as AH zones with Base Flood Elevations. For AO zones the base flood depths range from one to three feet above ground where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. For both AO and AH zones, adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.

- A. Standards for AH zones. Development within AH zones must comply with the standards in §17.8.335(A), §17.8.335(B) and §17.8.345.
- B. Standards for AO zones. In AO zones, the following provisions apply in addition to the requirements in §17.8.335 and §17.8.345.
  - 1. New construction, conversion to, and substantial improvement of residential structures and manufactured dwellings with AO zones shall have the lowest floor, including basement, elevated above the highest grade adjacent to the building, at a minimum to or above the depth number specified on the Flood Insurance Rate Maps FIRM at least two feet if no depth number is specified. For manufactured dwellings the lowest floor is considered to be the bottom of the longitudinal chassis frame beam.
  - 2. New construction, conversion to, and substantial improvements of non-residential structures within AO zones shall either:
    - a. Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, at a minimum to or above the depth number specified on the Flood Insurance Rate Maps (FIRMs) at least two feet if no depth number is specified.
    - b. Together with attendant utility and sanitary facilities, be completely floodproofed to or above the depth number specified on the FIRM or a minimum of two feet above the highest adjacent grade if no depth number is specified, so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect.
    - c. Recreational vehicles placed on sites within AO zones on the community's Flood Insurance Rate Map shall either:
      - 1. Be on the site for fewer than 180 consecutive days, and

2. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or

3. Meet the elevation requirements of section 5.2.5.2(A), and the anchoring and other requirements for manufactured dwellings in §17.8.335(B)(3)(d).

d. In AO zones, new and substantially improved appurtenant structures must comply with the standards in Section 5.2.3.6.

e. In AO zones, enclosed areas beneath elevated structures shall comply with the requirements in §17.8.335(B)(1).

#### **§17.8.350 STANDARDS FOR PROTECTION OF SPECIAL FLOOD HAZARD AREA FLOODPLAIN FUNCTIONS**

The standards described below apply to all special flood hazard areas as defined in §17.8.320:

##### f. No net loss of the three proxies for floodplain functions

1. No net loss of the three proxies for floodplain functions is required for development in the Special Flood Hazard Area that would reduce undeveloped space, increase impervious surface, or result in a loss of trees that area 6-inches dbh or greater. No net loss can be achieved by first avoiding negative effects of floodplain functions to the degree possible, then minimizing remaining effects, then replacing and/or otherwise compensating for, offsetting, or rectifying the residual adverse effects of the three floodplain functions. Prior to issuance of any **development authorization**, the applicant shall:

a. Demonstrate a legal right by the project proponent to implement the proposed activities to achieve no net loss (e.g., property owner agreement)

b. Demonstrate that financial assurances are in place for the long-term maintenance and monitoring of all projects to achieve no net loss;

c. Include a management plan that identifies the responsible site manager, stipulates which activities are allowed on site, and requires the posting of signage identifying the site as a mitigation area.

2. Compliance with no net loss for undeveloped space or impervious surface is preferred to occur prior to the loss of habitation function but, at a minimum, shall occur concurrent with the loss. To offset the impacts of delay in implementing no net loss, a 25 percent increase in the required minimum area is added for each year no net loss implementation is delayed.

3. No net loss must be provided within, in order of preference: 1) the lot or parcel that floodplain functions were removed from, 2) the same reach of the waterbody where the development is proposed, or 3) the special flood hazard area within the same hydrologically connected area as the proposed development. The table below presents the no net loss ratios, which increase based on the preferences listed above.

No Net Loss Standards

<u>Basic Mitigate Ratios</u>	<u>Undeveloped Space (ft<sup>3</sup>)</u>	<u>Impervious Surface (ft<sup>2</sup>)</u>	<u>Trees (6"&lt;dbh&lt;20")</u>	<u>Trees (20"&lt;dbh&lt;39")</u>	<u>Trees (39"&lt;dbh)</u>
<u>RBZ and Floodway</u>	<u>2:1*</u>	<u>1:1</u>	<u>3:1*</u>	<u>5:1</u>	<u>6:1</u>
<u>RBZ-Fringe</u>	<u>1.5:1*</u>	<u>1:1</u>	<u>2:1*</u>	<u>4:1</u>	<u>5:1</u>
<u>Mitigation multipliers</u>					
<u>Mitigation onsite to Mitigation offsite, same reach</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
<u>Mitigation onsite to Mitigation offsite, different reach, same watershed (5<sup>th</sup> field)</u>	<u>200%*</u>	<u>200%*</u>	<u>200%*</u>	<u>200%</u>	<u>200%</u>

Notes:

- Ratios with asterisks are indicated in the National Marine Fisheries Service (NMFS) Biological Opinion
- Mitigation multipliers of 100% result in the required mitigation occurring at the same value described by the ratios above, while multipliers of 200% result in the required mitigation being doubled. For example, if only 500 square feet of the total 1000 square feet of required pervious surface mitigation can be conducted onsite and in the same reach, the remaining 500 square feet of required pervious surface mitigation occurring offsite at a different reach would double because of the 200% multiplier.
- RBZ impacts must be offset in the RBZ, onsite or offsite.
- Additional standards may apply in the RBZ (See the Riparian Buffer Zone section below).

4. Undeveloped space.

- a. Development proposals shall not reduce the fish-accessible and egress-able undeveloped space within the special flood hazard area.
  - b. A development proposal with an activity that would impact undeveloped space shall achieve no net loss of fish-accessible and egress-able space.
  - c. Lost undeveloped space must be replaced with fish-accessible and egress-able compensatory volume based on the ratio in Table 1 and the same flood level at which development causes an impact (i.e., plus or minus one-foot of the hydraulic equivalent elevation).
    - i. Hydraulically equivalent sites must be found within either the equivalent 1-foot elevations or the same flood elevation bands of the development proposal. The flood elevation bands are identified as follows:
      1. Ordinary High-Water Mark to 10-year;
      2. 10-year to 25-year;
      3. 25-year to 50-year; and
      4. 50-year to 100-year
    - ii. Hydrologically connected to the waterbody that is the flooding source;
    - iii. Designed so that there is no increase in velocity; and
    - iv. Designed to fill and drain in a manner that minimizes anadromous fish standing to the greatest extent possible.
5. Impervious Surfaces. Impervious surface mitigation shall be mitigated through any of the following options:
- a. Development proposals shall not result in a net increase in impervious surface area within the Special Flood Hazard Area, or
  - b. Use low impact development or green infrastructure to infiltrate and treat stormwater produced by the new impervious surface, as documented by a qualified professional, or
  - a-c. If prior methods are not feasible and documented by a qualified professional, stormwater retention is required to ensure no increase in peak volume or flow and to maximize infiltration, and treatment is required to minimize pollutant loading. See §17.8.350(B)(3) for stormwater retention specifications.

6. Trees.

a. Development proposals shall result in no net loss of trees 6-inches dbh or greater within the Special Flood Hazard Area. This requirement does not apply to silviculture where there is no development.

1. Trees of or exceeding 6-inches dbh that are removed from the RBZ, Floodway, or RBZ-fringe must be replaced at the ratios in the table below.

2. Replacement trees must be native species that would occur naturally in the Level III ecoregion of the impact area. (Willamette Valley).

B. Stormwater Management. Any development proposal that cannot mitigate as specified in Section 6.1.2(A) – (B) must include the following:

1. Water quality (pollution reduction) treatment for post-construction stormwater runoff from any net increase in impervious area; and

2. Water quantity treatment (retention facilities) unless the outfall discharges into the ocean.

3. Retention facilities must:

a. Limit discharge to match the pre-development peak discharge rate (i.e. the discharge rate of the site based on its natural groundcover and grade before any development occurred) for the 10-year peak flow using a continuous simulation for flows between 50 percent of the 2-year event and the 10-year flow event (annual series).

b. Treat stormwater to remove sediment and pollutants from impervious surfaces such that at least 80 percent of the suspended solids are removed from the stormwater prior to discharging to the receiving water body.

c. Be designed to not entrap fish and drain to the source of flooding.

d. Be certified by a qualified professional.

4. Stormwater treatment practices for multi-parcel facilities, including subdivisions, shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement must include:

a. Access to stormwater treatment facilities at the site by the City for the purpose of inspection and repair;

b. A legally binding document specifying the parties responsible for the proper maintenance of the stormwater treatment facilities. The agreement must be recorded and bind subsequent purchasers and sellers even if they were not party to the original agreement.

c. For stormwater controls that include vegetation and/or soil permeability, the operation and maintenance manual must include maintenance of these elements to maintain the functionality of the feature.

d. The responsible party for the operation and maintenance of the stormwater facility shall have the operation and maintenance manual on site and available at all times. Records of the maintenance and repairs shall be retained and made available for inspection by the City for five years.

C. Activities exempt from no net loss standards. The following activities are not subject to the no net loss standards in Section 6.1; however, they may not be exempt from floodplain development permit requirements:

1. Normal maintenance of structures, such as re-roofing and replacing siding, provided there is no change in the footprint or expansion of the roof of the structure.
2. Normal street, sidewalk, and road maintenance, including filling potholes, repaving, and installing signs and traffic signals, that does not alter contours, use, or alter culverts. Activities exempt do not include expansion of paved areas.
3. Routine maintenance of landscaping that does not involve grading, excavation, or filling.
4. Routine agricultural practices such as tilling, plowing, harvesting, soil amendments, and ditch cleaning that does not alter the ditch configuration provided the spoils are removed from the Special Flood Hazard Area or tilled into fields as a soil amendment.
5. Routine silviculture practices that do not meet the definition of development, including harvesting of trees as long as root balls are left in place and forest road construction or maintenance that does not alter contours, use or alter culverts.
6. Removal of noxious weeds and hazard trees, and replacement of non-native vegetation with native vegetation.
7. Normal maintenance of above ground utilities and facilities, such as replacing downed power lines and utility poles provided there is no net change in footprint.

8. Normal maintenance of a levee or other flood control facility prescribed in the operations and maintenance plan for the levee or flood control facility. Normal maintenance does not include repair from flood damage, expansion of the prism, expansion of the face or toe or addition of protection on the face or toe with rock armor.

9. Habitat restoration activities.

#### D. Riparian Buffer Zone (RBZ)

1. The Riparian Buffer Zone is measured from the ordinary high-water line of a fresh waterbody (lake; pond; ephemeral, intermittent, or perennial stream) or mean higher-high water of a marine shoreline or tidally influenced river reach to 170 feet horizontally on each side of the stream or inland of the MHHW. The riparian buffer zone includes the area between these outer boundaries on each side of the stream, including the stream channel.

2. Habitat restoration activities in the RBZ are considered self-mitigating and are not subject to the no net loss standards described above.

3. Functionally dependent uses are only subject to the no net loss standards for development in the RBZ. Ancillary features that are associated with but do not directly impact the functionally dependent use in the RBZ (including manufacturing support facilities and restrooms) are subject to the beneficial gain standard in addition to no net loss standards.

4. Any other use of the RBZ requires a greater offset to achieve no net loss of floodplain functions, on top of the no net loss standards described above, through the beneficial gain standard.

5. Under FEMA's beneficial gain standard, an area within the same reach of the project and equivalent to 5% of the total project area within the RBZ shall be planted with native herbaceous and shrub vegetation and designated as open space.

#### **§ 17.8.35~~05~~ CRITICAL FACILITY.**

—Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain-). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above BFE or to the height of the 500-year flood-, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

#### **§ 17.8.3~~55~~60 ENVIRONMENTAL PRACTICE.**

~~All property owners, developers or other persons proposing to modify land in the city limits of Forest Grove are encouraged to integrate the habitat-friendly development practices listed in Table 8-1 as part of any modification of the site. Those practices within road rights-of-way or other public property shall be approved by the City Engineer. Other practices shall be approved by the Community Development Department. Said approvals shall be obtained:~~

- A. Where no land use permit is required, prior to any physical modification of the site;
- B. Where any land use permit is required by the Development Code, concurrent with an approval of the permit; or
- C. Where there is a Natural Resource Area and alternative discretionary development standards are used pursuant to the requirements of § 17.5.040.

Table 8-1: Habitat-Friendly Development Practices\*

Part (a): Design and Construction Practices to Minimize Hydrologic Impacts

Table 8-1: Habitat-Friendly Development Practices\*

Part (a): Design and Construction Practices to Minimize Hydrologic Impacts

1. Amend disturbed soils to original or higher level of porosity to regain infiltration and stormwater storage capacity.
2. Use pervious paving materials for residential driveways, parking lots, walkways and within centers of cul-de-sacs.
3. Incorporate stormwater management in road rights-of-way.
4. Landscape with rain gardens to provide on-lot detention, filtering of rainwater and groundwater recharge.
5. Use green roofs for runoff reduction, energy savings, improved air quality and enhanced aesthetics.
6. Disconnect downspouts from roofs and direct the flow to vegetated infiltration/filtration areas such as rain gardens.
7. Retain rooftop runoff in a rain barrel for later on-lot use in lawn and garden watering.
8. Use multi-functional open drainage systems in lieu of more conventional curb-and-gutter systems.
9. Use bioretention cells as rain gardens in landscaped parking lot islands to reduce runoff volume and filter pollutants.
10. Apply a treatment train approach to provide multiple opportunities for stormwater treatment and reduce the possibility of system failure.
11. Reduce sidewalk width and grade them such that they drain to the ~~front yard~~front yard of a residential lot or retention area.
12. Reduce impervious impacts of residential driveways by narrowing widths and moving access to the rear of the site.
13. Use shared driveways.

14. Reduce width of residential streets, depending on traffic and parking needs.
15. Reduce street length, primarily in residential areas, by encouraging clustering and using curvilinear designs.
16. Reduce cul-de-sac radii and use pervious vegetated islands in center to minimize impervious effects, and allow them to be utilized for truck maneuvering/loading to reduce need for wide loading ~~areas on~~ areas on site .
17. Eliminate redundant non-ADA sidewalks within a site (i.e., sidewalk to all entryways and/or to truck loading areas may be unnecessary for industrial developments ).
18. Minimize car spaces and stall dimensions, reduce parking ratios and use shared parking facilities and structured parking.
19. Minimize the number of stream crossings and place crossing perpendicular to stream channel if possible.
20. Allow narrow street ~~right-of-way~~ rights-of-way through stream corridors whenever possible to reduce adverse impacts of transportation corridors.

\*These development practices represent the state of scientific knowledge at the time of this Code's enactment, if more effective habitat-friendly practices become available, they should be used.

#### Part (b): Design and Construction Practices to Minimize Impacts on Wildlife Corridors and Fish Passage

1. Carefully integrate fencing into the landscape to guide animals toward animal crossings under, over or around transportation corridors.
2. Use bridge crossings rather than culverts wherever possible.
3. If culverts are utilized, install slab, arch or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat.
4. Design stream crossings for fish passage with shelves and other design features to facilitate terrestrial wildlife passage.
5. Extend vegetative cover through the wildlife crossing in the migratory route, along with sheltering areas.

#### Part (c): Miscellaneous Other Habitat-Friendly Design and Construction Practices

1. Use native plants throughout the development (not just in NRA).
2. Locate landscaping (required by other sections of the Code) adjacent to NRA.
3. Reduce light-spill off into NRAs from development.

§ 17.12.210 MEANING OF SPECIFIC WORDS AND TERMS.

As used in this Code, the following words and phrases shall mean:

A19. APPEAL. A request that a final decision be considered by a higher authority. For floodplain management purposes Appeal also means a request for a review of any provision of the floodplain management ordinance described in §17.8.325(D) Variance Procedure.

F7. FLOOD-RELATED DEFINITIONS: See §17.8.315 (Floodplain Management Definitions)

~~—a. AREA OF SPECIAL FLOOD HAZARD. The land in the floodplain within a community subject to a 1% or greater chance of flooding in any given year. Designation on maps always includes the letter “A.”~~

~~—b. BASE FLOOD. The flood having a 1% chance of being equaled or exceeded in any given year. Also referred to as the “100-year flood.” Designation on maps always includes the letter “A.”~~

~~—c. BELOW GRADE CRAWL SPACE. An enclosed area below the base flood elevation in which the interior grade is not more than two feet below the lowest adjacent exterior grade and the height, measured from the interior grade of the crawlspace to the top of the crawlspace foundation, does not exceed four feet at any point.~~

~~—d. CONDITIONAL LETTER OF MAP REVISION (CLOMR). A letter from FEMA commenting on whether a proposed project, if built as proposed, would meet the minimum NFIP standards or proposed hydrology changes.~~

~~—e. CRITICAL FACILITY. A facility for which even a slight chance of flooding might be too great. CRITICAL FACILITIES include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste.~~

~~—f. ELEVATED BUILDING. For insurance purposes, a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings or columns.~~

~~—g. FLOOD or FLOODING.~~

~~—(1) A general and temporary condition of partial or complete inundation of normally dry land areas from:~~

~~—(A) The overflow of inland or tidal waters.~~

~~—(B) The unusual and rapid accumulation or runoff of surface waters from any source.~~

~~—(C) Mudslides (such as, mudflows) which are proximately caused by flooding as defined in paragraph (g)(1)(B) of this definition and are akin to a river of liquid and flowing~~

mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

—(2) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph (g)(1)(A) of this definition.

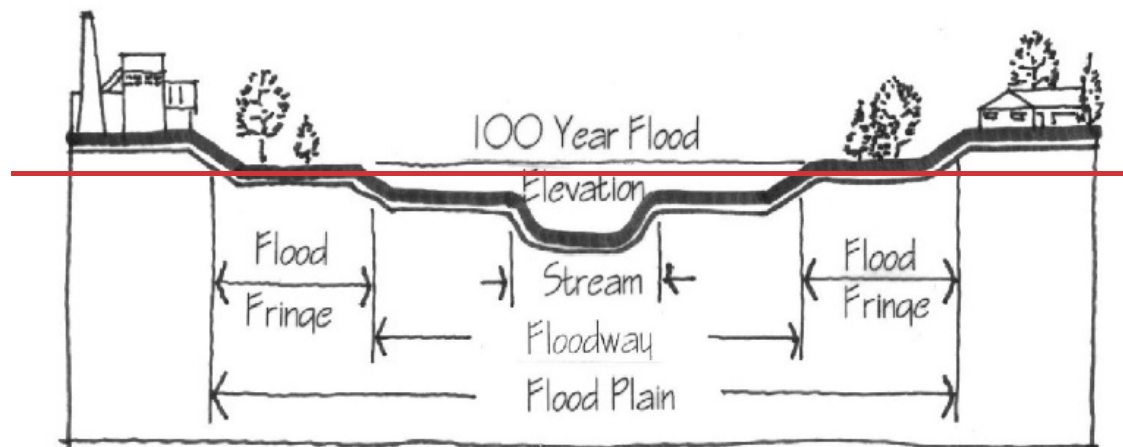
—h. FLOODPLAIN. The zone along a watercourse enclosed by the outer limits of land which is subject to inundation in its natural or lower revised contours by the base flood.

—i. FLOODWAY. The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

—j. FLOODWAY FRINGE. The area of the floodplain lying outside of the floodway.

Figure 12-1: Flood-Related Terms

**Figure 12-1: Flood-Related Terms**



—k. FLOOD INSURANCE RATE MAP (FIRM). An official map of a community, on which the Federal Insurance Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

—l. FLOOD INSURANCE STUDY. An examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determining of mudslide (such as, mudflow) and/or flood-related erosion hazards.

~~— m. FLOOD MANAGEMENT AREA (FMA). Includes land identified within the 100-year flood plain and floodway as shown on the Federal Emergency Management Agency Flood Insurance Maps and land identified in updated flood studies such as Metro's 1996 Flood Inundation Map or any other authoritative data documenting flood elevations as approved by the city.~~

~~— n. HIGHEST ADJACENT GRADE. The highest natural elevation of the ground surface prior to construction, adjacent to the proposed wall of a structure.~~

~~— o. LETTER OF MAP CHANGE (LOMC). An official FEMA determination, by letter, to amend or revise effective Flood Insurance Rate Maps (FIRM) and/or Flood Insurance Studies (FIS). LOMCs are issued in the following categories:~~

~~— 1. LETTER OF MAP AMENDMENT. An amendment to the Flood Insurance Rate Maps based on technical data showing that an existing structure or parcel of land that has not been elevated by fill (natural grade) was inadvertently included in the special flood hazard area because of an area of naturally high ground above the base flood.~~

~~— 2. LETTER OF MAP REVISION (LOMR).~~

~~— i. LOMR-F (LETTER OF MAP REVISION BASED ON FILL). A letter from FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood.~~

~~— ii. A LOMR revises the current FIRM and/or FIS to show changes to the floodplains, floodways or flood elevations. LOMRs are generally based on manmade alterations that affected the hydrologic or hydraulic characteristics of a flooding source and thus result in modification to the existing regulatory floodway, the effective Base Flood Elevation, of the Special Flood Hazard Area. It is recommended a conditional letter of map revision be approved by FEMA prior to issuing a permit to start a project if the project has a potential to affect the special flood hazard area (see Conditional Letter of Map Revision).~~

~~— p. LOWEST FLOOR. The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements.~~

~~I2. IMPERVIOUS SURFACE. Any material that prevents absorption of stormwater into the ground. See floodplain management definitions in §17.8.320.~~

M1. MANUFACTURED DWELLING. A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term MANUFACTURED DWELLING does not include a RECREATIONAL VEHICLE. And is synonymous with "manufactured home".

**Planning Commission Findings and Decision Number 2025-XX**

**Recommend City Council approval of an ordinance amending the text of Forest Grove Development Code Articles 8 and 12 pertaining to floodplain management and related definitions**

**File Number 311-25-000005-PLNG**

**WHEREAS**, the Federal Emergency Management Agency (FEMA) developed a mode flood hazard management model ordinance (Model Ordinance) in 2024; and

**WHEREAS**, the Model Ordinance addresses the requirements outlined in the draft implementation plan for the National Flood Insurance Program (NFIP); and

**WHEREAS**, in 2016, the National Marine Fisheries Service (NMFS) issued a biological opinion (BiOp) which recommended changes to the implementation of the NFIP in Oregon on listed endangered species under NMFS authority; and

**WHEREAS**, as a result of the BiOP issued by NMFS, communities are required to demonstrate how development in the floodplain is compliant with the Endangered Species Act while an Environmental Impact Statement is prepared; and

**WHEREAS**, the Model Ordinance provides the regulations necessary to implement the draft implementation plan and serves as one of three actions a community can take under pre-implementation compliance measures (PICM); and

**WHEREAS**, implementing the Model Ordinance is the preferred PICM action under Oregon land use planning law which requires clear and objectives development standards for certain types of development; and

**WHEREAS**, implementing the Model Ordinance also ensures the City's continuing eligibility for participation in the NFIP; and

**WHEREAS**, notice of the proposed amendments to the Development Code was provided to the Oregon Department of Land Conservation and Development and Metro on XXXXXX; and

**WHEREAS**, on XXXX, notice of the proposed amendments were also provided to potentially affected property owners as required by Oregon Ballot Measure 56; and

**WHEREAS**, notice of the proposed amendments was published in the Forest Grove News-Times on; and

**WHEREAS**, the Planning Commission held the duly noticed public hearing on the proposed amendments on XXXX.

The City of Forest Grove Planning Commission does hereby recommend to the City Council approval of an ordinance amending the Forest Grove Development Code to

incorporate as provided in Attachment 1 making the following specific findings in support of the decision:

**Development Code Text Amendment Review Criteria (§17.2.630)**

- A. The text amendment is consistent with the relevant goals and policies of the Forest Grove Comprehensive Plan.

Finding: If adopted the proposed text amendment will amend Forest Grove Development Code Articles 8 (General Development Standards) and 12 (Definitions) to incorporate the FEMA Model Floodplain Management Ordinance. The text amendment is consistent with the Natural Resources and Natural Hazard Goals related to floodplains areas for the following reasons. The proposed text amendments protect floodplain areas from incompatible uses to reduce potential for property damage by imposing requirements for new construction and substantial improvements. The proposed amendments also include requirements for floodproofing to reduce potential for property damage. In addition, the proposed Development Code amendments require submittal of specific information, including basic environmental data such as base flood elevation data, to address hazard conditions.

- B. The text amendment is consistent with relevant statewide and regional planning goals, program and rules.

Finding: The proposed text amendment is consistent with the Oregon Statewide Land Use Planning Goal 7 (Natural Hazards) since the proposed Development Code amendments including measures to implement the Federal Emergency Management Agency’s 2024 Model Ordinance for floodplain management. The Model Ordinance includes developments standards to protect people and property natural hazards consistent with the intent of Goal 7. In addition, incorporating the Model Ordinance into the Development Code ensure that local floodplain regulations that meet minimum National Flood Insurance Program NFIP requirements. Under Goal 7 local governments are deemed to comply with Goal 7 for riverine flood hazard areas by adopting local floodplain regulations that minimum NFIP requirements.

Finding: The proposed Development Code amendments are consistent with Metro Regional Framework Plan flood mitigation policies. Metro Framework Plan Chapter 5 addresses regional natural hazards including flood hazards. Chapter 5 encourages local governments to implement approaches for mitigating flood hazards including changing local development ordinances related to height requirement above base flood elevation. The FEMA Model Ordinance and proposed Development Code amendments includes development standards for minimum height required above base flood elevation for development and substantial improvements within special flood hazard areas.

Finding: The proposed Development Code amendments are consistent with Metro Urban Growth Management Plan Title 3 (Water Quality and Flood Management) since

the amendments include measures to protect the beneficial functions of flood management areas by requiring no net change from existing changes for floodplain storage, water quality, and vegetation.

### **Forest Grove Comprehensive Plan Natural Resources and Natural Hazards Goals**

The Forest Grove Comprehensive Plan includes goals for natural resources and natural hazards:

Goal 1) All development shall consider, take into account and demonstrate suitability relative to the natural hazard limitations of the Forest Grove area; and

Goal 2) Flood plain areas shall be protected from incompatible uses to reduce potential for property damage.

Finding: The Model Ordinance and proposed Development Code amendments provide tools to demonstrate the suitability of development sites relative to the natural hazard limitations within Forest Grove including areas identified as areas of special flood hazard. Such tools include methods for reducing flood losses by restricting or prohibiting development which is dangerous to health, safety and property due to erosion hazards and requiring that development vulnerable to floods be protected against flood damage at the time of initial construction. These requirements are identified in Section 5.0 (Provisions for Flood Hazard Reduction) of the Model Ordinance and reflected in proposed Development Code §17.8.335.

Finding: The Model Ordinance and proposed Development Code amendments provide development standards for development subject to the floodplain management requirements to reduce potential for property damage. In addition, the Model Ordinance identifies methods for reducing flood losses including restricting or prohibiting development which is dangerous to health, safety and property due to water or erosion hazards or which could result in damaging increases in erosion or in flood heights or velocities. These requirements are identified in Section 5.0 (Provisions for Flood Hazard Reduction) of the Model Ordinance and reflected in proposed Development Code §17.8.335.

### **Forest Grove Comprehensive Plan Natural Resources and Natural Hazard Policies**

Policy 2) Those involved in development will be required to address hazard conditions by the inclusion of basic environmental data (i.e. soil type, elevation of the flood plain, geological limitations, etc.) and related designs and engineering solutions in the submittal requirements for the development. The data requirements are identified in Model Ordinance Section 4.2.2 (Information to be Obtained and Maintained) and in proposed Development Code §17.8.330(B)(2).

Finding: The Model Code identifies required information for a floodplain development permit. Required information includes the base flood elevation and hydrologic and hydraulic analyses.

Policy 3) Adopt as a provision in both the zoning and subdivision ordinances that an environmental report be prepared and certified by a qualified engineer for all development proposals in areas having natural physical hazards and/or limitations. As part of the environmental report, the engineer shall identify the intensity of urban development to be permitted based upon the carrying capacity of the land. Open space may be required within the development in order to protect the public health and safety.

Finding: The Model Ordinance and proposed Development Code amendments requires analyses prepared by a qualified professional in areas the area of special flood hazard. The Model Ordinance defines the area of special flood hazard to include the land in the floodplain with a community subject to one percent or greater chance of flooding in any given year. It is shown on the Flood Insurance Rate Map (FIRM) as Zone A, AO, AH, A1-30, AE, A9, AR (V, V1-30), VE).

Policy 4) Permanent structural improvements will not be permitted in areas delineated as being located within the floodway of the 100-year flood plain as indicated from floodplain surface elevations provided by the US Army Corps of Engineers.

Finding: The Model Ordinance and proposed Development Code amendments prohibits encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless certification by a registered civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase flood levels within the community during the occurrence of the base flood discharge. A community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that conditional approval has been obtained by the Federal Insurance Administrator through the Conditional Letter of Map Revision (CLOMR) application that all requirements established under 44 CFR 65.12 are fulfilled, and the encroachment(s) comply with the no net less standards in the Model Ordinance. These restrictions are deemed consistent with Policy 4.

Policy 5) The development of areas delineated as being within the 100-year flood plain as indicated from flood plain surface elevations provided in the most current Washington County, Oregon – US Army Corps of Engineers information shall be limited to appropriate open space uses.

Finding: The Model Ordinance identifies methods of reducing flood losses including employing a standard of “no net loss” of natural and beneficial floodplain functions including floodplain storage, water quality, and vegetation. The no net loss standards requires that adverse development impacts must be avoided or offset through adherence to certain requirements.

Policy 6) Fill and compensatory excavation of the flood plain shall be used only as a final design solution for development adjacent to the floodway. Developers shall be

required to spell out how development alternatives were evaluated, and conclusions were made.

Finding: The Model Ordinance identifies methods of reducing flood losses including employing a standard of “no net loss” of natural and beneficial floodplain functions including floodplain storage, water quality, and vegetation. The no net loss standard stipulates that adverse development impacts must be avoided or offset through to the development standards identified in the Model Ordinance.

### **Metro Framework Plan and Urban Growth Management Functional Plan**

The Metro Framework Plan includes policies for flood hazard mitigation that are applicable to the proposed Development Code amendments:

#### Policy 5.2 Flood Hazard Mitigation Measures

##### 5.2.1 Protect the function of floodplains to safely convey floodwaters in the region.

Finding: A purpose of the FEMA Model Ordinance and proposed Development Code amendments is to protect the three floodplain functions of floodplain storage, water quality, and vegetation. Therefore, the Model Ordinance is consistent with the intent of Policy 5.2.1 to protect the function of floodplains.

##### 5.2.2 Encourage local governments to implement approaches for mitigating flood hazards.

Finding: The Model Ordinance includes implementation approaches for mitigating flood hazards including elevation structures and floodproofing. Standards are included in Model Ordinance Section 5.0 (Provisions for Flood Hazard Reduction) and proposed revisions to Development Code §17.8.335.

##### 5.2.3 Encourage the avoidance of floodplain development and other non-structural flood mitigation measures instead of using levee and dike construction and other structural flood mitigation techniques.

Finding: The Model Ordinance and proposed Development Code amendments encourages avoidance of floodplain development. This is achieved through provisions for no net loss of floodplain functions and with no net loss of undeveloped space or impervious surface being the preferred approach to development. The Model Ordinance in Section 6.0 and proposed Development Code §17.3.350 states that no net loss can be achieved by first avoiding negative effects to floodplain functions to the degree possible, then minimizing remaining effects.

#### Metro Urban Growth Management Plan Title 3: Water Quality and Flood Management

The purpose of Title 3 is to protect the beneficial water uses and functions and values of resources within the water quality and flood management areas by limiting or mitigating the impact on these areas from development activities and protecting life and property to dangers associated with flooding (§3.07.310).

Finding: the Model Ordinance advances requirements for development affecting flood management areas and addresses requirements outlined in the FEMA draft implementation plan for the National Insurance Flood Insurance program-Endangered Species Act integration in Oregon (aka the Oregon Implementation Plan). As stated in the NFIP Oregon Implementation Program Guidance, the Model Floodplain Management Ordinance provides a set of provisions to protect the built environment from flood damage and to minimize potential impacts of construction and reconstruction on public health and safety, property, water quality, and aquatic and riparian habitats. The requirements pertain to new development in Special Flood Hazard Areas which includes maintenance, repair, or remodel, of existing structures and utilities when the existing footprint is expanded and/or the floodplain is further encroached upon. This is consistent with the purpose of Title 3 stated above.

**Oregon Statewide Land Use Planning Goal 7: Areas Subject to Natural Hazards**

A.1 Local governments shall adopt comprehensive plans (inventories, policies and implementing measures) to reduce risk to people and property from natural hazards.

Finding: The FEMA Model Ordinance provides a set of development standards intended to reduce risk to people and property from natural hazards specifically flooding. The standards are consistent with Oregon building codes intended to protect structures from flood damage that are specified in Oregon Structural Specialty Code (OSSC), Section 1612 and Oregon Residential Specialty Code (ORSC), Section R322.

Finding: As stated in the NFIP Oregon Implementation Program Guidance, the Model Floodplain Management Ordinance is based on the minimum requirements of the National Flood Insurance Program found in 44 CFR 59 and 60, Oregon Statewide land use planning Goal 7.

A.2 Natural hazards for purposes of this goal are floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires.

Finding: The FEMA Model Ordinance addresses floods including coastal and riverine. Therefore, the Model Ordinance and commensurate Development Code amendments are subject to Goal 7.

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Virginia “Ginny” Sanderson  
Planning Commission Chair

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Date

**ORDINANCE NO. 2025-XX**

**ORDINANCE AMENDING FOREST GROVE DEVELOPMNT CODE ARTICLE 8 AND 12  
TO ADOPT REVISED FLOODPLAIN MANAGEMENT REGULATIONS AND  
DEFINITIONS IN COMPLIANCE WITH THE FEDERAL EMERGENCY MANAGEMENT  
AGECNY 2024 FLOOD HAZARD MANAGEMENT MODEL ORDINANCE;  
FILE NO. 311-25-000005-PLNG**

**WHEREAS**, the Federal Emergency Management Agency (FEMA) developed a mode flood hazard management model ordinance (Model Ordinance) in 2024; and

**WHEREAS**, the Model Ordinance addresses the requirements outlined in the draft implementation plan for the National Flood Insurance Program (NFIP); and

**WHEREAS**, in 2016, the National Marine Fisheries Service (NMFS) issued a biological opinion (BiOp) which recommended changes to the implementation of the NFIP in Oregon on listed endangered species under NMFS authority; and

**WHEREAS**, as a result of the BiOP issued by NMFS, communities are required to demonstrate how development in the floodplain is compliant with the Endangered Species Act while an Environmental Impact Statement is prepared; and

**WHEREAS**, the Model Ordinance provides the regulations necessary to implement the draft implementation plan and serves as one of three actions a community can take under pre-implementation compliance measures (PICM); and

**WHEREAS**, implementing the Model Ordinance is the preferred PICM action under Oregon land use planning law which requires clear and objectives development standards for certain types of development; and

**WHEREAS**, implementing the Model Ordinance also ensures the City's continuing eligibility for participation in the NFIP; and

**WHEREAS**, notice of the proposed amendments to the Development Code was provided to the Oregon Department of Land Conservation and Development and Metro; and

**WHEREAS**, notice of the proposed amendments were also provided to potentially affected property owners as required by Oregon Ballot Measure 56; and

**WHEREAS**, notice of the proposed amendments was published in the Forest Grove News-Times on April 10, 2025; and

**WHEREAS**, the Planning Commission held the duly noticed public hearing on the proposed amendments on April 21, 2025; and

**WHEREAS**, on April 21, 2025, the Planning Commission adopted Planning Commission Findings and Decision No. XXXX-XX recommending approval of the proposed amendments; and

**WHEREAS**, the City Council held the duly noticed public hearing on the proposed ordinance amending the Development Code for first and second reading on XXX, XX, XXXX

**NOW, THEREFORE, THE CITY OF FOREST GROVE ORDAINS AS FOLLOWS:**

**Section 1.** The City Council hereby adopts the Planning Commission’s findings and Decision No. XXXX-XX, attached as Exhibit A, recommending approval of the proposed Development Code amendments.

**Section 2.** The City Council hereby adopts the text amendments to Development Code Article 8 and Article 12 as described by Exhibit A, Attachment 1.

**Section 3.** This ordinance shall be effective 30 days following its enactment by the City Council.

**PRESENTED AND PASSED** the first reading the XX day of XX, 2025.

**PASSED** the second reading the XX day of XX, 2025.

\_\_\_\_\_  
Mariah S. Woods, City Recorder

**APPROVED** by the Mayor this XX day of XX, 2025.

\_\_\_\_\_  
Malynda H. Wenzl, Mayor



NFIP Oregon Implementation Program Guidance

# Model Floodplain Management Ordinance

For Participating Communities in the  
Implementation Plan Area

November 2024



FEMA

Federal Emergency Management Agency  
Region X  
Department of Homeland Security

Note to Communities: This document presents the draft model ordinance for the Pre-Implementation Compliance Measures and is intended to closely represent most of the language that will be presented as Pathway A of the Draft Implementation Plan. It is built off the 2020 State of Oregon Model Flood Hazard Management Ordinance and the 2018 iteration of the Oregon Model ordinance for ESA Integration. It reflects the NMFS 2016 Biological Opinion (BiOp) (except where noted) and is informed by the 2023 NEPA Scoping effort.

# Table of Contents

<b>SECTION 1. Introduction.....</b>	<b>1-1</b>
1.1. How to Use this Document.....	1-2
1.1.1. Ordinance Language Legend: .....	1-3
1.2. Changes from the 2020 Oregon Model Flood Hazard Management Ordinance.....	1-3
1.3. Community Rating System .....	1-4
<b>SECTION 2. Regulatory Crosswalk.....</b>	<b>2-1</b>
<b>SECTION 3. Model Ordinance Language.....</b>	<b>3-1</b>
<b>Appendix A Section 6.0 Alternate Language to Achieve No Net Loss.....</b>	<b>3-35</b>
<b>Appendix B Additional and Updated Definitions.....</b>	<b>3-40</b>

## Acronyms and Abbreviations

BiOp	Biological Opinion
CFR	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
CRS	Community Rating System
dbh	diameter breast height
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
LID	Low-Impact Development
LOMR	Letter of Map Revision
MHHW	Marine Higher-High Water line
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
OHWL	Ordinary High Water Mark
ORS	Oregon Revised Statutes
ORSC	Oregon Residential Specialty Code
OSSC	Oregon Structural Specialty Code
RBZ	Riparian buffer zone
SFHA	Special Flood Hazard Area
TB	Technical Bulletin

# SECTION 1. Introduction

FEMA has developed this model flood hazard management ordinance (“2024 model ordinance”) to address the requirements outlined in the Draft Implementation Plan for National Flood Insurance Program (NFIP)-Endangered Species Act (ESA) Integration in Oregon (“Oregon Implementation Plan”). The Federal Emergency Management Agency (FEMA) consulted with the National Marine Fisheries Service (NMFS) on potential effects of the implementation of the NFIP in Oregon on listed species under NMFS authority. In 2016, NMFS issued a Biological Opinion (BiOp), which recommended changes to the implementation of the NFIP in Oregon within the plan area (see the 2024 Draft Oregon Implementation Plan for NFIP-ESA Integration [2024 Draft Implementation Plan] for a description of the plan area).

As a result of the BiOp issued by NMFS, communities are required to demonstrate how floodplain development is compliant with the Endangered Species Act in the SFHA while the 2024 Draft Implementation Plan undergoes an Environmental Impact Statement (EIS). The 2024 model ordinance provides the tools a community would need to implement “Path A” of the 2024 Draft Implementation Plan and serves as one of three actions a community can take under Pre-Implementation Compliance Measures (PICM).

The regulatory language contained within the 2024 model ordinance can be adopted verbatim and incorporated into local floodplain and land use regulations, or a community may select those sections that are missing from its current floodplain ordinance and adopt those sections. The State of Oregon’s Model Flood Hazard Management Ordinance (2020) was used as a starting point, with additions to provide compliance with the Oregon Implementation Plan. The additional sections are clearly noted with yellow highlighting to simplify implementation for Oregon communities in the plan area that have already adopted the Oregon Model Flood Hazard Management Ordinance (2020).

This 2024 model ordinance provides a set of provisions to protect the built environment from flood damage and to minimize potential impacts of construction and reconstruction on public health and safety, property, water quality, and aquatic and riparian habitats. The requirements pertain to new development in Special Flood Hazard Area (see definitions), which includes the maintenance, repair, or remodel of existing structures and utilities when the existing footprint is expanded and/or the floodplain is further encroached upon.

The Oregon Implementation Plan and this model ordinance do not change the definition of development in 44 Code of Federal Regulations [CFR] 59.1.

“Development” is defined as “any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.” (44 C.F.R. 59.1)

The 2024 model ordinance provides compliance with federal and state statutes and with the Oregon Implementation Plan. The 2024 model ordinance conforms to the following:

- 37 1. The requirements of the NFIP, as specified in 44 CFR 59 and 60.
- 38 2. Oregon State codes to protect structures from flood damage that are specified in Oregon  
39 Structural Specialty Code (OSSC), Section 1612 and Oregon Residential Specialty Code  
40 (ORSC), Section R322.
- 41 3. Oregon Statewide Land Use Planning Goals
- 42 4. Provisions needed to meet the requirements of the Oregon Implementation Plan for NFIP-ESA  
43 Integration. These sections are highlighted in yellow in the model ordinance.

44 This 2024 model ordinance provides communities with ordinance language that complies with the  
45 NFIP-ESA Integration Implementation Plan. Adoption of the ordinance language will ensure  
46 compliance with the minimum standards for participation in the NFIP in the plan area in Oregon.  
47 Prior to adoption of the ordinance language, communities must have their locally proposed draft  
48 language reviewed by FEMA and/or the Oregon Department of Land Conservation and Development.

49 The model flood hazard ordinance includes standards and provisions that encourage sound  
50 floodplain management. The language is based on the minimum requirements of the NFIP found in  
51 44 CFR 59 and 60, Oregon’s statewide land use planning Goal 7, and Oregon specialty codes. The  
52 new language added to the state model floodplain ordinance, highlighted in yellow, provides  
53 compliance with the ESA for floodplain development in the plan area.

54 Adherent to the NMFS 2016 Biological Opinion, mitigation is necessary to ensure a no net loss in  
55 floodplain functions. FEMA’s 2024 Draft Oregon Implementation Plan identifies proxies that provide  
56 measurable actions that can prevent the no net loss of the parent floodplain functions. These  
57 proxies include undeveloped space, pervious surfaces, and trees to account for a no net loss in  
58 respective floodplain functions of floodplain storage, water quality, and vegetation. Mitigation of  
59 these proxies must be completed to ensure compliance with no net loss standards. No net loss  
60 applies to the net change in floodplain functions as compared to existing conditions at the time of  
61 proposed development and mitigation must be addressed to the floodplain function that is receiving  
62 the detrimental impact.

63 **1.1. How to Use this Document**

64 This 2024 model ordinance includes a Table of Contents and a Regulatory Crosswalk that identifies  
65 the federal and state standards that align to and are reflected in each section. Communities will  
66 need to review their ordinances and ensure that all the required components are included.

67 Please refer to [FEMA’s website](#) for information on how to determine whether or not your community  
68 is within the plan area.

69 **1.1.1. ORDINANCE LANGUAGE LEGEND:**

70 The colors are used in the text in the model ordinance to denote specific actions or sections with  
71 specific applicability.

- 72 • Black: Represents the existing NFIP and current state minimum requirements that are found  
73 in the 2020 Oregon Model Flood Hazard Management Ordinance.
- 74 • Red: Represents language that must be replaced with community specific information. Only  
75 include the appropriate language for your community.
- 76 • Purple: Represents language required for communities with Coastal High Hazard Areas  
77 mapped by FEMA (V Zones or Coastal A Zones). (DELETE ALL PURPLE LANGUAGE IF NOT A  
78 COASTAL COMMUNITY).
- 79 • Blue: Represents hyperlinks to other sections of the document or external websites.
- 80 • Yellow highlighting: Represents new ordinance language not in the 2020 Oregon Model Flood  
81 Hazard Management Ordinance. Communities that have previously adopted the state model  
82 ordinance may focus on the yellow highlighted sections.

83 **1.2. Changes from the 2020 Oregon Model Flood Hazard Management**  
84 **Ordinance**

85 This 2024 version of the Oregon Model Flood Hazard Ordinance (to be referred to herein as the  
86 “2024 Model Ordinance”), varies from the 2020 Oregon Model Flood Hazard Management  
87 Ordinance. with the addition of new content to be included for ESA compliance for NFIP-participating  
88 communities in the plan area. If no part of the Special Flood Hazard Area (SFHA) in your NFIP-  
89 participating community is in the Oregon NFIP-ESA Integration plan area, your community may  
90 continue to use the 2020 Oregon Model Flood Hazard Management Ordinance.

91 In general, the ordinance was revised to ensure that the implementation of the NFIP-ESA integration  
92 no net loss standards avoids or offsets adverse impacts on threatened and endangered species and  
93 their critical habitat. A summary of the primary changes found in the 2024 model ordinance is  
94 provided below:

- 95 1. New language has been added to incorporate the following no net loss standards:
  - 96 a. No net loss of undeveloped space (see Section 6.1.1).
  - 97 b. No net loss of pervious surface. (see Section 6.1.2).
  - 98 c. No net loss of trees equal to or greater than 6 inches dbh (i.e., tree diameter  
99 measured at 4.5 feet from the ground surface). (see Section 6.1.3).

- 100 2. Some definitions (see 2.0) have been added to provide context for the new no net loss  
101 standards from the Oregon Implementation Plan.
- 102 3. Language has been added:
  - 103 a. (see 6.3) to address activities that may require a floodplain development permit but  
104 are exempt from the no net loss requirement per the BiOp.
  - 105 b. (see 6.4) to address the specific requirements of the Riparian Buffer Zone (RBZ).
- 106 4. In general, the language in the 2024 model ordinance mirrors the language from the 2020  
107 Oregon Model Flood Hazard Management Ordinance. Minor edits to the 2020 language have  
108 been made for clarity, punctuation, and grammar.

### 109 1.3. Community Rating System

110 Implementation of the new no net loss standards related to NFIP-ESA integration may be eligible for  
111 credit under the Community Rating System (CRS). The CRS is explained further in CRS Credit for  
112 Habitat Protection, available online at: [https://crsresources.org/files/guides/crs-credit-for-habitat-  
113 protection.pdf](https://crsresources.org/files/guides/crs-credit-for-habitat-protection.pdf), and the 2017 CRS Coordinators' Manual, available online at:  
114 [https://www.fema.gov/sites/default/files/documents/fema\\_community-rating-system\\_coordinators-  
115 manual\\_2017.pdf](https://www.fema.gov/sites/default/files/documents/fema_community-rating-system_coordinators-manual_2017.pdf), and the 2021 Addendum to the 2017 CRS Coordinator's Manual, available  
116 online at: [https://www.fema.gov/sites/default/files/documents/fema\\_community-rating-  
117 system\\_coordinator-manual\\_addendum-2021.pdf](https://www.fema.gov/sites/default/files/documents/fema_community-rating-system_coordinator-manual_addendum-2021.pdf). The Association of State Floodplain Managers'  
118 Green Guide, also provides useful information on development techniques that avoid impacts on  
119 natural functions and values of floodplains. This document is available at:  
120 [www.floodsciencecenter.org/products/crs-community-resilience/green-guide/](http://www.floodsciencecenter.org/products/crs-community-resilience/green-guide/). Communities  
121 interested in CRS credits should contact their CRS specialist for additional information and review.

122 Implementation of the no net loss standards would most likely contribute to credits under the  
123 following CRS activities:

- 124 • Activity 430 Higher Regulatory Standards
  - 125 ○ Development Limitations
    - 126 ■ Prohibition of all fill (DL1a): This credit is for prohibiting all filling in the regulatory  
127 floodplain. To meet this standard, communities may NOT approve Conditional  
128 Letters or Letters of Map Revision based on Fill (CLOMR-F or LOMR-F). If a  
129 CLOMR-F or LOMR-F is issued for a property in a community, then DL1 credit will  
130 be denied. This applies to CLOMRs and LOMRs that include filling as part of the  
131 reason for requesting a map change. Minor filling may be allowed where needed  
132 to protect or restore natural floodplain functions, such as part of a channel  
133 restoration project.

- 134                   ▪ The CRS manual describes a number of regulatory approaches that do not  
135                   warrant credit under DL1; however, because the Oregon NFIP-ESA integration no  
136                   net loss standards exceed the approaches described in the manual, a community  
137                   meeting the Oregon no net loss standards should qualify for credit under DL1.
  
- 138                   ▪ Compensatory storage (DL1b): This credit is for regulations that require new  
139                   development to provide compensatory storage at hydraulically equivalent sites up  
140                   to a ratio of 1.5:1. Credit is not provided for:
  - 141                               • Compensatory storage requirements in floodways only or in V Zones only,  
142                               or
  - 143                               • Stormwater management regulations that require a developer to  
144                               compensate for any increase in runoff created by the development. This  
145                               is credited under Activity 450.
  
- 146                   • Activity 450 Stormwater Management
  - 147                               ○ Stormwater management regulations (SMR – 452a): This credit is the sum of four  
148                               sub-elements: Size of development (Section 452.a(1), SZ); design storm used (Section  
149                               452.a(2), DS); low-impact development (LID) regulations (Section 452.a(3), LID); and  
150                               public agency authority to inspect and maintain, at the owner’s expense, private  
151                               facilities constructed to comply with the ordinance (Section 452.a.(4), PUB).
  
  - 152                               ▪ LID credits the community’s regulatory language that requires the  
153                               implementation of LID techniques to the maximum extent feasible to control  
154                               peak runoff when new development occurs. LID techniques can significantly  
155                               reduce or eliminate the increase in stormwater runoff created by traditional  
156                               development, encourage aquifer recharge, and promote better water quality.
  
- 157
  
- 158

## SECTION 2. Regulatory Crosswalk

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2 The following table presents a crosswalk of the model ordinance sections against the relevant  
 3 federal and state laws, regulations, and policies. The new sections related to the Oregon NFIP-ESA  
 4 integration implementation (yellow highlighted sections of the model ordinance) are not listed in this  
 5 table and are related to compliance with the ESA.

Ordinance Section	44 CFR and Technical Bulletin (TB) Citation(s)	State of Oregon Citation(s) (Goal 7, Specialty Codes*, Oregon Revised Statutes [ORS])
1.1 Statutory Authorization	59.22(a)(2)	Goal 7; ORS 203.035 (Counties), ORS 197.175 (Cities)
1.2 Findings of Fact	59.22(a)(1)	Goal 7
1.3 Statement of Purpose	59.2; 59.22(a)(1) and (8); 60.22	Goal 7
1.4 Methods of Reducing Flood Losses	60.22	Goal 7
2.0 Definitions	59.1; 33 CFR 328.3(c)(7)	Goal 7
3.1 Lands to Which this Ordinance Applies	59.22(a)	Goal 7
3.2 Basis for Establishing the Special Flood Hazard Areas	59.22(a)(6); 60.2(h)	Goal 7
3.3 Coordination with Specialty Codes Adopted by the State of Oregon Building Codes Division		ORS 455
3.4.1 Compliance	60.1(b) – (d)	Goal 7
3.4.2 Penalties for Noncompliance	60.1(b) – (d)	Goal 7
3.5.1 Abrogation	60.1(b) – (d)	Goal 7
3.5.2 Severability		
3.6 Interpretation	60.1(b) – (d)	Goal 7
3.7.1 Warning		
3.7.2 Disclaimer of Liability		
4.1 Designation of the Floodplain Administrator	59.22(b)(1)	Goal 7
4.2.1 Permit Review	60.3(a)(1) – (3); 60.3(c)(10)	Goal 7
4.2.2 Information to be Obtained and Maintained	59.22(a)(9)(iii); 60.3(b)(5)(i) and (iii); 60.3(c)(4); 60.3(b)(3); 60.6(a)(6)	Goal 7; 105.9; 110.33; R106.1.4; R109.1.3; R109.1.6.1; R322.1.10; R322.3.6

## Regulatory Crosswalk

Ordinance Section	44 CFR and Technical Bulletin (TB) Citation(s)	State of Oregon Citation(s) (Goal 7, Specialty Codes*, Oregon Revised Statutes [ORS])
4.2.3.1 Community Boundary Alterations	59.22(a)(9)(v)	Goal 7
4.2.3.2 Watercourse Alterations	60.3(b)(6) – (7), 65.6(12-13)	Goal 7
4.2.3.3 Requirement to Submit New Technical Data	65.3, 65.6, 65.7, 65.12	Goal 7
4.2.4 Substantial Improvement and Substantial Damage Assessments and Determinations	59.1; 60.3(a)(3); 60.3(b)(2); 60.3(b)(5)(i); 60.3(c)(1), (2), (3), (5) – (8), (10), (12); 60.3(d)(3); 60.3(e)(4), (5), (8)	Goal 7
4.3.1 Floodplain Development Permit Required	60.3(a)(1)	Goal 7
4.3.2 Application for Development Permit	60.3(a)(1); 60.3(b)(3); 60.3(c)(4)	Goal 7; Oregon Residential Specialty Code (R) 106.1.4; R322.3.6
4.4 Variance Procedure	60.6(a)	Goal 7
4.4.1 Conditions for Variances	60.6(a)	Goal 7
4.4.2 Variance Notification	60.6(a)(5)	Goal 7
5.1.1 Alteration of Watercourses	60.3(b)(6) and (7)	Goal 7
5.1.2 Anchoring	60.3(a)(3); 60.3(b)(1), (2), and (8)	Goal 7; R322.1.2
5.1.3 Construction Materials and Methods	60.3(a)(3), TB 2; TB 11	Goal 7; R322.1.3; R322.1.3
5.1.4.1 Water Supply, Sanitary Sewer, and On-Site Waste Disposal Systems	60.3(a)(5) and (6)	Goal 7; R322.1.7
5.1.4.2 Electrical, Mechanical, Plumbing, and Other Equipment	60.3(a)(3)	Goal 7; R322.1.6;
5.1.5 Tanks		R322.2.4; R322.3.7
5.1.6 Subdivision Proposals	60.3(a)(4)(i) – (iii); 60.3(b)(3)	Goal 7
5.1.7 Use of Other Base Flood Data	60.3(a)(3); 60.3(b)(4); 60.3(b)(3); TB 10-01	Goal 7; R322.3.2
5.1.8 Structures Located in Multiple or Partial Flood Zones		R322.1
5.2.1 Flood Openings	60.3(c)(5); TB 1; TB 11	Goal 7; R322.2.2;

## Regulatory Crosswalk

Ordinance Section	44 CFR and Technical Bulletin (TB) Citation(s)	State of Oregon Citation(s) (Goal 7, Specialty Codes*, Oregon Revised Statutes [ORS])
		R322.2.2.1
5.2.2 Garages	TB 7-93	R309
5.2.3.1 Before Regulatory Floodway	60.3(c)(10)	Goal 7
5.2.3.2 Residential Construction	60.3(c)(2)	Goal 7
5.2.3.3 Non-residential Construction	60.3(c)(3) - (5); TB 3	Goal 7; R322.2.2; R322.2.2.1
5.2.3.4 Manufactured Dwellings	60.3(b)(8); 60.3(c)(6)(iv); 60.3(c)(12)(ii)	Goal 7; State of OR Manufactured Dwelling Installation Specialty Code (MDISC) and associated statewide Code Interpretation dated 1/1/2011
5.2.3.5 Recreational Vehicles	60.3(c)(14)(i) - (iii)	Goal 7
5.2.3.6 Appurtenant (Accessory) Structures	60.3(c)(5); TB 1; TB 7-93	Oregon Structural Specialty Code (S) 105.2; R105.2
5.2.4 Floodways	60.3(d); FEMA Region X Fish Enhancement Memo (Mark Riebau)	Goal 7
5.2.5 Standards for Shallow Flooding Areas	60.3(c)(7), (8), (11), and (14)	Goal 7
5.3 Specific Standards for Coastal High Hazard Flood Zones, and 5.3.1 Development Standards	60.3(e); TB 5; TB 8; TB 9	Goal 7; R322.3.1; R322.3.2; R322.3.3; R322.3.4; R322.3.5
5.3.1.1 Manufactured Dwelling Standards for Coastal High Hazard Zones	60.3(e)(8)(i) - (iii)	Goal 7; RR322.3.2; State of OR Manufactured Dwelling Installation Specialty Code (MDISC) and associated statewide Code Interpretation dated 1/1/2011

**Regulatory Crosswalk**

Ordinance Section	44 CFR and Technical Bulletin (TB) Citation(s)	State of Oregon Citation(s) (Goal 7, Specialty Codes*, Oregon Revised Statutes [ORS])
5.3.1.2 Recreational Vehicle Standards for Coastal High Hazard Zones	60.3(e)(9)(i)- (iii)	Goal 7
5.3.1.3 Tank Standards for Coastal High Hazard Zones		R322.2.4; R322.3.7

\*[Link to Oregon Specialty Codes \(https://www.oregon.gov/bcd/codes-stand/Pages/adopted-codes.aspx\)](https://www.oregon.gov/bcd/codes-stand/Pages/adopted-codes.aspx)

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7

# SECTION 3. Model Ordinance Language

## 1.0 STATUTORY AUTHORITY, FINDINGS OF FACT, PURPOSE, AND METHODS

### 1.1 STATUTORY AUTHORIZATION

The State of Oregon has in **ORS 203.035 (COUNTIES) OR ORS 197.175 (CITIES)** delegated the responsibility to local governmental units to adopt floodplain management regulations designed to promote the public health, safety, and general welfare of its citizenry.

Therefore, the **COMMUNITY NAME** does ordain as follows:

### 1.2 FINDINGS OF FACT

- A. The flood hazard areas of **COMMUNITY NAME** **preserve the natural and beneficial values served by floodplains but** are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- B. These flood losses may be caused by the cumulative effect of obstructions in special flood hazard areas which increase flood heights and velocities, and when inadequately anchored, cause damage in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to flood loss.

### 1.3 STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote public health, safety, and general welfare, and to minimize public and private losses due to flooding in special flood hazard areas by provisions designed to:

- A. Protect human life and health;
- B. Minimize expenditure of public money for costly flood control projects;
- C. Preserve natural and beneficial floodplain functions;**
- D. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- E. Minimize prolonged business interruptions;

- 31 F. Minimize damage to public facilities and utilities such as water and gas mains;  
32 electric, telephone and sewer lines; and streets and bridges located in special flood  
33 hazard areas;
- 34 G. Help maintain a stable tax base by providing for the sound use and development of  
35 flood hazard areas so as to minimize blight areas caused by flooding;
- 36 H. Notify potential buyers that the property is in a special flood hazard area;
- 37 I. Notify those who occupy special flood hazard areas that they assume responsibility  
38 for their actions;
- 39 J. Participate in and maintain eligibility for flood insurance and disaster relief.

40 **1.4 METHODS OF REDUCING FLOOD LOSSES**

41 In order to accomplish its purposes, this ordinance includes methods and provisions for:

- 42 A. Restricting or prohibiting development which is dangerous to health, safety, and  
43 property due to water or erosion hazards, or which result in damaging increases in  
44 erosion or in flood heights or velocities;
- 45 B. Requiring that development vulnerable to floods, including facilities which serve such  
46 uses, be protected against flood damage at the time of initial construction;
- 47 C. Controlling the alteration of natural floodplains, stream channels, and natural  
48 protective barriers, which help accommodate or channel flood waters;
- 49 D. Controlling filling, grading, dredging, and other development which may increase  
50 flood damage;
- 51 E. Preventing or regulating the construction of flood barriers which will unnaturally divert  
52 flood waters or may increase flood hazards in other areas.
- 53 F. Employing a standard of “no net loss” of natural and beneficial floodplain functions.

54 **2.0 DEFINITIONS**

55 Unless specifically defined below, words or phrases used in this ordinance shall be  
56 interpreted so as to give them the meaning they have in common usage.

57 **Appeal:** A request for a review of the interpretation of any provision of this ordinance or a  
58 request for a variance.

59 **Area of shallow flooding:** A designated Zone AO, AH, AR/AO or AR/AH on a community’s  
60 Flood Insurance Rate Map (FIRM) with a one percent or greater annual chance of  
61 flooding to an average depth of one to three feet where a clearly defined channel

62 does not exist, where the path of flooding is unpredictable, and where velocity  
63 flow may be evident. Such flooding is characterized by ponding or sheet flow.

64 **Area of special flood hazard:** The land in the floodplain within a community subject to a 1  
65 percent or greater chance of flooding in any given year. It is shown on the Flood  
66 Insurance Rate Map (FIRM) as Zone A, AO, AH, A1-30, AE, A99, AR (V, V1-30, VE).  
67 “Special flood hazard area” is synonymous in meaning and definition with the  
68 phrase “area of special flood hazard.”

69 **Base flood:** The flood having a one percent chance of being equaled or exceeded in any  
70 given year.

71 **Base flood elevation (BFE):** The elevation to which floodwater is anticipated to rise during  
72 the base flood.

73 **Basement:** Any area of the building having its floor subgrade (below ground level) on all  
74 sides.

75 **Breakaway wall:** A wall that is not part of the structural support of the building and is  
76 intended through its design and construction to collapse under specific lateral  
77 loading forces, without causing damage to the elevated portion of the building or  
78 supporting foundation system.

79 **Coastal high hazard area:** An area of special flood hazard extending from offshore to the  
80 inland limit of a primary frontal dune along an open coast and any other area  
81 subject to high velocity wave action from storms or seismic sources.

82 **Development:** Any man-made change to improved or unimproved real estate, including  
83 but not limited to buildings or other structures, mining, dredging, filling, grading,  
84 paving, excavation or drilling operations or storage of equipment or materials.

85 **Fill:** Placement of any materials such as soil, gravel, crushed stone, or other materials  
86 that change the elevation of the floodplain. The placement of fill is considered  
87 “development.”

88 **Fish Accessible Space:** The volumetric space available to fish to access.

89 **Fish Egress-able Space:** The volumetric space available to fish to exit or leave from.

90 **Flood or Flooding:**

- 91 (a) A general and temporary condition of partial or complete inundation of normally  
92 dry land areas from:
- 93 (1) The overflow of inland or tidal waters.
- 94 (2) The unusual and rapid accumulation or runoff of surface waters from any  
95 source.

96 (3) Mudslides (i.e., mudflows) which are proximately caused by flooding as  
97 defined in paragraph (a)(2) of this definition and are akin to a river of liquid  
98 and flowing mud on the surfaces of normally dry land areas, as when earth is  
99 carried by a current of water and deposited along the path of the current.

100 (b) The collapse or subsidence of land along the shore of a lake or other body of  
101 water as a result of erosion or undermining caused by waves or currents of water  
102 exceeding anticipated cyclical levels or suddenly caused by an unusually high  
103 water level in a natural body of water, accompanied by a severe storm, or by an  
104 unanticipated force of nature, such as flash flood or an abnormal tidal surge, or  
105 by some similarly unusual and unforeseeable event which results in flooding as  
106 defined in paragraph (a)(1) of this definition.

107 **Flood elevation study:** an examination, evaluation and determination of flood hazards  
108 and, if appropriate, corresponding water surface elevations, or an examination,  
109 evaluation and determination of mudslide (i.e., mudflow) and/or flood-related  
110 erosion hazards.

111 **Flood Insurance Rate Map (FIRM):** The official map of a community, on which the Federal  
112 Insurance Administrator has delineated both the special hazard areas and the  
113 risk premium zones applicable to the community. A FIRM that has been made  
114 available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

115 **Flood Insurance Study (FIS):** See "Flood elevation study."

116 **Floodway:** The channel of a river or other watercourse and the adjacent land areas that  
117 must be reserved in order to discharge the base flood without cumulatively  
118 increasing the water surface elevation more than a designated height. Also  
119 referred to as "Regulatory Floodway."

120 **Functionally Dependent Use:** A use which cannot perform its intended purpose unless it  
121 is located or carried out in proximity to water. The term includes only docking  
122 facilities, port facilities that are necessary for the loading and unloading of cargo  
123 or passengers, and ship building and ship repair facilities, but does not include  
124 long-term storage or related manufacturing facilities.

125 **Green Infrastructure:** Use of natural or human-made hydrologic features to manage  
126 water and provide environmental and community benefits. Green infrastructure  
127 uses management approaches and technologies that use, enhance, and/or  
128 mimic the natural hydrologic cycle processes of infiltration, evapotranspiration,  
129 and reuse. At a large scale, it is an interconnected network of green space that  
130 conserves natural systems and provides assorted benefits to human populations.  
131 At a local scale, it manages stormwater by infiltrating it into the ground where it is  
132 generated using vegetation or porous surfaces, or by capturing it for later reuse.  
133 Green infrastructure practices can be used to achieve no net loss of pervious  
134 surface by creating infiltration of stormwater in an amount equal to or greater  
135 than the infiltration lost by the placement of new impervious surface.

136 **Habitat Restoration Activities:** Activities with the sole purpose of restoring habitats that  
137 have only temporary impacts and long-term benefits to habitat. Such projects  
138 cannot include ancillary structures such as a storage shed for maintenance  
139 equipment, must demonstrate that no rise in the BFE would occur as a result of  
140 the project and obtain a CLOMR and LOMR, and have obtained any other  
141 required permits (e.g., CWA Section 404 permit).

142 **Hazard Trees:** Standing dead, dying, or diseased trees or ones with a structural defect  
143 that makes it likely to fail in whole or in part and that present a potential hazard  
144 to a structure or as defined by the community.

145 **Highest adjacent grade:** The highest natural elevation of the ground surface prior to  
146 construction next to the proposed walls of a structure.

147 **Historic structure:** Any structure that is:

148 (a) Listed individually in the National Register of Historic Places (a listing maintained  
149 by the Department of Interior) or preliminarily determined by the Secretary of the  
150 Interior as meeting the requirements for individual listing on the National  
151 Register;

152 (b) Certified or preliminarily determined by the Secretary of the Interior as  
153 contributing to the historical significance of a registered historic district or a  
154 district preliminarily determined by the Secretary to qualify as a registered  
155 historic district;

156 (c) Individually listed on a state inventory of historic places in states with historic  
157 preservation programs which have been approved by the Secretary of Interior; or

158 (d) Individually listed on a local inventory of historic places in communities with  
159 historic preservation programs that have been certified either:

160 (1) By an approved state program as determined by the Secretary of the Interior  
161 or

162 (2) Directly by the Secretary of the Interior in states without approved programs.

163 **Hydraulically Equivalent Elevation:** A location (e.g., a site where no net loss standards are  
164 implemented) that is approximately equivalent to another (e.g., the impacted  
165 site) relative to the same 100-year water surface elevation contour or base flood  
166 elevation. This may be estimated based on a point that is along the same  
167 approximate line perpendicular to the direction of flow.

168 **Hydrologically Connected:** The interconnection of groundwater and surface water such  
169 that they constitute one water supply and use of either results in an impact to  
170 both.

171 **Impervious Surface:** A surface that cannot be penetrated by water and thereby prevents  
172 infiltration and increases the amount and rate of surface water runoff, leading to  
173 erosion of stream banks, degradation of habitat, and increased sediment loads  
174 in streams. Such surfaces can accumulate large amounts of pollutants that are  
175 then “flushed” into local water bodies during storms and can also interfere with  
176 recharge of groundwater and the base flows to water bodies.

177 **Low Impact Development:** An approach to land development (or redevelopment) that  
178 works with nature to manage stormwater as close to its source as possible. It  
179 employs principles such as preserving and recreating natural landscape features  
180 and minimizing effective imperviousness to create functional and appealing site  
181 drainage that treats stormwater as a resource rather than a waste product. Low  
182 Impact Development refers to designing and implementing practices that can be  
183 employed at the site level to control stormwater and help replicate the  
184 predevelopment hydrology of the site. Low impact development helps achieve no  
185 net loss of pervious surface by infiltrating stormwater in an amount equal to or  
186 greater than the infiltration lost by the placement of new impervious surface. LID  
187 is a subset of green infrastructure.

188 **Lowest floor:** The lowest floor of the lowest enclosed area (including basement). An  
189 unfinished or flood resistant enclosure, usable solely for parking of vehicles,  
190 building access or storage in an area other than a basement area is not  
191 considered a building’s lowest floor, provided that such enclosure is not built so  
192 as to render the structure in violation of the applicable non-elevation design  
193 requirements of this ordinance.

194 **Manufactured dwelling:** A structure, transportable in one or more sections, which is built  
195 on a permanent chassis and is designed for use with or without a permanent  
196 foundation when attached to the required utilities. The term "manufactured  
197 dwelling" does not include a "recreational vehicle" and is synonymous with  
198 “manufactured home.”

199 **Manufactured dwelling park or subdivision:** A parcel (or contiguous parcels) of land  
200 divided into two or more manufactured dwelling lots for rent or sale.

201 **Mean Higher-High Water:** The average of the higher-high water height of each tidal day  
202 observed over the National Tidal Datum Epoch.

203 **Mean sea level:** For purposes of the National Flood Insurance Program, the National  
204 Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which Base Flood  
205 Elevations shown on a community's Flood Insurance Rate Map are referenced.

206 **New construction:** For floodplain management purposes, “new construction” means  
207 structures for which the “start of construction” commenced on or after the effective  
208 date of a floodplain management regulation adopted by **COMMUNITY NAME** and  
209 includes any subsequent improvements to such structures.

210 **No Net Loss:** A standard where adverse impacts must be avoided or offset through  
211 adherence to certain requirements so that there is no net change in the function

212 from the existing condition when a development application is submitted to the state,  
213 tribal, or local jurisdiction. The floodplain functions of floodplain storage, water  
214 quality, and vegetation must be maintained.

215 **Offsite:** Mitigation occurring outside of the project area.

216 **Onsite:** Mitigation occurring within the project area.

217 **Ordinary High Water Mark:** The line on the shore established by the fluctuations of water  
218 and indicated by physical characteristics such as a clear, natural line impressed  
219 on the bank; shelving; changes in the character of soil; destruction of terrestrial  
220 vegetation; the presence of litter and debris; or other appropriate means that  
221 consider the characteristics of the surrounding areas.

222 **Qualified Professional:** Appropriate subject matter expert that is defined by the  
223 community.

224 **Reach:** A section of a stream or river along which similar hydrologic conditions exist, such  
225 as discharge, depth, area, and slope. It can also be the length of a stream or river  
226 (with varying conditions) between major tributaries or two stream gages, or a  
227 length of river for which the characteristics are well described by readings at a  
228 single stream gage.

229 **Recreational vehicle:** A vehicle which is:

- 230 (a) Built on a single chassis;
- 231 (b) 400 square feet or less when measured at the largest horizontal projection;
- 232 (c) Designed to be self-propelled or permanently towable by a light duty truck; and
- 233 (d) Designed primarily not for use as a permanent dwelling but as temporary living  
234 quarters for recreational, camping, travel, or seasonal use.

235 **Riparian:** Of, adjacent to, or living on, the bank of a river, lake, pond, or other water body.

236 **Riparian Buffer Zone (RBZ):** The outer boundary of the riparian buffer zone is measured  
237 from the ordinary high water line of a fresh waterbody (lake; pond; ephemeral,  
238 intermittent, or perennial stream) or mean higher-high water line of a marine  
239 shoreline or tidally influenced river reach to 170 feet horizontally on each side of  
240 the stream or 170 feet inland from the MHHW. The riparian buffer zone includes  
241 the area between these outer boundaries on each side of the stream, including  
242 the stream channel. Where the RBZ is larger than the special flood hazard area,  
243 the no net loss standards shall only apply to the area within the special flood  
244 hazard area.

245 **Riparian Buffer Zone Fringe:** The area outside of the RBZ and floodway but still within the  
246 SFHA.

247 **Silviculture:** The art and science of controlling the establishment, growth, composition,  
248 health, and quality of forests and woodlands.

249 **Special flood hazard area:** See “Area of special flood hazard” for this definition.

250 **Start of construction:** Includes substantial improvement and means the date the building  
251 permit was issued, provided the actual start of construction, repair,  
252 reconstruction, rehabilitation, addition, placement, or other improvement was  
253 within 180 days from the date of the permit. The actual start means either the  
254 first placement of permanent construction of a structure on a site, such as the  
255 pouring of slab or footings, the installation of piles, the construction of columns,  
256 or any work beyond the stage of excavation; or the placement of a manufactured  
257 dwelling on a foundation. Permanent construction does not include land  
258 preparation, such as clearing, grading, and filling; nor does it include the  
259 installation of streets and/or walkways; nor does it include excavation for a  
260 basement, footings, piers, or foundations or the erection of temporary forms; nor  
261 does it include the installation on the property of accessory buildings, such as  
262 garages or sheds not occupied as dwelling units or not part of the main structure.  
263 For a substantial improvement, the actual start of construction means the first  
264 alteration of any wall, ceiling, floor, or other structural part of a building, whether  
265 or not that alteration affects the external dimensions of the building.

266 **Structure:** For floodplain management purposes, a walled and roofed building, including  
267 a gas or liquid storage tank, that is principally above ground, as well as a  
268 manufactured dwelling.

269 **Substantial damage:** Damage of any origin sustained by a structure whereby the cost of  
270 restoring the structure to its before damaged condition would equal or exceed 50  
271 percent of the market value of the structure before the damage occurred.

272 **Substantial improvement:** Any reconstruction, rehabilitation, addition, or other  
273 improvement of a structure, the cost of which equals or exceeds 50 percent of  
274 the market value of the structure before the "start of construction" of the  
275 improvement. This term includes structures which have incurred "substantial  
276 damage," regardless of the actual repair work performed. The term does not,  
277 however, include either:

278 (a) Any project for improvement of a structure to correct existing violations of state or  
279 local health, sanitary, or safety code specifications which have been identified by  
280 the local code enforcement official and which are the minimum necessary to  
281 assure safe living conditions; or

282 (b) Any alteration of a "historic structure," provided that the alteration will not  
283 preclude the structure's continued designation as a "historic structure."

284 **Undeveloped Space:** The volume of flood capacity and fish-accessible/egress-able  
285 habitat from the existing ground to the Base Flood Elevation that is undeveloped. Any  
286 form of development including, but not limited to, the addition of fill, structures, concrete

287 structures (vaults or tanks), pilings, levees and dikes, or any other development that  
288 reduces flood storage volume and fish accessible/egress-able habitat must achieve no  
289 net loss.

290 **Variance:** A grant of relief by **COMMUNITY NAME** from the terms of a floodplain  
291 management regulation.

292 **Violation:** The failure of a structure or other development to be fully compliant with the  
293 community’s floodplain management regulations. A structure or other  
294 development without the elevation certificate, other certifications, or other  
295 evidence of compliance required in this ordinance is presumed to be in violation  
296 until such time as that documentation is provided.

297 **3.0 GENERAL PROVISIONS**

298 **3.1 LANDS TO WHICH THIS ORDINANCE APPLIES**

299 This ordinance shall apply to all special flood hazard areas within the jurisdiction of  
300 **COMMUNITY NAME**.

301 **3.2 BASIS FOR ESTABLISHING THE SPECIAL FLOOD HAZARD AREAS**

302 The special flood hazard areas identified by the Federal Insurance Administrator in a  
303 scientific and engineering report entitled “The Flood Insurance Study (FIS) for **“EXACT**  
304 **TITLE OF FLOOD INSURANCE STUDY FOR COMMUNITY”**, dated **DATE (MONTH DAY, FOUR**  
305 **DIGIT YEAR)**, with accompanying Flood Insurance Rate Maps (FIRMs) **LIST ALL EFFECTIVE**  
306 **FIRM PANELS HERE (UNLESS ALL PANELS ARE BEING REPLACED THROUGH A NEW**  
307 **COUNTY\_WIDE MAP THAT INCORPORATES ALL PREVIOUS PANELS/VERSIONS, IN THAT**  
308 **SITUATION PANELS DO NOT NEED TO BE INDIVIDUALLY LISTED)** are hereby adopted by  
309 reference and declared to be a part of this ordinance. The FIS and FIRM panels are on  
310 file at **INSERT THE LOCATION (I.E. COMMUNITY PLANNING DEPARTMENT LOCATED IN**  
311 **THE COMMUNITY ADMINISTRATIVE BUILDING)**.

312 **3.3 COORDINATION WITH STATE OF OREGON SPECIALTY CODES**

313 Pursuant to the requirement established in ORS 455 that the **COMMUNITY NAME**  
314 administers and enforces the State of Oregon Specialty Codes, the **COMMUNITY NAME**  
315 does hereby acknowledge that the Oregon Specialty Codes contain certain provisions  
316 that apply to the design and construction of buildings and structures located in special  
317 flood hazard areas. Therefore, this ordinance is intended to be administered and  
318 enforced in conjunction with the Oregon Specialty Codes.

319 **3.4 COMPLIANCE AND PENALTIES FOR NONCOMPLIANCE**

320 **3.4.1 COMPLIANCE**

321 All development within special flood hazard areas is subject to the terms of this  
322 ordinance and required to comply with its provisions and all other applicable  
323 regulations.

324 **3.4.2 PENALTIES FOR NONCOMPLIANCE**

325 No structure or land shall hereafter be constructed, located, extended,  
326 converted, or altered without full compliance with the terms of this ordinance and  
327 other applicable regulations. Violations of the provisions of this ordinance by  
328 failure to comply with any of its requirements (including violations of conditions  
329 and safeguards established in connection with conditions) shall constitute a  
330 (INFRACTION TYPE (I.E. MISDEMEANOR) AND PENALTIES PER STATE/LOCAL LAW  
331 ASSOCIATED WITH SPECIFIED INFRACTION TYPE (I.E. ANY PERSON WHO  
332 VIOLATES THE REQUIREMENTS OF THIS ORDINANCE SHALL UPON CONVICTION  
333 THEREOF BE FINED NOT MORE THAN A SPECIFIED AMOUNT OF MONEY...)  
334 Nothing contained herein shall prevent the COMMUNITY NAME from taking such  
335 other lawful action as is necessary to prevent or remedy any violation.

336 **3.5 ABROGATION AND SEVERABILITY**

337 **3.5.1 ABROGATION**

338 This ordinance is not intended to repeal, abrogate, or impair any existing  
339 easements, covenants, or deed restrictions. However, where this ordinance and  
340 another ordinance, easement, covenant, or deed restriction conflict or overlap,  
341 whichever imposes the more stringent restrictions shall prevail.

342 **3.5.2 SEVERABILITY**

343 This ordinance and the various parts thereof are hereby declared to be  
344 severable. If any section clause, sentence, or phrase of the Ordinance is held to  
345 be invalid or unconstitutional by any court of competent jurisdiction, then said  
346 holding shall in no way effect the validity of the remaining portions of this  
347 Ordinance.

348 **3.6 INTERPRETATION**

349 In the interpretation and application of this ordinance, all provisions shall be:

- 350 A. Considered as minimum requirements;
- 351 B. Liberally construed in favor of the governing body; and
- 352 C. Deemed neither to limit nor repeal any other powers granted under state statutes.

353 **3.7 WARNING AND DISCLAIMER OF LIABILITY**

354 **3.7.1 WARNING**

355 The degree of flood protection required by this ordinance is considered  
356 reasonable for regulatory purposes and is based on scientific and engineering  
357 considerations. Larger floods can and will occur on rare occasions. Flood heights  
358 may be increased by man-made or natural causes. This ordinance does not imply

359 that land outside the areas of special flood hazards or uses permitted within  
360 such areas will be free from flooding or flood damages.

361 **3.7.2 DISCLAIMER OF LIABILITY**

362 This ordinance shall not create liability on the part of the **COMMUNITY NAME**, any  
363 officer or employee thereof, or the Federal Insurance Administrator for any flood  
364 damages that result from reliance on this ordinance or any administrative  
365 decision lawfully made hereunder.

366 **4.0 ADMINISTRATION**

367 **4.1 DESIGNATION OF THE FLOODPLAIN ADMINISTRATOR**

368 The **INDIVIDUAL JOB TITLE** is hereby appointed to administer, implement, and enforce  
369 this ordinance by granting or denying development permits in accordance with its  
370 provisions. The Floodplain Administrator may delegate authority to implement these  
371 provisions.

372 [Additional Recommended Language Provided in Appendix B](#)

373 **4.2 DUTIES AND RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR**

374 Duties of the floodplain administrator, or their designee, shall include, but not be limited  
375 to:

376 **4.2.1 PERMIT REVIEW**

377 Review all development permits to:

- 378 A. Determine that the permit requirements of this ordinance have been  
379 satisfied;
- 380 B. Determine that all other required local, state, and federal permits have been  
381 obtained and approved;
- 382 C. Determine if the proposed development is located in a floodway.
  - 383 i. If located in the floodway assure that the floodway provisions of this  
384 ordinance in section **5.2.4** are met; and
  - 385 ii. Determine if the proposed development is located in an area where  
386 Base Flood Elevation (BFE) data is available either through the Flood  
387 Insurance Study (FIS) or from another authoritative source. If BFE data  
388 is not available then ensure compliance with the provisions of sections  
389 **5.1.7**; and

390                                   iii.    Provide to building officials the Base Flood Elevation (BFE) (ADD  
391    **FREEBOARD IF COMMUNITY HAS HIGHER ELEVATION STANDARDS**)  
392    applicable to any building requiring a development permit.

393                                   D.    Determine if the proposed development qualifies as a substantial  
394    improvement as defined in section **2.0**.

395                                   E.    Determine if the proposed development activity is a watercourse alteration.  
396    If a watercourse alteration is proposed, ensure compliance with the  
397    provisions in section **5.1.1**.

398                                   F.    Determine if the proposed development activity includes the placement of  
399    fill or excavation.

400                                   **G. Determine whether the proposed development activity complies with the no**  
401    **net loss standards in Section 6.0.**

402                                   **4.2.2 INFORMATION TO BE OBTAINED AND MAINTAINED**

403                                   The following information shall be obtained and maintained and shall be made  
404    available for public inspection as needed:

405                                   A.    The actual elevation (in relation to mean sea level) of the lowest floor  
406    (including basements) and all attendant utilities of all new or substantially  
407    improved structures where Base Flood Elevation (BFE) data is provided  
408    through the Flood Insurance Study (FIS), Flood Insurance Rate Map (FIRM),  
409    or obtained in accordance with section **5.1.7**.

410                                   B.    The elevation (in relation to mean sea level) of the natural grade of the  
411    building site for a structure prior to the start of construction and the  
412    placement of any fill and ensure that the requirements of sections **4.2.1(B)**,  
413    **5.2.4, and 5.3.1(F)**, are adhered to.

414                                   C.    Upon placement of the lowest floor of a structure (including basement) but  
415    prior to further vertical construction, documentation, prepared and sealed  
416    by a professional licensed surveyor or engineer, certifying the elevation (in  
417    relation to mean sea level) of the lowest floor (including basement).

418                                   D.    Where base flood elevation data are utilized, As-built certification of the  
419    elevation (in relation to mean sea level) of the lowest floor (including  
420    basement) prepared and sealed by a professional licensed surveyor or  
421    engineer, prior to the final inspection.

422                                   E.    Maintain all Elevation Certificates (EC) submitted to the community.

423                                   F.    The elevation (in relation to mean sea level) to which the structure and all  
424    attendant utilities were floodproofed for all new or substantially improved  
425    floodproofed structures where allowed under this ordinance and where

426 Base Flood Elevation (BFE) data is provided through the FIS, FIRM, or  
427 obtained in accordance with section 5.1.7.

428 G. All floodproofing certificates required under this ordinance.

429 H. All variance actions, including justification for their issuance.

430 I. All hydrologic and hydraulic analyses performed as required under section  
431 5.2.4.

432 J. All Substantial Improvement and Substantial Damage calculations and  
433 determinations as required under section 4.2.4.

434 K. Documentation of how no net loss standards have been met (see Section  
435 6.0)

436 L. All records pertaining to the provisions of this ordinance.

437 **4.2.3 REQUIREMENT TO NOTIFY OTHER ENTITIES AND SUBMIT NEW TECHNICAL**  
438 **DATA**

439 **4.2.3.1 COMMUNITY BOUNDARY ALTERATIONS**

440 The Floodplain Administrator shall notify the Federal Insurance Administrator in  
441 writing whenever the boundaries of the community have been modified by  
442 annexation or the community has otherwise assumed authority or no longer has  
443 authority to adopt and enforce floodplain management regulations for a  
444 particular area, to ensure that all Flood Hazard Boundary Maps (FHBM) and  
445 Flood Insurance Rate Maps (FIRM) accurately represent the community's  
446 boundaries. Include within such notification a copy of a map of the community  
447 suitable for reproduction, clearly delineating the new corporate limits or new  
448 area for which the community has assumed or relinquished floodplain  
449 management regulatory authority.

450 **4.2.3.2 WATERCOURSE ALTERATIONS**

451 A. Notify adjacent communities, the Department of Land Conservation and  
452 Development, and other appropriate state and federal agencies, prior to  
453 any alteration or relocation of a watercourse, and submit evidence of  
454 such notification to the Federal Insurance Administration. This  
455 notification shall be provided by the applicant to the Federal Insurance  
456 Administration as a Letter of Map Revision (LOMR) along with either:

457 i. A proposed maintenance plan to assure the flood carrying  
458 capacity within the altered or relocated portion of the  
459 watercourse is maintained; or

460                   ii. Certification by a registered professional engineer that the  
461                   project has been designed to retain its flood carrying capacity  
462                   without periodic maintenance.

463                   B. The applicant shall be required to submit a Conditional Letter of Map  
464                   Revision (CLOMR) when required under section 4.2.3.3. Ensure  
465                   compliance with all applicable requirements in sections 4.2.3.3 and  
466                   5.1.1.

467                   **4.2.3.3 REQUIREMENT TO SUBMIT NEW TECHNICAL DATA**

468                   A. A community’s base flood elevations may increase or decrease resulting  
469                   from physical changes affecting flooding conditions. As soon as  
470                   practicable, but not later than six months after the date such  
471                   information becomes available, a community shall notify the Federal  
472                   Insurance Administrator of the changes by submitting technical or  
473                   scientific data in accordance with Title 44 of the Code of Federal  
474                   Regulations (CFR), Section 65.3. The community may require the  
475                   applicant to submit such data and review fees required for compliance  
476                   with this section through the applicable FEMA Letter of Map Change  
477                   (LOMC) process.

478                   B. The Floodplain Administrator shall require a Conditional Letter of Map  
479                   Revision prior to the issuance of a floodplain development permit for:

480                   i. Proposed floodway encroachments that increase the base flood  
481                   elevation; and

482                   ii. Proposed development which increases the base flood elevation  
483                   by more than one foot in areas where FEMA has provided base  
484                   flood elevations but no floodway.

485                   C. An applicant shall notify FEMA within six (6) months of project  
486                   completion when an applicant has obtained a Conditional Letter of Map  
487                   Revision (CLOMR) from FEMA. This notification to FEMA shall be  
488                   provided as a Letter of Map Revision (LOMR).

489                   [Additional Recommended Language Provided in Appendix B](#)

490                   **4.2.4 SUBSTANTIAL IMPROVEMENT AND SUBSTANTIAL DAMAGE ASSESSMENTS**  
491                   **AND DETERMINATIONS**

492                   Conduct Substantial Improvement (SI) (as defined in section 2.0) reviews for all  
493                   structural development proposal applications and maintain a record of SI  
494                   calculations within permit files in accordance with section 4.2.2. Conduct  
495                   Substantial Damage (SD) (as defined in section 2.0) assessments when  
496                   structures are damaged due to a natural hazard event or other causes. Make SD  
497                   determinations whenever structures within the special flood hazard area (as  
498                   established in section 3.2) are damaged to the extent that the cost of restoring

499 the structure to its before damaged condition would equal or exceed 50 percent  
500 of the market value of the structure before the damage occurred.

501 **4.3 ESTABLISHMENT OF DEVELOPMENT PERMIT**

502 **4.3.1 FLOODPLAIN DEVELOPMENT PERMIT REQUIRED**

503 A development permit shall be obtained before construction or development  
504 begins within any area horizontally within the special flood hazard area  
505 established in section 3.2. The development permit shall be required for all  
506 structures, including manufactured dwellings, and for all other development, as  
507 defined in section 2.0, including fill and other development activities.

508 **4.3.2 APPLICATION FOR DEVELOPMENT PERMIT**

509 Application for a development permit may be made on forms furnished by the  
510 Floodplain Administrator and may include, but not be limited to, plans in  
511 duplicate drawn to scale showing the nature, location, dimensions, and  
512 elevations of the area in question; existing or proposed structures, fill, storage of  
513 materials, drainage facilities, and the location of the foregoing. Specifically, the  
514 following information is required:

- 515 A. In riverine flood zones, the proposed elevation (in relation to mean sea  
516 level), of the lowest floor (including basement) and all attendant utilities of  
517 all new and substantially improved structures; in accordance with the  
518 requirements of section 4.2.2.
- 519 B. In coastal flood zones (V zones and coastal A zones), the proposed elevation  
520 in relation to mean sea level of the bottom of the lowest structural member  
521 of the lowest floor (excluding pilings and columns) of all structures, and  
522 whether such structures contain a basement.
- 523 C. Proposed elevation in relation to mean sea level to which any non-  
524 residential structure will be floodproofed.
- 525 D. Certification by a registered professional engineer or architect licensed in  
526 the State of Oregon that the floodproofing methods proposed for any non-  
527 residential structure meet the floodproofing criteria for non-residential  
528 structures in section 5.2.3.3.
- 529 E. Description of the extent to which any watercourse will be altered or  
530 relocated.
- 531 F. Base Flood Elevation data for subdivision proposals or other development  
532 when required per sections 4.2.1 and 5.1.6.
- 533 G. Substantial improvement calculation for any improvement, addition,  
534 reconstruction, renovation, or rehabilitation of an existing structure.

535 H. The amount and location of any fill or excavation activities proposed.

536 **4.4 VARIANCE PROCEDURE**

537 The issuance of a variance is for floodplain management purposes only. Flood insurance  
538 premium rates are determined by federal statute according to actuarial risk and will not  
539 be modified by the granting of a variance.

540 **4.4.1 CONDITIONS FOR VARIANCES**

541 A. Generally, variances may be issued for new construction and substantial  
542 improvements to be erected on a lot of one-half acre or less in size  
543 contiguous to and surrounded by lots with existing structures constructed  
544 below the base flood level, in conformance with the provisions of sections  
545 **4.4.1 (C) and (E), and 4.4.2.** As the lot size increases beyond one-half acre,  
546 the technical justification required for issuing a variance increases.

547 B. Variances shall only be issued upon a determination that the variance is the  
548 minimum necessary, considering the flood hazard, to afford relief.

549 C. Variances shall not be issued within any floodway if any increase in flood  
550 levels during the base flood discharge would result.

551 D. Variances shall only be issued upon:

552 i. A showing of good and sufficient cause;

553 ii. A determination that failure to grant the variance would result in  
554 exceptional hardship to the applicant; and,

555 iii. A determination that the granting of a variance will not result in  
556 increased flood heights, additional threats to public safety,  
557 extraordinary public expense, create nuisances, cause fraud on or  
558 victimization of the public, or conflict with existing laws or  
559 ordinances.

560 E. Variances may be issued by a community for new construction and  
561 substantial improvements and for other development necessary for the  
562 conduct of a functionally dependent use provided that the criteria of section  
563 **4.4.1 (B) – (D)** are met, and the structure or other development is protected  
564 by methods that minimize flood damages during the base flood and create  
565 no additional threats to public safety.

566 F. **Variances shall not be issued unless it is demonstrated that the**  
567 **development will not result in net loss of the following proxies for the three**  
568 **floodplain functions in the SFHA: undeveloped space; pervious surface; or**  
569 **trees 6 inches dbh or greater (see Section 6.0 and associated options in**  
570 **Table 1).**

571 [Additional Optional Language Provided in Appendix B.](#)

572 **4.4.2 VARIANCE NOTIFICATION**

573 Any applicant to whom a variance is granted shall be given written notice that the  
574 issuance of a variance to construct a structure below the Base Flood Elevation  
575 will result in increased premium rates for flood insurance and that such  
576 construction below the base flood elevation increases risks to life and property.  
577 Such notification and a record of all variance actions, including justification for  
578 their issuance shall be maintained in accordance with section 4.2.2.

579 **5.0 PROVISIONS FOR FLOOD HAZARD REDUCTION**

580 **5.1 GENERAL STANDARDS**

581 In all special flood hazard areas, the **no net loss standards (see Section 6.0) and the**  
582 following standards shall be adhered to:

583 **5.1.1 ALTERATION OF WATERCOURSES**

584 Require that the flood carrying capacity within the altered or relocated portion of  
585 said watercourse is maintained. Require that maintenance is provided within the  
586 altered or relocated portion of said watercourse to ensure that the flood carrying  
587 capacity is not diminished. Require compliance with sections 4.2.3.2 and  
588 4.2.3.3.

589 **5.1.2 ANCHORING**

590 A. All new construction and substantial improvements shall be anchored to  
591 prevent flotation, collapse, or lateral movement of the structure resulting  
592 from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

593 B. All manufactured dwellings shall be anchored per section 5.2.3.4.

594 **5.1.3 CONSTRUCTION MATERIALS AND METHODS**

595 A. All new construction and substantial improvements shall be constructed  
596 with materials and utility equipment resistant to flood damage.

597 B. All new construction and substantial improvements shall be constructed  
598 using methods and practices that minimize flood damage.

599 **5.1.4 UTILITIES AND EQUIPMENT**

600 **5.1.4.1 WATER SUPPLY, SANITARY SEWER, AND ON-SITE WASTE**  
601 **DISPOSAL SYSTEMS**

602 A. All new and replacement water supply systems shall be designed to  
603 minimize or eliminate infiltration of flood waters into the system.

604 B. New and replacement sanitary sewage systems shall be designed to  
605 minimize or eliminate infiltration of flood waters into the systems and  
606 discharge from the systems into flood waters.

607 C. On-site waste disposal systems shall be located to avoid impairment to  
608 them or contamination from them during flooding consistent with the  
609 Oregon Department of Environmental Quality.

610 **5.1.4.2 ELECTRICAL, MECHANICAL, PLUMBING, AND OTHER**  
611 **EQUIPMENT**

612 Electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and  
613 other equipment and service facilities shall be elevated at or above the base  
614 flood level (ANY COMMUNITY FREEBOARD REQUIREMENT) or shall be designed  
615 and installed to prevent water from entering or accumulating within the  
616 components and to resist hydrostatic and hydrodynamic loads and stresses,  
617 including the effects of buoyancy, during conditions of flooding. In addition,  
618 electrical, heating, ventilating, air- conditioning, plumbing, duct systems, and  
619 other equipment and service facilities shall:

620 A. If replaced as part of a substantial improvement shall meet all the  
621 requirements of this section.

622 B. Not be mounted on or penetrate through breakaway walls.

623 **5.1.5 TANKS**

624 A. Underground tanks shall be anchored to prevent flotation, collapse and  
625 lateral movement under conditions of the base flood.

626 B. Above-ground tanks shall be installed at or above the base flood level  
627 (COMMUNITY FREEBOARD REQUIREMENT) or shall be anchored to prevent  
628 flotation, collapse, and lateral movement under conditions of the base flood.

629 C. In coastal flood zones (V Zones or coastal A Zones) when elevated on  
630 platforms, the platforms shall be cantilevered from or knee braced to the  
631 building or shall be supported on foundations that conform to the  
632 requirements of the State of Oregon Specialty Code.

633 **5.1.6 SUBDIVISION PROPOSALS AND OTHER PROPOSED DEVELOPMENTS**

634 A. All new subdivision proposals and other proposed new developments  
635 (including proposals for manufactured dwelling parks and subdivisions)  
636 greater than 50 lots or 5 acres, whichever is the lesser, shall include within  
637 such proposals Base Flood Elevation data.

638 B. All new subdivision proposals and other proposed new developments  
639 (including proposals for manufactured dwelling parks and subdivisions)  
640 shall:

641 i. Be consistent with the need to minimize flood damage.

642 ii. Have public utilities and facilities such as sewer, gas, electrical, and  
643 water systems located and constructed to minimize or eliminate  
644 flood damage.

645 iii. Have adequate drainage provided to reduce exposure to flood  
646 hazards.

647 iv. Comply with no net loss standards in section 6.0.

648 **5.1.7 USE OF OTHER BASE FLOOD ELEVATION DATA**

649 A. When Base Flood Elevation data has not been provided in accordance with  
650 section 3.2 the local floodplain administrator shall obtain, review, and  
651 reasonably utilize any Base Flood Elevation data available from a federal,  
652 state, or other source, in order to administer section 5.0. All new subdivision  
653 proposals and other proposed new developments (including proposals for  
654 manufactured dwelling parks and subdivisions) must meet the requirements  
655 of section 5.1.6.

656 B. Base Flood Elevations shall be determined for development proposals that  
657 are 5 acres or more in size or are 50 lots or more, whichever is lesser in any  
658 A zone that does not have an established base flood elevation.  
659 Development proposals located within a riverine unnumbered A Zone shall  
660 be reasonably safe from flooding; the test of reasonableness includes use of  
661 historical data, high water marks, FEMA provided Base Level Engineering  
662 data, and photographs of past flooding, etc... where available. (REFERENCE  
663 TO ANY OF THIS TYPE OF INFORMATION TO BE USED FOR REGULATORY  
664 PURPOSES BY YOUR COMMUNITY, I.E. BASE LEVEL ENGINEERING DATA,  
665 HIGH WATER MARKS, HISTORICAL OR OTHER DATA THAT WILL BE  
666 REGULATED TO. THIS MAY BE NECESSARY TO ENSURE THAT THE  
667 STANDARDS APPLIED TO RESIDENTIAL STRUCTURES ARE CLEAR AND  
668 OBJECTIVE. IF UNCERTAIN SEEK LEGAL ADVICE, AT A MINIMUM REQUIRE  
669 THE ELEVATION OF RESIDENTIAL STRUCTURES AND NON-RESIDENTIAL  
670 STRUCTURES THAT ARE NOT DRY FLOODPROOFED TO BE 2 FEET ABOVE  
671 HIGHEST ADJACENT GRADE). Failure to elevate at least two feet above  
672 grade in these zones may result in higher insurance rates.

673 **5.1.8 STRUCTURES LOCATED IN MULTIPLE OR PARTIAL FLOOD ZONES**

674 In coordination with the State of Oregon Specialty Codes:

675 A. When a structure is located in multiple flood zones on the community's  
676 Flood Insurance Rate Maps (FIRM) the provisions for the more restrictive  
677 flood zone shall apply.

678 B. When a structure is partially located in a special flood hazard area, the  
679 entire structure shall meet the requirements for new construction and  
680 substantial improvements.

681 [Additional Recommended Language Provided in Appendix B.](#)

682 **5.2 SPECIFIC STANDARDS FOR RIVERINE (INCLUDING ALL NON-COASTAL) FLOOD**  
683 **ZONES**

684 These specific standards shall apply to all new construction and substantial  
685 improvements in addition to the General Standards contained in section 5.1 of this  
686 ordinance **and the no net loss standards (see Section 6.0).**

687 **5.2.1 FLOOD OPENINGS**

688 All new construction and substantial improvements with fully enclosed areas  
689 below the lowest floor (excluding basements) are subject to the following  
690 requirements. Enclosed areas below the Base Flood Elevation, including crawl  
691 spaces shall:

692 A. Be designed to automatically equalize hydrostatic flood forces on walls by  
693 allowing for the entry and exit of floodwaters;

694 B. Be used solely for parking, storage, or building access;

695 C. Be certified by a registered professional engineer or architect or meet or  
696 exceed all of the following minimum criteria:

697 i. A minimum of two openings;

698 ii. The total net area of non-engineered openings shall be not less than  
699 one square inch for each square foot of enclosed area, where the  
700 enclosed area is measured on the exterior of the enclosure walls;

701 iii. The bottom of all openings shall be no higher than one foot above  
702 grade;

703 iv. Openings may be equipped with screens, louvers, valves, or other  
704 coverings or devices provided that they shall allow the automatic  
705 flow of floodwater into and out of the enclosed areas and shall be  
706 accounted for in the determination of the net open area; and,

707 v. All additional higher standards for flood openings in the State of  
708 Oregon Residential Specialty Codes Section R322.2.2 shall be  
709 complied with when applicable.

710 **5.2.2 GARAGES**

- 711 A. Attached garages may be constructed with the garage floor slab below the  
712 Base Flood Elevation (BFE) in riverine flood zones, if the following  
713 requirements are met:
- 714 i. If located within a floodway the proposed garage must comply with  
715 the requirements of section 5.2.4;
  - 716 ii. The floors are at or above grade on not less than one side;
  - 717 iii. The garage is used solely for parking, building access, and/or  
718 storage;
  - 719 iv. The garage is constructed with flood openings in compliance with  
720 section 5.2.1 to equalize hydrostatic flood forces on exterior walls by  
721 allowing for the automatic entry and exit of floodwater;
  - 722 v. The portions of the garage constructed below the BFE are  
723 constructed with materials resistant to flood damage;
  - 724 vi. The garage is constructed in compliance with the standards in  
725 section 5.1; and,
  - 726 vii. The garage is constructed with electrical, and other service facilities  
727 located and installed so as to prevent water from entering or  
728 accumulating within the components during conditions of the base  
729 flood.
- 730 B. Detached garages must be constructed in compliance with the standards  
731 for appurtenant structures in section 5.2.3.6 or non-residential structures in  
732 section 5.2.3.3 depending on the square footage of the garage.

733 **5.2.3 FOR RIVERINE (NON-COASTAL) SPECIAL FLOOD HAZARD AREAS WITH**  
734 **BASE FLOOD ELEVATIONS**

735 In addition to the general standards listed in section 5.1 the following specific  
736 standards shall apply in Riverine (non-coastal) special flood hazard areas with  
737 Base Flood Elevations (BFE): Zones A1-A30, AH, and AE.

738 **5.2.3.1 BEFORE REGULATORY FLOODWAY**

739 In areas where a regulatory floodway has not been designated, no new  
740 construction, substantial improvement, or other development (including fill)  
741 shall be permitted within Zones A1-30 and AE on the community's Flood  
742 Insurance Rate Map (FIRM), unless it is demonstrated that the cumulative effect  
743 of the proposed development, when combined with all other existing and  
744 anticipated development, will not increase the water surface elevation of the  
745 base flood more than one foot at any point within the community and will not

746 result in the net loss of flood storage volume. When determined that structural  
747 elevation is not possible and where the placement of fill cannot meet the above  
748 standard, impacts to undeveloped space must adhere to the no net loss  
749 standards in section 6.1.C.

750 **5.2.3.2 RESIDENTIAL CONSTRUCTION**

- 751 A. New construction, conversion to, and substantial improvement of any  
752 residential structure shall have the lowest floor, including basement,  
753 elevated at or above the Base Flood Elevation (BFE) (ADDITIONAL  
754 FREEBOARD FOR YOUR COMMUNITY – RECOMMEND MINIMUM OF 1FT  
755 ABOVE BFE).
- 756 B. Enclosed areas below the lowest floor shall comply with the flood  
757 opening requirements in section 5.2.1.

758 **5.2.3.3 NON-RESIDENTIAL CONSTRUCTION**

- 759 A. New construction, conversion to, and substantial improvement of any  
760 commercial, industrial, or other non-residential structure shall:
- 761 i. Have the lowest floor, including basement elevated at or above  
762 the Base Flood Elevation (BFE) (ANY ADDITIONAL FREEBOARD  
763 REQUIREMENTS FOR YOUR COMMUNITY); or
- 764 ii. Together with attendant utility and sanitary facilities:
- 765 a. Be floodproofed so that below the base flood level the  
766 structure is watertight with walls substantially  
767 impermeable to the passage of water;
- 768 b. Have structural components capable of resisting  
769 hydrostatic and hydrodynamic loads and effects of  
770 buoyancy; and,
- 771 c. Be certified by a registered professional engineer or  
772 architect that the design and methods of construction  
773 are in accordance with accepted standards of practice  
774 for meeting provisions of this section based on their  
775 development and/or review of the structural design,  
776 specifications and plans. Such certifications shall be  
777 provided to the Floodplain Administrator as set forth  
778 section 4.2.2.
- 779 B. Non-residential structures that are elevated, not floodproofed, shall  
780 comply with the standards for enclosed areas below the lowest floor in  
781 section 5.2.1.

- 782 C. Applicants floodproofing non-residential buildings shall be notified that
- 783 flood insurance premiums will be based on rates that are one (1) foot
- 784 below the floodproofed level (e.g. a building floodproofed to the base
- 785 flood level will be rated as one (1) foot below.

786 **5.2.3.4 MANUFACTURED DWELLINGS**

- 787 A. Manufactured dwellings to be placed (new or replacement) or
- 788 substantially improved that are supported on solid foundation walls
- 789 shall be constructed with flood openings that comply with section 5.2.1;
  
- 790 B. The bottom of the longitudinal chassis frame beam shall be at or above
- 791 Base Flood Elevation;
  
- 792 C. Manufactured dwellings to be placed (new or replacement) or
- 793 substantially improved shall be anchored to prevent flotation, collapse,
- 794 and lateral movement during the base flood. Anchoring methods may
- 795 include, but are not limited to, use of over-the-top or frame ties to
- 796 ground anchors (Reference FEMA’s “Manufactured Home Installation in
- 797 Flood Hazard Areas” guidebook for additional techniques), and;
  
- 798 D. Electrical crossover connections shall be a minimum of twelve (12)
- 799 inches above Base Flood Elevation (BFE).

800 **5.2.3.5 RECREATIONAL VEHICLES**

801 Recreational vehicles placed on sites are required to:

- 802 A. Be on the site for fewer than 180 consecutive days, and
  
- 803 B. Be fully licensed and ready for highway use, on its wheels or jacking
- 804 system, is attached to the site only by quick disconnect type utilities and
- 805 security devices, and has no permanently attached additions; or
  
- 806 C. Meet the requirements of section 5.2.3.4, including the anchoring and
- 807 elevation requirements for manufactured dwellings.

808 **5.2.3.6 APPURTENANT (ACCESSORY) STRUCTURES**

809 Relief from elevation or floodproofing requirements for residential and non-

810 residential structures in Riverine (Non-Coastal) flood zones may be granted for

811 appurtenant structures that meet the following requirements:

- 812 A. Appurtenant structures located partially or entirely within the floodway
- 813 must comply with requirements for development within a floodway
- 814 found in section 5.2.4;
  
- 815 B. Appurtenant structures must only be used for parking, access, and/or
- 816 storage and shall not be used for human habitation;

- 817 C. In compliance with State of Oregon Specialty Codes, appurtenant  
818 structures on properties that are zoned residential are limited to one-  
819 story structures less than 200 square feet, or 400 square feet if the  
820 property is greater than two (2) acres in area and the proposed  
821 appurtenant structure will be located a minimum of 20 feet from all  
822 property lines. Appurtenant structures on properties that are zoned as  
823 non-residential are limited in size to 120 square feet;
  
- 824 D. The portions of the appurtenant structure located below the Base Flood  
825 Elevation must be built using flood resistant materials;
  
- 826 E. The appurtenant structure must be adequately anchored to prevent  
827 flotation, collapse, and lateral movement of the structure resulting from  
828 hydrodynamic and hydrostatic loads, including the effects of buoyancy,  
829 during conditions of the base flood;
  
- 830 F. The appurtenant structure must be designed and constructed to  
831 equalize hydrostatic flood forces on exterior walls and comply with the  
832 requirements for flood openings in section 5.2.1;
  
- 833 G. Appurtenant structures shall be located and constructed to have low  
834 damage potential;
  
- 835 H. Appurtenant structures shall not be used to store toxic material, oil, or  
836 gasoline, or any priority persistent pollutant identified by the Oregon  
837 Department of Environmental Quality unless confined in a tank installed  
838 in compliance with section 5.1.5; and,
  
- 839 I. Appurtenant structures shall be constructed with electrical, mechanical,  
840 and other service facilities located and installed so as to prevent water  
841 from entering or accumulating within the components during conditions  
842 of the base flood.

843 **5.2.4 FLOODWAYS**

844 Located within the special flood hazard areas established in section 3.2 are  
845 areas designated as floodways. Since the floodway is an extremely hazardous  
846 area due to the velocity of the floodwaters which carry debris, potential  
847 projectiles, and erosion potential, the following provisions apply:

- 848 A. Prohibit encroachments, including fill, new construction, substantial  
849 improvements, and other development within the adopted regulatory  
850 floodway unless:
  - 851 i. Certification by a registered professional civil engineer is provided  
852 demonstrating through hydrologic and hydraulic analyses performed  
853 in accordance with standard engineering practice that the proposed  
854 encroachment shall not result in any increase in flood levels within  
855 the community during the occurrence of the base flood discharge; or

856 ii. A community may permit encroachments within the adopted  
857 regulatory floodway that would result in an increase in base flood  
858 elevations, provided that conditional approval has been obtained by  
859 the Federal Insurance Administrator through the Conditional Letter  
860 of Map Revision (CLOMR) application process, all requirements  
861 established under 44 CFR 65.12 are fulfilled, and the  
862 encroachment(s) comply with the no net loss standards in section  
863 6.0.

864 B. If the requirements of section 5.2.4 (A) are satisfied, all new construction,  
865 substantial improvements, and other development shall comply with all  
866 other applicable flood hazard reduction provisions of section 5.0 and 6.0.

867 **5.2.5 STANDARDS FOR SHALLOW FLOODING AREAS**

868 Shallow flooding areas appear on FIRMs as AO zones with depth designations or  
869 as AH zones with Base Flood Elevations. For AO zones the base flood depths  
870 range from one (1) to three (3) feet above ground where a clearly defined  
871 channel does not exist, or where the path of flooding is unpredictable and where  
872 velocity flow may be evident. Such flooding is usually characterized as sheet flow.  
873 For both AO and AH zones, adequate drainage paths are required around  
874 structures on slopes to guide floodwaters around and away from proposed  
875 structures.

876 **5.2.5.1 STANDARDS FOR AH ZONES**

877 Development within AH Zones must comply with the standards in sections 5.1,  
878 5.2, and 5.2.5.

879 **5.2.5.2 STANDARDS FOR AO ZONES**

880 In AO zones, the following provisions apply in addition to the requirements in  
881 sections 5.1 and 5.2.5:

882 A. New construction, conversion to, and substantial improvement of  
883 residential structures and manufactured dwellings within AO zones shall  
884 have the lowest floor, including basement, elevated above the highest  
885 grade adjacent to the building, at minimum to or above the depth  
886 number specified on the Flood Insurance Rate Maps (FIRM)  
887 (COMMUNITY FREEBOARD REQUIREMENT) (at least two (2) feet if no  
888 depth number is specified). For manufactured dwellings the lowest floor  
889 is considered to be the bottom of the longitudinal chassis frame beam.

890 B. New construction, conversion to, and substantial improvements of non-  
891 residential structures within AO zones shall either:

892 i. Have the lowest floor (including basement) elevated above the  
893 highest adjacent grade of the building site, at minimum to or  
894 above the depth number specified on the Flood Insurance Rate

- 895 Maps (FIRMS) (**COMMUNITY FREE BOARD REQUIREMENT**) (at  
896 least two (2) feet if no depth number is specified); or
- 897 ii. Together with attendant utility and sanitary facilities, be  
898 completely floodproofed to or above the depth number specified  
899 on the FIRM (**COMMUNITY FREEBOARD REQUIREMENT**) or a  
900 minimum of two (2) feet above the highest adjacent grade if no  
901 depth number is specified, so that any space below that level is  
902 watertight with walls substantially impermeable to the passage  
903 of water and with structural components having the capability of  
904 resisting hydrostatic and hydrodynamic loads and the effects of  
905 buoyancy. If this method is used, compliance shall be certified  
906 by a registered professional engineer or architect as stated in  
907 section **5.2.3.3(A)(4)**.
- 908 C. Recreational vehicles placed on sites within AO Zones on the  
909 community's Flood Insurance Rate Maps (FIRM) shall either:
- 910 i. Be on the site for fewer than 180 consecutive days, and
- 911 ii. Be fully licensed and ready for highway use, on its wheels or  
912 jacking system, is attached to the site only by quick disconnect  
913 type utilities and security devices, and has no permanently  
914 attached additions; or
- 915 iii. Meet the elevation requirements of section **5.2.5.2(A)**, and the  
916 anchoring and other requirements for manufactured dwellings of  
917 section **5.2.3.4**.
- 918 D. In AO zones, new and substantially improved appurtenant structures  
919 must comply with the standards in section **5.2.3.6**.
- 920 E. In AO zones, enclosed areas beneath elevated structures shall comply  
921 with the requirements in section **5.2.1**.

### 5.3 SPECIFIC STANDARDS FOR COASTAL HIGH HAZARD FLOOD ZONES

923 Located within special flood hazard areas established in section **3.2** are Coastal High  
924 Hazard Areas, designated as Zones V1-V30, VE, V, or coastal A zones as identified on the  
925 FIRMs as the area between the Limit of Moderate Wave Action (LiMWA) and the Zone V  
926 boundary. These areas have special flood hazards associated with high velocity waters  
927 from surges and, therefore, in addition to meeting all provisions of this ordinance and the  
928 State of Oregon Specialty Codes, the following provisions shall apply in addition to the  
929 general standards provisions in section **5.1**.

930 **5.3.1 DEVELOPMENT STANDARDS**

931 A. All new construction and substantial improvements in Zones V1-V30 and VE,  
932 V, and coastal A zones (where base flood elevation data is available) shall  
933 be elevated on pilings and columns such that:

934 i. The bottom of the lowest horizontal structural member of the lowest  
935 floor (excluding the pilings or columns) is elevated a minimum of  
936 one foot above the base flood level; and

937 ii. The pile or column foundation and structure attached thereto is  
938 anchored to resist flotation, collapse and lateral movement due to  
939 the effects of wind and water loads acting simultaneously on all  
940 building components. Water loading values used shall be those  
941 associated with the base flood. Wind loading values used shall be  
942 those specified by the State of Oregon Specialty Codes;

943 B. A registered professional engineer or architect shall develop or review the  
944 structural design, specifications and plans for the construction, and shall  
945 certify that the design and methods of construction to be used are in  
946 accordance with accepted standards of practice for meeting the provisions  
947 of this section.

948 C. Obtain the elevation (in relation to mean sea level) of the bottom of the  
949 lowest horizontal structural member of the lowest floor (excluding pilings  
950 and columns) of all new and substantially improved structures and whether  
951 or not such structures contain a basement. The floodplain administrator  
952 shall maintain a record of all such information in accordance with section  
953 **4.2.2.**

954 D. Provide that all new construction and substantial improvements have the  
955 space below the lowest floor either free of obstruction or constructed with  
956 non- supporting breakaway walls, open wood lattice-work, or insect  
957 screening intended to collapse under wind and water loads without causing  
958 collapse, displacement, or other structural damage to the elevated portion  
959 of the building or supporting foundation system.

960 For the purpose of this section, a breakaway wall shall have a design safe  
961 loading resistance of not less than 10 and no more than 20 pounds per  
962 square foot. Use of breakaway walls which exceed a design safe loading  
963 resistance of 20 pounds per square foot (either by design or when so  
964 required by local or state codes) may be permitted only if a registered  
965 professional engineer or architect certifies that the designs proposed meet  
966 the following conditions:

967 i. Breakaway wall collapse shall result from water load less than that  
968 which would occur during the base flood; and

969                   ii. Such enclosed space created by breakaway walls shall be useable  
970                   solely for parking of vehicles, building access, or storage. Such  
971                   space shall not be used for human habitation.

972                   iii. Walls intended to break away under flood loads shall have flood  
973                   openings that meet or exceed the criteria for flood openings in  
974                   section **5.2.1**.

975                   E. The elevated portion of the building and supporting foundation system shall  
976                   not be subject to collapse, displacement, or other structural damage due to  
977                   the effects of wind and water loads acting simultaneously on all building  
978                   components (structural and nonstructural). Maximum water loading values  
979                   to be used in this determination shall be those associated with the base  
980                   flood. Maximum wind loading values used shall be those specified by the  
981                   State of Oregon Specialty Codes.

982                   F. Prohibit the use of fill for structural support of buildings.

983                   G. All new construction shall be located landward of the reach of mean high  
984                   tide.

985                   H. Prohibit man-made alteration of sand dunes which would increase potential  
986                   flood damage.

987                   I. All structures, including but not limited to residential structures, non-  
988                   residential structures, appurtenant structures, and attached garages shall  
989                   comply with all the requirements of section **5.3.1** Floodproofing of non-  
990                   residential structures is prohibited.

991                   **5.3.1.1 MANUFACTURED DWELLING STANDARDS FOR COASTAL HIGH**  
992                   **HAZARD ZONES**

993                   All manufactured dwellings to be placed (new or replacement) or substantially  
994                   improved within Coastal High Hazard Areas (Zones V, V1-30, VE, or Coastal A)  
995                   shall meet the following requirements:

996                   A. Comply with all of the standards within section **5.3**

997                   B. The bottom of the longitudinal chassis frame beam shall be elevated to  
998                   a minimum of one foot above the Base Flood Elevation (BFE); and

999                   C. Electrical crossover connections shall be a minimum of 12 inches above  
1000                   the BFE.

1001                   **5.3.1.2 RECREATIONAL VEHICLE STANDARDS FOR COASTAL HIGH**  
1002                   **HAZARD ZONES**

1003                   Recreational Vehicles within Coastal High Hazard Areas (Zones V, V1-30, VE, or  
1004                   Coastal A) shall either:

- 1005 A. Be on the site for fewer than 180 consecutive days, and
- 1006 B. Be fully licensed and ready for highway use, on wheels or jacking
- 1007 system, is attached to the site only by quick disconnect type utilities and
- 1008 security devices, and has no permanently attached additions.

1009 **5.3.1.3 TANK STANDARDS FOR COASTAL HIGH HAZARD ZONES**

1010 Tanks shall meet the requirements of section 5.1.5 and 6.0.

1011 **6.0 STANDARDS FOR PROTECTION OF SFHA FLOODPLAIN FUNCTIONS**

1012 Adherent to the NMFS 2016 Biological Opinion, mitigation is necessary to ensure a no net loss  
1013 in floodplain functions. FEMA’s 2024 Draft Oregon Implementation Plan identifies proxies that  
1014 provide measurable actions that can prevent the no net loss of the parent floodplain functions.  
1015 These proxies include undeveloped space, pervious surfaces, and trees to account for a no  
1016 net loss in respective floodplain functions of floodplain storage, water quality, and vegetation.  
1017 Mitigation of these proxies must be completed to ensure compliance with no net loss  
1018 standards. No net loss applies to the net change in floodplain functions as compared to  
1019 existing conditions at the time of proposed development and mitigation must be addressed to  
1020 the floodplain function that is receiving the detrimental impact. The standards described below  
1021 apply to all special flood hazard areas as defined in Section 2.0.

1022 **6.1 NO NET LOSS STANDARDS**

1023 A. No net loss of the proxies for the floodplain functions mentioned in Section 1 is  
1024 required for development in the special flood hazard area that would reduce  
1025 undeveloped space, increase impervious surface, or result in a loss of trees that are  
1026 6-inches dbh or greater. No net loss can be achieved by first avoiding negative  
1027 effects to floodplain functions to the degree possible, then minimizing remaining  
1028 effects, then replacing and/or otherwise compensating for, offsetting, or rectifying  
1029 the residual adverse effects to the three floodplain functions. Prior to the issuance  
1030 of any development authorization, the applicant shall:

- 1031 i. Demonstrate a legal right by the project proponent to implement the  
1032 proposed activities to achieve no net loss (e.g., property owner agreement);
- 1033 ii. Demonstrate that financial assurances are in place for the long-term  
1034 maintenance and monitoring of all projects to achieve no net loss;
- 1035 iii. Include a management plan that identifies the responsible site manager,  
1036 stipulates what activities are allowed on site, and requires the posting of  
1037 signage identifying the site as a mitigation area.

1038 B. Compliance with no net loss for undeveloped space or impervious surface is  
1039 preferred to occur prior to the loss of habitat function but, at a minimum, shall occur  
1040 concurrent with the loss. To offset the impacts of delay in implementing no net loss,  
1041 a 25 percent increase in the required minimum area is added for each year no net  
1042 loss implementation is delayed.

1043 C. No net loss must be provided within, in order of preference: 1) the lot or parcel that  
1044 floodplain functions were removed from, 2) the same reach of the waterbody where  
1045 the development is proposed, or 3) the special flood hazard area within the same  
1046 hydrologically connected area as the proposed development. Table 1 presents the no  
1047 net loss ratios, which increase based on the preferences listed above.

1048 **6.1.1 UNDEVELOPED SPACE**

1049 A. Development proposals shall not reduce the fish-accessible and egress-able  
1050 undeveloped space within the special flood hazard area.

1051 B. A development proposal with an activity that would impact undeveloped  
1052 space shall achieve no net loss of fish-accessible and egress-able space.

1053 C. Lost undeveloped space must be replaced with fish-accessible and egress-  
1054 able compensatory volume based on the ratio in Table 1 and at the same  
1055 flood level at which the development causes an impact (i.e., plus or minus 1  
1056 foot of the hydraulically equivalent elevation).

1057 i. Hydraulically equivalent sites must be found within either the  
1058 equivalent 1-foot elevations or the same flood elevation bands of  
1059 the development proposal. The flood elevation bands are identified  
1060 as follows:

1061 (1) Ordinary High Water Mark to 10-year,

1062 (2) 10-year to 25-year,

1063 (3) 25-year to 50-year,

1064 (4) And 50-year to 100-year

1065 ii. Hydrologically connected to the waterbody that is the flooding source;

1066 iii. Designed so that there is no increase in velocity; and

1067 iv. Designed to fill and drain in a manner that minimizes anadromous  
1068 fish stranding to the greatest extent possible.

1069 **6.1.2 IMPERVIOUS SURFACES**

1070 Impervious surface mitigation shall be mitigated through any of the following  
1071 options:

1072 A. Development proposals shall not result in a net increase in impervious  
1073 surface area within the SFHA, or

1074 B. use low impact development or green infrastructure to infiltrate and treat  
1075 stormwater produced by the new impervious surface, as documented by a  
1076 qualified professional, or

1077 C. If prior methods are not feasible and documented by a qualified  
1078 professional stormwater retention is required to ensure no increase in peak  
1079 volume or flow and to maximize infiltration, and treatment is required to  
1080 minimize pollutant loading. See section 6.2.C for stormwater retention  
1081 specifications.

1082 **6.1.3 TREES**

1083 A. Development proposals shall result in no net loss of trees 6-inches dbh or greater  
1084 within the special flood hazard area. This requirement does not apply to  
1085 silviculture where there is no development.

1086 i. Trees of or exceeding 6-inches dbh that are removed from the RBZ,  
1087 Floodway, or RBZ-fringe must be replaced at the ratios in Table 1.

1088 ii. Replacement trees must be native species that would occur naturally  
1089 in the Level III ecoregion of the impact area.

1090 **6.2 STORMWATER MANAGEMENT**

1091 Any development proposal that cannot mitigate as specified in 6.1.2(A)-(B) must include  
1092 the following:

1093 A. Water quality (pollution reduction) treatment for post-construction  
1094 stormwater runoff from any net increase in impervious area; and

1095 B. Water quantity treatment (retention facilities) unless the outfall discharges  
1096 into the ocean.

1097 C. Retention facilities must:

1098 i. Limit discharge to match the pre-development peak discharge rate  
1099 (i.e., the discharge rate of the site based on its natural groundcover  
1100 and grade before any development occurred) for the 10-year peak  
1101 flow using a continuous simulation for flows between 50 percent of  
1102 the 2-year event and the 10-year flow event (annual series).

1103 ii. Treat stormwater to remove sediment and pollutants from impervious  
1104 surfaces such that at least 80 percent of the suspended solids are  
1105 removed from the stormwater prior to discharging to the receiving  
1106 water body.

1107 iii. Be designed to not entrap fish and drain to the source of flooding.

1108 iv. Be certified by a qualified professional.

- 1109 D. Stormwater treatment practices for multi-parcel facilities, including  
1110 subdivisions, shall have an enforceable operation and maintenance  
1111 agreement to ensure the system functions as designed. This agreement will  
1112 include:
- 1113 i. Access to stormwater treatment facilities at the site by the  
1114 **COMMUNITY TYPE (e.g., city, county)** for the purpose of inspection  
1115 and repair.
  - 1116 ii. A legally binding document specifying the parties responsible for the  
1117 proper maintenance of the stormwater treatment facilities. The  
1118 agreement will be recorded and bind subsequent purchasers and  
1119 sellers even if they were not party to the original agreement.
  - 1120 iii. For stormwater controls that include vegetation and/or soil  
1121 permeability, the operation and maintenance manual must include  
1122 maintenance of these elements to maintain the functionality of the  
1123 feature.
  - 1124 iv. The responsible party for the operation and maintenance of the  
1125 stormwater facility shall have the operation and maintenance  
1126 manual on site and available at all times. Records of the  
1127 maintenance and repairs shall be retained and made available for  
1128 inspection by the **COMMUNITY TYPE (e.g., city, county)** for five years

1129 **6.3 ACTIVITIES EXEMPT FROM NO NET LOSS STANDARDS**

1130 The following activities are not subject to the no net loss standards in Section 6.1;  
1131 however, they may not be exempt from floodplain development permit requirements.

- 1132 A. Normal maintenance of structures, such as re-roofing and replacing siding,  
1133 provided there is no change in the footprint or expansion of the roof of the  
1134 structure;
- 1135 B. Normal street, sidewalk, and road maintenance, including filling potholes,  
1136 repaving, and installing signs and traffic signals, that does not alter  
1137 contours, use, or alter culverts and is less than six inches above grade.  
1138 Activities exempt do not include expansion of paved areas;
- 1139 C. Routine maintenance of landscaping that does not involve grading,  
1140 excavation, or filling;
- 1141 D. Routine agricultural practices such as tilling, plowing, harvesting, soil  
1142 amendments, and ditch cleaning that does not alter the ditch configuration  
1143 provided the spoils are removed from special flood hazard area or tilled into  
1144 fields as a soil amendment;
- 1145 E. Routine silviculture practices that do not meet the definition of  
1146 development, including harvesting of trees as long as root balls are left in

1147 place and forest road construction or maintenance that does not alter  
1148 contours, use, or alter culverts and is less than six inches above grade;

1149 F. Removal of noxious weeds and hazard trees, and replacement of non-native  
1150 vegetation with native vegetation;

1151 G. Normal maintenance of above ground utilities and facilities, such as  
1152 replacing downed power lines and utility poles provided there is no net  
1153 change in footprint;

1154 H. Normal maintenance of a levee or other flood control facility prescribed in  
1155 the operations and maintenance plan for the levee or flood control facility.  
1156 Normal maintenance does not include repair from flood damage, expansion  
1157 of the prism, expansion of the face or toe or addition of protection on the  
1158 face or toe with rock armor.

1159 I. Habitat restoration activities.

1160 **6.4 RIPARIAN BUFFER ZONE (RBZ)**

1161 A. The Riparian Buffer Zone is measured from the ordinary high-water line of a  
1162 fresh waterbody (lake; pond; ephemeral, intermittent, or perennial stream)  
1163 or mean higher-high water of a marine shoreline or tidally influenced river  
1164 reach to 170 feet horizontally on each side of the stream or inland of the  
1165 MHHW. The riparian buffer zone includes the area between these outer  
1166 boundaries on each side of the stream, including the stream channel.

1167 B. Habitat restoration activities in the RBZ are considered self-mitigating and  
1168 are not subject to the no net loss standards described above.

1169 C. Functionally dependent uses are only subject to the no net loss standards for  
1170 development in the RBZ. Ancillary features that are associated with but do  
1171 not directly impact the functionally dependent use in the RBZ (including  
1172 manufacturing support facilities and restrooms) are subject to the beneficial  
1173 gain standard in addition to no net loss standards.

1174 D. Any other use of the RBZ requires a greater offset to achieve no net loss of  
1175 floodplain functions, on top of the no net loss standards described above,  
1176 through the beneficial gain standard.

1177 E. Under FEMA's beneficial gain standard, an area within the same reach of  
1178 the project and equivalent to 5% of the total project area within the RBZ  
1179 shall be planted with native herbaceous and shrub vegetation and  
1180 designated as open space.  
1181

1182 Table 1 No Net Loss Standards

<b>Basic Mitigate Ratios</b>	<b>Undeveloped Space (ft<sup>3</sup>)</b>	<b>Impervious Surface (ft<sup>2</sup>)</b>	<b>Trees (6”&lt;dbh≤20”)</b>	<b>Trees (20”&lt;dbh≤39”)</b>	<b>Trees (39”&lt;dbh)</b>
<b>RBZ and Floodway</b>	2:1*	1:1	3:1*	5:1	6:1
<b>RBZ-Fringe</b>	1.5:1*	1:1	2:1*	4:1	5:1
<b>Mitigation multipliers</b>					
<b>Mitigation onsite to Mitigation offsite, same reach</b>	100%	100%	100%	100%	100%
<b>Mitigation onsite to Mitigation offsite, different reach, same watershed (5<sup>th</sup> field)</b>	200% *	200%*	200%*	200%	200%

1183 Notes:

- 1184 1. Ratios with asterisks are indicated in the BiOp
- 1185 2. Mitigation multipliers of 100% result in the required mitigation occurring at the same value
- 1186 described by the ratios above, while multipliers of 200% result in the required mitigation
- 1187 being doubled.
- 1188 a. For example, if only 500 ft<sup>2</sup> of the total 1000 ft<sup>2</sup> of required pervious surface
- 1189 mitigation can be conducted onsite and in the same reach, the remaining 500 ft<sup>2</sup> of
- 1190 required pervious surface mitigation occurring offsite at a different reach would
- 1191 double because of the 200% multiplier.
- 1192 3. RBZ impacts must be offset in the RBZ, on-site or off-site.
- 1193 4. Additional standards may apply in the RBZ (See 6.4 Riparian Buffer Zone)

**APPENDIX A: Section 6.0 Alternate Language to Achieve No Net Loss**

**6.0 STANDARDS FOR PROTECTION OF SFHA FLOODPLAIN FUNCTIONS**

Adherent to the NMFS 2016 Biological Opinion, mitigation is necessary to ensure a no net loss in floodplain functions. FEMA’s 2024 Draft Oregon Implementation Plan identifies proxies that provide measurable actions that can prevent the no net loss of the parent floodplain functions. These proxies include undeveloped space, pervious surfaces, and trees to account for a no net loss in respective floodplain functions of floodplain storage, water quality, and vegetation. Mitigation of these proxies must be completed to ensure compliance with no net loss standards. No net loss applies to the net change in floodplain functions as compared to existing conditions at the time of proposed development and mitigation must be addressed to the floodplain function that is receiving the detrimental impact. The standards described below apply to all special flood hazard areas as defined in Section 2.0.

**6.1 NO NET LOSS STANDARDS**

A. No net loss of the proxies for the floodplain functions mentioned in Section 1 is required for development in the special flood hazard area that would reduce undeveloped space, increase impervious surface, or result in a loss of trees that are 6-inches dbh or greater. No net loss can be achieved by first avoiding negative effects to floodplain functions to the degree possible, then minimizing remaining effects, then replacing and/or otherwise compensating for, offsetting, or rectifying the residual adverse effects to the three floodplain functions.

B. Compliance with no net loss for undeveloped space or impervious surface is preferred to occur prior to the loss of habitat function but, at a minimum, shall occur concurrent with the loss.

C. No net loss must be provided within, in order of preference: 1) the lot or parcel that floodplain functions were removed from, 2) the same reach of the waterbody where the development is proposed, or 3) the special flood hazard area within the same hydrologically connected area as the proposed development. Table 1 presents the no net loss ratios, which increase based on the preferences listed above.

**6.1.1 UNDEVELOPED SPACE**

A. Development proposals shall not reduce the fish-accessible and egress-able habitat and flood storage volume created by undeveloped space within the special flood hazard area. A development proposal with an activity that would impact undeveloped space shall achieve no net loss of fish-accessible and egress-able space and flood storage volume.

i. Lost undeveloped space must be replaced with fish-accessible and egress-able compensatory volume based on the ratio in Table 1.

1232 ii. Hydrologically connected to the waterbody that is the flooding source;

1233 **6.1.2** Designed so that there is no increase in velocity **IMPERVIOUS SURFACES**

1234 Impervious surface mitigation shall be mitigated through any of the following options:

1235 A. Development proposals shall not result in a net increase in impervious surface  
1236 area within the SFHA through the use of ratios prescribed in Table 1, or

1237 B. Use low impact development or green infrastructure to infiltrate and treat  
1238 stormwater produced by the new impervious surface, as documented by a  
1239 qualified professional, or

1240 C. If prior methods are not feasible and documented by a qualified professional  
1241 stormwater retention is required to ensure no increase in peak volume or flow  
1242 and to maximize infiltration, and treatment is required to minimize pollutant  
1243 loading. See section **6.2.C** for stormwater retention specifications.

1244 **6.1.3 TREES**

1245 A. Development proposals shall result in no net loss of trees 6-inches dbh or greater  
1246 within the special flood hazard area.

1247 i. Trees of or exceeding 6-inches dbh that are removed from the RBZ,  
1248 Floodway, or RBZ-fringe must be replaced at the ratios in Table 1 and  
1249 planted within the special flood hazard area.

1250 ii. Replacement trees must be native species that would occur naturally  
1251 in the Level III ecoregion of the impact area.

1252 **6.2 STORMWATER MANAGEMENT**

1253 Any development proposal that cannot mitigate as specified in 6.1.2(A)-(B) must include  
1254 the following:

1255 A. Water quality (pollution reduction) treatment for post-construction  
1256 stormwater runoff from any net increase in impervious area; and

1257 B. Water quantity treatment (retention or detention facilities) unless the outfall  
1258 discharges into the ocean.

1259 C. Retention and detention facilities must:

1260 i. Limit discharge to match the pre-development peak discharge  
1261 rate (i.e., the discharge rate of the site based on its natural  
1262 groundcover and grade before any development occurred) for  
1263 the 10-year peak flow using a continuous simulation for flows  
1264 between 50 percent of the 2-year event and the 10-year flow  
1265 event (annual series).

1266 ii. Treat stormwater to remove sediment and pollutants from impervious  
1267 surfaces such that at least 80 percent of the suspended solids are  
1268 removed from the stormwater prior to discharging to the receiving  
1269 water body.

1270 iii. Be designed to not entrap fish.

1271 iv. Be certified by a qualified professional.

1272 D. Detention facilities must:

1273 i. Drain to the source of flooding.

1274 ii. Designed by a qualified professional.

1275 E. Stormwater treatment practices for multi-parcel facilities, including  
1276 subdivisions, shall have an enforceable operation and maintenance  
1277 agreement to ensure the system functions as designed. This agreement will  
1278 include:

1279 v. Access to stormwater treatment facilities at the site by the  
1280 **COMMUNITY TYPE (e.g., city, county)** for the purpose of inspection  
1281 and repair.

1282 vi. A legally binding document specifying the parties responsible for the  
1283 proper maintenance of the stormwater treatment facilities. The  
1284 agreement will be recorded and bind subsequent purchasers and  
1285 sellers even if they were not party to the original agreement.

1286 vii. For stormwater controls that include vegetation and/or soil  
1287 permeability, the operation and maintenance manual must include  
1288 maintenance of these elements to maintain the functionality of the  
1289 feature.

1290 viii. The responsible party for the operation and maintenance of the  
1291 stormwater facility shall have the operation and maintenance  
1292 manual on site and available at all times. Records of the  
1293 maintenance and repairs shall be retained and made available for  
1294 inspection by the **COMMUNITY TYPE (e.g., city, county)** for five years

1295 **6.3 ACTIVITIES EXEMPT FROM NO NET LOSS STANDARDS**

1296 The following activities are not subject to the no net loss standards in Section 6.1;  
1297 however, they may not be exempt from floodplain development permit requirements.

1298 A. Normal maintenance of structures, such as re-roofing and replacing siding,  
1299 provided there is no change in the footprint or expansion of the roof of the  
1300 structure;

- 1301 B. Normal street, sidewalk, and road maintenance, including filling potholes,  
1302 repaving, and installing signs and traffic signals, that does not alter  
1303 contours, use, or alter culverts and is less than six inches above grade.  
1304 Activities exempt do not include expansion of paved areas;
- 1305 C. Routine maintenance of landscaping that does not involve grading,  
1306 excavation, or filling;
- 1307 D. Routine agricultural practices such as tilling, plowing, harvesting, soil  
1308 amendments, and ditch cleaning that does not alter the ditch configuration  
1309 provided the spoils are removed from special flood hazard area or tilled into  
1310 fields as a soil amendment;
- 1311 E. Routine silviculture practices (harvesting of trees), including hazardous fuels  
1312 reduction and hazard tree removal as long as root balls are left in place;
- 1313 F. Removal of noxious weeds and hazard trees, and replacement of non-native  
1314 vegetation with native vegetation;
- 1315 G. Normal maintenance of above ground utilities and facilities, such as  
1316 replacing downed power lines and utility poles provided there is no net  
1317 change in footprint;
- 1318 H. Normal maintenance of a levee or other flood control facility prescribed in  
1319 the operations and maintenance plan for the levee or flood control facility.  
1320 Normal maintenance does not include repair from flood damage, expansion  
1321 of the prism, expansion of the face or toe or addition of protection on the  
1322 face or toe with rock armor.
- 1323 I. Habitat restoration activities.
- 1324 J. Pre-emptive removal of documented susceptible trees to manage the  
1325 spread of invasive species.
- 1326 K. Projects that are covered under separate consultations under Section 4(d),  
1327 7, or 10 of the Endangered Species Act (ESA).

**6.4 RIPARIAN BUFFER ZONE (RBZ)**

- 1329 A. The Riparian Buffer Zone is measured from the ordinary high-water line of a  
1330 fresh waterbody (lake; pond; ephemeral, intermittent, or perennial stream)  
1331 or mean higher-high water of a marine shoreline or tidally influenced river  
1332 reach to 170 feet horizontally on each side of the stream or inland of the  
1333 MHHW. The riparian buffer zone includes the area between these outer  
1334 boundaries on each side of the stream, including the stream channel.
- 1335 B. Functionally dependent uses are only subject to the no net loss standards in  
1336 Section 6.1 for development in the RBZ. Ancillary features that are  
1337 associated with but do not directly impact the functionally dependent use in

- 1338 the RBZ (including manufacturing support facilities and restrooms) are  
 1339 subject to the beneficial gain standard in addition to no net loss standards.
- 1340 C. Any other use of the RBZ requires a greater offset to achieve no net loss of  
 1341 floodplain functions, on top of the no net loss standards described above,  
 1342 through the beneficial gain standard.
- 1343 D. Under FEMA's beneficial gain standard, an area within the same reach of  
 1344 the project and equivalent to 5% of the total project area within the RBZ  
 1345 shall be planted with native herbaceous, shrub and tree vegetation.  
 1346

1347 Table 1 No Net Loss Standards

<b>Basic Mitigate Ratios</b>	<b>Undeveloped Space (ft<sup>3</sup>)</b>	<b>Impervious Surface (ft<sup>2</sup>)</b>	<b>Trees (6" &lt; dbh ≤ 20")</b>	<b>Trees (20" &lt; dbh ≤ 39")</b>	<b>Trees (39" &lt; dbh)</b>
<b>RBZ and Floodway</b>	2:1	1:1	3:1	5:1	6:1
<b>RBZ-Fringe</b>	1.5:1	1:1	2:1	4:1	5:1
<b>Mitigation multipliers</b>					
<b>Mitigation onsite to Mitigation offsite, same reach</b>	100%	100%	100%	100%	100%
<b>Mitigation onsite to Mitigation offsite, different reach, same watershed (5<sup>th</sup> field)</b>	200%	200%	200%	200%	200%

- 1348 Notes:
- 1349 1. Mitigation multipliers of 100% result in the required mitigation occurring at the same value  
 1350 described by the ratios above, while multipliers of 200% result in the required mitigation  
 1351 being doubled.
- 1352 a. For example, if a development would create 1,000 square feet of new impervious  
 1353 surface, then 1,000 square feet of new pervious surface would need to be created.  
 1354 However, if only 500 square feet can be created within the same reach, the  
 1355 remaining 500 square feet created within a different reach would need to be double  
 1356 the required amount because of the 200 percent multiplier. In other words, another  
 1357 1,000 square feet of pervious surface would need to be created at the location in the  
 1358 different reach, in addition to the 500 square feet created within the same reach.

## APPENDIX B: Additional and Updated Definitions

1359

1360 **Ancillary Features:** Features of a development that are not directly related to the primary  
1361 purpose of the development.

1362 **Fish Accessible Space:** The volumetric space available to an adult or juvenile individual  
1363 of the identified 16 ESA-listed fish to access.

1364 **Fish Egress-able Space:** The volumetric space available to an adult or juvenile individual  
1365 of the identified 16 ESA- fish to exit or leave from.

1366 **Floodplain Storage Capacity:** The volume of floodwater that an area of floodplain can  
1367 hold during the 1-percent annual chance flood.

1368 **Footprint:** The existing measurements of the structure related to the three floodplain  
1369 functions and their proxies. The footprint related to floodplain storage refers to  
1370 the volumetric amount of developed space measured from the existing ground  
1371 level to the BFE, and the footprint related to water quality refers to the area of  
1372 impervious surface that the structure creates.

1373 **Pervious Surface:** Surfaces that allow rain and snowmelt to seep into the soil and gravel  
1374 below. Pervious surface may also be referred to as permeable surface.

1375 **Undeveloped Space:** The volume of flood capacity and fish-accessible/egress-able  
1376 habitat from the existing ground to the Base Flood Elevation that has not been  
1377 reduced due to activity that meets FEMA's definition of development. Examples  
1378 of development that impede undeveloped space includes, but is not limited to,  
1379 the addition of fill, structures, concrete structures (vaults or tanks), pilings,  
1380 levees and dikes, or any other development that reduces flood storage volume  
1381 and fish accessible/egress-able habitat.

1382

1383



*A place where families and businesses thrive.*

**Planning Commission – Minutes 03/3/25**  
**Community Auditorium and Zoom**  
**1915 Main Street, Forest Grove, OR**  
**Monday, March 3rd, 2025, 7:00 pm**

**1. CALL TO ORDER AND ROLL CALL:**

Chair Ginny Sanderson called the Planning Commission meeting to order at 7:01 p.m.

The meeting was held in person in the Community Auditorium and remotely via video conferenced by Permit Technician Shannon Reynolds. To view the recorded meeting, please visit the City of Forest Grove website. The public was allowed to attend via Zoom or observe in the Community Auditorium.

**Roll Call:**

**Planning Commission Present in Person:** Chair Ginny Sanderson, Tim Farrell, Seth Berdahl, Julie Stenberg and Nicole Ellis.

**Planning Commission Excused:** Commissioner Brandon Culbertson

**Staff Present:** Bryan Pohl; Community Development Director, Dan Riordan; Senior Planner, Miles Glowacki; Economic Development Coordinator, Jerry Johnson; Johnson Economics and Shannon Reynolds; Permit Technician

**2. PUBLIC MEETING:**

**A. PUBLIC COMMENT PERIOD FOR NON-AGENDA ITEMS:**

No public comment

**B. PUBLIC HEARING:**

File Number 311-25-000002-PLNG – Planning Commission Review of the City’s 2025 Economic Opportunities Analysis (EOA) and Adoption of Findings; and Recommendation to City Council Accepting the City’s 2025 Economic Opportunities Analysis Update, recommending a Preferred Assumed Growth Scenario and Adoption of an Ordinance Amending the Forest Grove Comprehensive Plan

**STAFF REPORT:**

City of Forest Grove Senior Planner Dan Riordan in coordination with Jerry Johnson of Johnson Economics provided a power point presentation on the City of Forest Grove’s Economic Opportunities Analysis (EOA). Economic findings and recommendations from the staff report were reviewed.

Mr. Riordan and Mr. Johnson responded to commissioner's questions. Staff provided the recommendation for Planning Commission to approve a motion adopting the findings attached to the written staff report provided to Planning Commission, and that City Council accept the 2025 EOA update and amend the Forest Grove Comprehensive Plan to replace the 2019 EOA with the 2025 EOA update and add the updated EOA as an appendix to the Comprehensive Plan. The reason for this recommendation is Scenario 1 uses a methodology accepted by the state since it complies with state rules. The Planning Commission recommend adoption of growth Scenario 1, the safe harbor option, as the preferred growth scenario for land use decisions affecting the designation of land consistent with Oregon Administrative Rules Chapter 660-024-0040(9)(a).

The public hearing closed at 7:48 p.m.

**COMMISSIONER DISCUSSION:**

Chair Sanderson asked for a motion to recommend to City Council regarding the items outlined in section B of the public hearing.

Commissioner Farrell made a motion to affirm the recommendation to City Council. Commissioner Stenberg seconded the motion.

**Roll Call Vote on Motion:**

AYES: Chair Sanderson; Commissioners Berdahl, Ellis, Farrell, and Stenberg

NOES: None

ABSTAIN: None

ABSENT: Commissioner Culbertson

MOTION CARRIED

**C. ACTION ITEMS:**

None

**3. BUSINESS MEETING:**

**A. Davis Estates Planned Development Condition of Approval – Parkway Planter Strips**

Mr. Riordan explained the lower maintenance design request from the current Home Owner Association (HOA) in the development. This would be a modification to an already approved condition of approval that could be approved by the Community Development Director. The request is for a lower maintenance plan in the planter strips of the development, essentially the replacement of lawn with river rock. Mr. Riordan was looking for input from the commissioners on this modification or if the original conditions of approval regarding planter strips should remain. A consensus was determined to at minimum remove the river rock to plant the required street trees. More discussion may be needed in the future on this topic.

**B. Approval of Minutes:**

The November 4, 2024 minutes were approved by acclimation.

**C. Director's Report:**

Bryan Pohl provided the commissioners with a director's report.

The Downtown Glow-Up project will be addressing several items such as new trash receptacles through-out, tree removal and replacement due to sidewalk lipping issues along with removal of the metal grates to be replaced with a new drainage system, new electrical access/conduit for tree lighting along with a few other improvements. A request for proposal was issued, and bids have been received. Public Works will move forward with overseeing this project.

Project 2040 – (Forest Grove's Visioning Project) is moving into phase two of creating focus groups.

Comprehensive Plan Code updates coming soon which will require additional Planning Commission meetings.

Forest Grove will be moving from bus service to "rapid transit". The entire length of Line 57 from Beaverton to Forest Grove will be impacted. This will require an intergovernmental agency agreement/adoption that will go before Planning Commission for discussion

Bryan updated the commissioners on a couple of acquisition sites the City of Forest Grove's Urban Renewal Agency is looking to purchase. Lastly, Bryan Pohl introduced Dave Andersen as an applicant for the vacancy of Planning Commissioner.

**D. Announce next meeting: TBD**

**4. ADJOURNMENT:** The meeting was adjourned at 8:28 p.m.

Respectfully submitted by:

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Shannon Reynolds  
Permit Technician/Planning Coordinator