



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.

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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
OHWM	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/. 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.

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

SECTION 2. Regulatory Crosswalk

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

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

All manufactured dwellings to be placed (new or replacement) or substantially improved within Coastal High Hazard Areas (Zones V, V1-30, VE, or Coastal A) 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.

**5.3.1.2 RECREATIONAL VEHICLE STANDARDS FOR COASTAL HIGH
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

Basic Mitigate Ratios	Undeveloped Space (ft³)	Impervious Surface (ft²)	Trees (6”<dbh≤20”)	Trees (20”<dbh≤39”)	Trees (39”<dbh)
RBZ and Floodway	2:1*	1:1	3:1*	5:1	6:1
RBZ-Fringe	1.5:1*	1:1	2:1*	4:1	5:1
<u>Mitigation multipliers</u>					
Mitigation onsite to Mitigation offsite, same reach	100%	100%	100%	100%	100%
Mitigation onsite to Mitigation offsite, different reach, same watershed (5th field)	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 ft² of the total 1000 ft² of required pervious surface
- 1189 mitigation can be conducted onsite and in the same reach, the remaining 500 ft² 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

Basic Mitigate Ratios	Undeveloped Space (ft³)	Impervious Surface (ft²)	Trees (6" < dbh ≤ 20")	Trees (20" < dbh ≤ 39")	Trees (39" < dbh)
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RBZ-Fringe	1.5:1	1:1	2:1	4:1	5:1
Mitigation multipliers					
Mitigation onsite to Mitigation offsite, same reach	100%	100%	100%	100%	100%
Mitigation onsite to Mitigation offsite, different reach, same watershed (5th field)	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