



**City of Lyons**

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**LYONS PLANNING COMMISSION**  
**STAFF REPORT**

**HEARING DATE:** February 11, 2025

**STAFF REPORT DATE:** February 3, 2025

**FILE NUMBER:** 2025-02

**PROPOSAL :** Lyons Flood Hazard Ordinance – Legislative Amendments

**APPLICANT:** City of Lyons

**CITY ATTORNEY** Local Government Law Group, PC  
975 Oak Street, Suite 700, Eugene, OR 97401

**EXHIBITS:**

- A. DRAFT Flood Hazard Ordinance Amendments Amending Chapter 15.10 of the Lyons Municipal Code
- B. Oregon National Flood Insurance Program – Endangered Species Act Integration – Pre-Implementation Compliance Measures (PICM)
- C. Map of Lyons Flood Hazard Zones and Potential Riparian Buffer Zone impact areas

**I. Flood Hazard Ordinance Amendments - PROPOSAL**

The City of Lyons proposes to adopt an updated Flood Hazard Ordinance. FEMA has notified cities in Oregon that they must take steps to protect endangered steelhead and salmon within the Columbia River basin. The North Santiam River is one of the affected watershed areas.

The “Model Flood Hazard Ordinance” developed by the Oregon Department of Land Conservation and Development (DLCD) & FEMA Region 10 staff is enclosed as Exhibit “A”. The proposed amendments impose additional measures the City must consider and evaluate before it may issue any permits for development within the 100-year flood plain adjacent to the North Santiam River.

Exhibit “B” explains the reasons for the proposed amendments and what options are available to the City. The City may either:

- A. Prohibit all new development in the 100-year flood plain.
- B. Adopt an updated Flood Hazard Ordinance which incorporates permit requirements in the City’s ordinance to better protect endangered salmon and steelhead before July 1, 2025.
- C. Permit-by-Permit Compliance. Require all applicants for a development permit in the 100-year flood plain to prepare a Habitat Assessment documenting the proposed development will protect fish habitat and will result in “NO NET LOSS” of flood plain and habitat areas.

The City has notified DLCD and FEMA that it will adopt an updated flood hazard ordinance.

## II. Effect on Development within the 100-year Flood Plain

If the ordinance is adopted, **the 100-year flood plain is not changed**. However, the requirements for development within the flood plain are changed. A property owner is required to obtain a flood plain development permit for any development in the flood plain, including site development, grading, buildings, etc. which may affect the function of the flood plain and habitat within the riparian area along the N. Santiam River or adjacent water bodies in the 100-year flood plain.

As part of a flood plain development permit application a property owner will be required to submit more information to the City to demonstrate there is “No Net Loss” of habitat and flood plain function within the 100-year flood plain, and any area of the flood plain that is located within a 170’ wide riparian buffer zone. See attached map.

## III. Public Hearing and Adoption Procedures:

Amendments to Title 15.10 “Flood Hazard Ordinance” are considered legislative amendments to a regulatory ordinance in the municipal code. The City will follow the following process to consider the amendments:

- |                                |                                  |
|--------------------------------|----------------------------------|
| 1. Planning Commission Hearing | February 11, 2025                |
| 2. City Council Public Hearing | March or April 2025              |
| 3. Adoption of Ordinance       | Prior to July 1, 2025            |
| 4. Notice of Adoption to DLCD  |                                  |
| 5. Acknowledgment by DLCD      | 30 days after Notice of Adoption |

## Hearing Procedure

As a legislative amendment to the City’s zoning code, the Planning Commission will hold a public hearing on the proposal and make a recommendation to the City Council.

Open Public Hearing	Planning Commission Chair
Staff Report	Planning Consultant
Testimony by Persons in Favor of the Proposal	
Testimony by Persons Opposed to the Proposal	
Questions from the Planning Commissioners	
Close the Public Hearing	
Deliberation and Recommendation to the City Council	

## IV. Planning Commission Options

<b>Continue Public Hearing</b>	Motion to continue the public hearing to a date & time to have the staff provide additional information to the Planning Commission
<b>Approval</b>	Motion to Recommend the City Council adopt the proposed revisions to the Flood Hazard Ordinance
<b>Approval (As Modified)</b>	Motion to Recommend the City Council adopt the proposed flood hazard ordinance amendments with revised language as modified by the Planning Commission.
<b>Denial</b>	Motion to Recommend the City Council should not adopt the proposed flood hazard ordinance amendments.



# CITY OF LYONS

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## ORDINANCE NO. \_\_\_\_ - 2025

### AN ORDINANCE AMENDING TITLE 15 CHAPTER 15.10 "FLOOD DAMAGE PREVENTION" OF THE LYONS MUNICIPAL CODE

WHEREAS, the City of Lyons adopted its original Flood Damage Prevention Ordinance, Ordinance #P10-30, on November 3<sup>rd</sup>, 1981 which was found to be in compliance with statutory regulation in place at that time; and

WHEREAS, the City of Lyons subsequently adopted Ordinance #P10-40, on March 9<sup>th</sup>, 1988 which was found to be in compliance with statutory regulation in place at that time; and

WHEREAS, the City of Lyons subsequently adopted its current Flood Damage Prevention ordinance, Ordinance #P1-2010, on July 27, 2010 which was found to be in compliance with statutory regulation in place at that time; and

NOW, THEREFORE, the City Council of the City of Lyons does ordain as follows:

**1. Amendment.** Ordinance P1-2010 and corresponding code section, Chapter 1.10, are hereby repealed and replaced with the following:

#### **Chapter 15.10**

#### **Flood Damage Prevention**

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

#### **1.1 STATUTORY AUTHORIZATION**

The State of Oregon has in ORS 197.175 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.

## **1.2 FINDINGS OF FACT**

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

## **1.4 METHODS OF REDUCING FLOOD LOSSES**

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

- A. Restricting or prohibiting development which is dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- B. Requiring that development vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- D. Controlling filling, grading, dredging, and other development which may increase flood damage;
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.
- F. Employing a standard of “no net loss” of natural and beneficial floodplain functions.

## 2.0 DEFINITIONS

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

**Ancillary Features:** Features of a development that are not directly related to the primary purpose of the development.

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

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

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

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

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

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

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

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

**Fish Accessible Space:** The volumetric space available to an adult or juvenile individual of the identified 16 ESA-listed fish to access.

**Fish Egress-able Space:** The volumetric space available to an adult or juvenile individual of the identified 16 ESA-listed fish to exit or leave from.

**Flood or Flooding:**

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

- (1) The overflow of inland or tidal waters.
- (2) The unusual and rapid accumulation or runoff of surface waters from any source.
- (3) Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (a)(2) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

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

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

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

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

**Floodplain Storage Capacity:** The volume of floodwater that an area of floodplain can hold during the 1-percent annual chance flood.

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

**Footprint:** The existing measurements of the structure related to the three floodplain functions and their proxies. The footprint related to floodplain storage refers to the volumetric amount of developed space measured from the existing ground level to the BFE, and the footprint related to water quality refers to the area of impervious surface that the structure creates.

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

**Green Infrastructure:** Use of natural or human-made hydrologic features to manage water and provide environmental and community benefits. Green infrastructure uses management approaches

and technologies that use, enhance, and/or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration, and reuse. At a large scale, it is an interconnected network of green space that conserves natural systems and provides assorted benefits to human populations. At a local scale, it manages stormwater by infiltrating it into the ground where it is generated using vegetation or porous surfaces, or by capturing it for later reuse. Green infrastructure practices can be used to achieve no net loss of pervious surface by creating infiltration of stormwater in an amount equal to or greater than the infiltration lost by the placement of new impervious surface.

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

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

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

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

- a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- c) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or
- d) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either: (1) By an approved state program as determined by the Secretary of the Interior or

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

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

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

**Impervious Surface:** A surface that cannot be penetrated by water and thereby prevents infiltration and increases the amount and rate of surface water runoff, leading to erosion of stream banks, degradation of habitat, and increased sediment loads in streams. Such surfaces can accumulate



large amounts of pollutants that are then “flushed” into local water bodies during storms and can also interfere with recharge of groundwater and the base flows to water bodies.

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

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

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

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

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

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

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

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

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

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

**Ordinary High-Water Mark:** The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving;

changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.

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

**Pervious Surface:** Surfaces that allow rain and snowmelt to seep into the soil and gravel below. Pervious surface may also be referred to as permeable surface.

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

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

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

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

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

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

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

**Special flood hazard area:** See "Area of special flood hazard" for this definition.

**Start of construction:** Includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days from the date of the permit. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured dwelling on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or

not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

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

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

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

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

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

**Undeveloped Space:** The volume of flood capacity and fish-accessible/egress-able habitat from the existing ground to the Base Flood Elevation that has not been reduced due to activity that meets FEMA's definition of development is undeveloped. Examples of development that impede undeveloped space includes, but is not limited to, the addition of fill, structures, concrete structures (vaults or tanks), pilings, levees and dikes, or any other development that reduces flood storage volume and fish accessible/egress-able habitat.

**Variance:** A grant of relief by City of Lyons from the terms of a floodplain management regulation.

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

### **3.0 GENERAL PROVISIONS**

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

This ordinance shall apply to all special flood hazard areas within the jurisdiction of City of Lyons.

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

The special flood hazard areas identified by the Federal Insurance Administrator in a scientific and engineering report entitled "The Flood Insurance Study (FIS) for Linn County, Oregon and Incorporated Areas" dated December 8, 2016, with accompanying Flood Insurance Rate Maps (FIRMs): City of Lyons Community Number 410142/including areas in Firm Maps 41043C0113G, 41043C0111G, 41043C0114G are hereby adopted by reference and declared to be a part of this ordinance. The FIS and FIRM panels are on file at Lyons City Hall.

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

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

**3.4 COMPLIANCE AND PENALTIES FOR NONCOMPLIANCE**

**3.4.1 COMPLIANCE**

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

**3.4.2 PENALTIES FOR NONCOMPLIANCE**

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violations of the provisions of this ordinance by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$1,000, or imprisoned for not more than one year, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing contained herein shall prevent the City of Lyons from taking such other lawful action as is necessary to prevent or remedy any violation. Nothing contained herein shall prevent the City of Lyons from taking such other lawful action as is necessary to prevent or remedy any violation.

**3.5 ABROGATION AND SEVERABILITY**

**3.5.1 ABROGATION**

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

**3.5.2 SEVERABILITY**

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

**3.6 INTERPRETATION**

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

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

### **3.7 WARNING AND DISCLAIMER OF LIABILITY**

#### **3.7.1 WARNING**

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

#### **3.7.2 DISCLAIMER OF LIABILITY**

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

### **4.0 ADMINISTRATION**

#### **4.1 DESIGNATION OF THE FLOODPLAIN ADMINISTRATOR**

The City Manager is hereby appointed to administer, implement, and enforce this ordinance by granting or denying development permits in accordance with its provisions. The Floodplain Administrator may delegate authority to implement these provisions.

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

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

##### **4.2.1 PERMIT REVIEW**

Review all development permits to:

- A. Determine that the permit requirements of this ordinance have been satisfied;
- B. Determine that all other required local, state, and federal permits have been obtained and approved;
- C. Determine if the proposed development is located in a floodway.
  - i. If located in the floodway assure that the floodway provisions of this ordinance in section 5.2.4 are met; and
  - ii. Determine if the proposed development is located in an area where Base Flood Elevation (BFE) data is available either through the Flood Insurance Study (FIS) or from another authoritative source. If BFE data is not available then ensure compliance with the provisions of sections 5.1.7; and
  - iii. Provide to building officials the Base Flood Elevation (BFE) applicable to any building requiring a development permit.
- D. Determine if the proposed development qualifies as a substantial improvement as defined in section 2.0.
- E. Determine if the proposed development activity is a watercourse alteration. If a watercourse alteration is proposed, ensure compliance with the provisions in section 5.1.1.

- F. Determine if the proposed development activity includes the placement of fill or excavation.
- G. Determine whether the proposed development activity complies with the no net loss standards in Section 6.0.

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

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

- A. The actual elevation (in relation to mean sea level) of the lowest floor (including basements) and all attendant utilities of all new or substantially improved structures where Base Flood Elevation (BFE) data is provided through the Flood Insurance Study (FIS), Flood Insurance Rate Map (FIRM), or obtained in accordance with section 5.1.7.
- B. The elevation (in relation to mean sea level) of the natural grade of the building site for a structure prior to the start of construction and the placement of any fill and ensure that the requirements of sections 4.2.1(B), 5.2.4, and 5.3.1(F), are adhered to.
- C. Upon placement of the lowest floor of a structure (including basement) but prior to further vertical construction, documentation, prepared and sealed by a professional licensed surveyor or engineer, certifying the elevation (in relation to mean sea level) of the lowest floor (including basement).
- D. Where base flood elevation data are utilized, As-built certification of the elevation (in relation to mean sea level) of the lowest floor (including basement) prepared and sealed by a professional licensed surveyor or engineer, prior to the final inspection.
- E. Maintain all Elevation Certificates (EC) submitted to the community.
- F. The elevation (in relation to mean sea level) to which the structure and all attendant utilities were floodproofed for all new or substantially improved floodproofed structures where allowed under this ordinance and where
- G. Base Flood Elevation (BFE) data is provided through the FIS, FIRM, or obtained in accordance with section 5.1.7.
- H. All floodproofing certificates required under this ordinance.
- I. All variance actions, including justification for their issuance.
- J. All hydrologic and hydraulic analyses performed as required under section 5.2.4.
- K. All Substantial Improvement and Substantial Damage calculations and determinations as required under section 4.2.4.
- L. Documentation of how no net loss standards have been met (see Section 6.0)
- M. All records pertaining to the provisions of this ordinance.

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

### **4.2.3.1 COMMUNITY BOUNDARY ALTERATIONS**

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

### **4.2.3.2 WATERCOURSE ALTERATIONS**

- A. Notify adjacent communities, the Department of Land Conservation and Development, and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration. This notification shall be provided by the applicant to the Federal Insurance Administration as a Letter of Map Revision (LOMR) along with either:
- i. A proposed maintenance plan to assure the flood carrying capacity within the altered or relocated portion of the watercourse is maintained; or
  - ii. Certification by a registered professional engineer that the project has been designed to retain its flood carrying capacity without periodic maintenance.
- B. The applicant shall be required to submit a Conditional Letter of Map Revision (CLOMR) when required under section 4.2.3.3. Ensure compliance with all applicable requirements in sections 4.2.3.3 and 5.1.1.

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

- A. A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Federal Insurance Administrator of the changes by submitting technical or scientific data in accordance with Title 44 of the Code of Federal Regulations (CFR), Section 65.3. The community may require the applicant to submit such data and review fees required for compliance with this section through the applicable FEMA Letter of Map Change (LOMC) process.
- B. The Floodplain Administrator shall require a Conditional Letter of Map Revision prior to the issuance of a floodplain development permit for:
- i. Proposed floodway encroachments that increase the base flood elevation; and
  - ii. Proposed development which increases the base flood elevation by more than one foot in areas where FEMA has provided base flood elevations but no floodway.
- C. An applicant shall notify FEMA within six (6) months of project completion when an applicant has obtained a Conditional Letter of Map Revision (CLOMR) from FEMA. This notification to FEMA shall be provided as a Letter of Map Revision (LOMR).

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

Conduct Substantial Improvement (SI) (as defined in section 2.0) reviews for all structural development proposal applications and maintain a record of SI calculations within permit files in accordance with section 4.2.2. Conduct Substantial Damage (SD) (as defined in section 2.0) assessments when structures are damaged due to a natural hazard event or other causes. Make SD determinations whenever structures within the special flood hazard area (as established in section 3.2) are damaged to the extent that the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

**4.3 ESTABLISHMENT OF DEVELOPMENT PERMIT**

**4.3.1 FLOODPLAIN DEVELOPMENT PERMIT REQUIRED**

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

**4.3.2 APPLICATION FOR DEVELOPMENT PERMIT**

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

- A. In riverine flood zones, the proposed elevation (in relation to mean sea level), of the lowest floor (including basement) and all attendant utilities of all new and substantially improved structures; in accordance with the requirements of section 4.2.2.
- B. Proposed elevation in relation to mean sea level to which any non-residential structure will be floodproofed.
- C. Certification by a registered professional engineer or architect licensed in the State of Oregon that the floodproofing methods proposed for any non-residential structure meet the floodproofing criteria for non-residential structures in section 5.2.3.3.
- D. Description of the extent to which any watercourse will be altered or relocated.
- E. Base Flood Elevation data for subdivision proposals or other development when required per sections 4.2.1 and 5.1.6.
- F. Substantial improvement calculation for any improvement, addition, reconstruction, renovation, or rehabilitation of an existing structure.
- G. The amount and location of any fill or excavation activities proposed.



#### **4.4 VARIANCE PROCEDURE**

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

##### **4.4.1 CONDITIONS FOR VARIANCES**

- A. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the provisions of sections 4.4.1 (C) and (E), and 4.4.2. As the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases.
- B. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- C. Variances shall not be issued within any floodway if any increase in flood levels during the base flood discharge would result.
- D. Variances shall only be issued upon:
  - i. A showing of good and sufficient cause;
  - ii. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and,
  - iii. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.
- E. Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of section 4.4.1 (B) – (D) are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.
- F. Variances shall not be issued unless it is demonstrated that the development will not result in net loss of the following proxies for the three floodplain functions in the SFHA: undeveloped space; pervious surface; or trees 6 inches dbh or greater (see Section 6.0 and associated options in Table 1).

##### **4.4.2 VARIANCE NOTIFICATION**

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

## **5.0 PROVISIONS FOR FLOOD HAZARD REDUCTION**

### **5.1 GENERAL STANDARDS**

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

#### **5.1.1 ALTERATION OF WATERCOURSES**

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

#### **5.1.2 ANCHORING**

- A. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
- B. All manufactured dwellings shall be anchored per section 5.2.3.4.

#### **5.1.3 CONSTRUCTION MATERIALS AND METHODS**

- A. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- B. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

#### **5.1.4 UTILITIES AND EQUIPMENT**

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

- A. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- B. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.
- C. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with the Oregon Department of Environmental Quality.

##### **5.1.4.2 ELECTRICAL, MECHANICAL, PLUMBING, AND OTHER EQUIPMENT**

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

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

### **5.1.5 TANKS**

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

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

- A. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, shall include within such proposals Base Flood Elevation data.
- B. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) shall:
  - i. Be consistent with the need to minimize flood damage.
  - ii. Have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.
  - iii. Have adequate drainage provided to reduce exposure to flood hazards.
  - iv. Comply with no net loss standards in section 6.0.

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

- A. When Base Flood Elevation data has not been provided in accordance with section 3.2 the local floodplain administrator shall obtain, review, and reasonably utilize any Base Flood Elevation data available from a federal, state, or other source, in order to administer section 5.0. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) must meet the requirements of section 5.1.6.
- B. Base Flood Elevations shall be determined for development proposals that are 5 acres or more in size or are 50 lots or more, whichever is lesser in any A zone that does not have an established base flood elevation. Development proposals located within a riverine unnumbered A Zone shall be reasonably safe from flooding; the test of reasonableness includes use of historical data, high water marks, FEMA provided Base Level Engineering data, and photographs of past flooding, etc. where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

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

In coordination with the State of Oregon Specialty Codes:

- A. When a structure is located in multiple flood zones on the community's Flood Insurance Rate Maps (FIRM) the provisions for the more restrictive flood zone shall apply.
- B. When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for new construction and substantial improvements.

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

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

### **5.2.1 FLOOD OPENINGS**

All new construction and substantial improvements with fully enclosed areas below the lowest

floor (excluding basements) are subject to the following requirements. Enclosed areas below the Base Flood Elevation, including crawl spaces shall:

- A. Be designed to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters;
- B. Be used solely for parking, storage, or building access;
- C. Be certified by a registered professional engineer or architect or meet or exceed all of the following minimum criteria:
  - i. A minimum of two openings;
  - ii. The total net area of non-engineered openings shall be not less than one square inch for each square foot of enclosed area, where the enclosed area is measured on the exterior of the enclosure walls;
  - iii. The bottom of all openings shall be no higher than one foot above grade;
  - iv. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area; and,
  - v. All additional higher standards for flood openings in the State of Oregon Residential Specialty Codes Section R322.2.2 shall be complied with when applicable.

### **5.2.2 GARAGES**

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

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

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

**5.2.3.1 BEFORE REGULATORY FLOODWAY** In areas where a regulatory floodway has not been designated, no new construction, substantial improvement, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community’s Flood Insurance Rate Map (FIRM), unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community and will not result in the net loss of flood storage volume. When determined that structural elevation is not possible and where the placement of fill cannot meet the above standard, impacts to undeveloped space must adhere to the no net loss standards in section 6.1.C.

**5.2.3.2 RESIDENTIAL CONSTRUCTION**

- A. New construction, conversion to, and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated at or above the Base Flood Elevation (BFE).
- B. Enclosed areas below the lowest floor shall comply with the flood opening requirements in section 5.2.1.

**5.2.3.3 NON-RESIDENTIAL CONSTRUCTION**

- A. New construction, conversion to, and substantial improvement of any commercial, industrial, or other non-residential structure shall:
  - i. Have the lowest floor, including basement elevated at or above the Base Flood Elevation (BFE) or
  - ii. Together with attendant utility and sanitary facilities:
    - a. Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
    - b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and,
    - c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this section based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Floodplain Administrator as set forth section 4.2.2.
- B. Non-residential structures that are elevated, not floodproofed, shall comply with the standards for enclosed areas below the lowest floor in section 5.2.1.
- C. Applicants floodproofing non-residential buildings shall be notified that flood insurance premiums will be based on rates that are one (1) foot below the floodproofed level (e.g. a building floodproofed to the base flood level will be rated as one (1) foot below

**5.2.3.4 MANUFACTURED DWELLINGS**

- A. Manufactured dwellings to be placed (new or replacement) or substantially improved that are supported on solid foundation walls shall be constructed with flood openings that comply with

section 5.2.1;

- B. The bottom of the longitudinal chassis frame beam shall be at or above Base Flood Elevation;
- C. Manufactured dwellings to be placed (new or replacement) or substantially improved shall be anchored to prevent flotation, collapse, and lateral movement during the base flood. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques), and;
- D. Electrical crossover connections shall be a minimum of twelve (12) inches above Base Flood Elevation (BFE).

#### 5.2.3.5 RECREATIONAL VEHICLES

Recreational vehicles placed on sites are required to:

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

#### 5.2.3.6 APPURTENANT (ACCESSORY) STRUCTURES

Relief from elevation or floodproofing requirements for residential and non-residential structures in Riverine (Non-Coastal) flood zones may be granted for appurtenant structures that meet the following requirements:

- A. Appurtenant structures located partially or entirely within the floodway must comply with requirements for development within a floodway found in section 5.2.4;
- B. Appurtenant structures must only be used for parking, access, and/or storage and shall not be used for human habitation;
- C. In compliance with State of Oregon Specialty Codes, appurtenant structures on properties that are zoned residential are limited to one story structures less than 200 square feet, or 400 square feet if the property is greater than two (2) acres in area and the proposed appurtenant structure will be located a minimum of 20 feet from all property lines. Appurtenant structures on properties that are zoned as non-residential are limited in size to 120 square feet;
- D. The portions of the appurtenant structure located below the Base Flood Elevation must be built using flood resistant materials;
- E. The appurtenant structure must be adequately anchored to prevent flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood;
- F. The appurtenant structure must be designed and constructed to equalize hydrostatic flood forces on exterior walls and comply with the requirements for flood openings in section 5.2.1;
- G. Appurtenant structures shall be located and constructed to have low damage potential;
- H. Appurtenant structures shall not be used to store toxic material, oil, or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality unless confined in a tank installed in compliance with section 5.1.5; and,
- I. Appurtenant structures shall be constructed with electrical, mechanical, and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.

#### 5.2.4 FLOODWAYS

Located within the special flood hazard areas established in section 3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of the floodwaters

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

- A. Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless:
  - i. Certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment shall not result in any increase in flood levels within the community during the occurrence of the base flood discharge; or
  - ii. A community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that conditional approval has been obtained by the Federal Insurance Administrator through the Conditional Letter of Map Revision (CLOMR) application process, all requirements established under 44 CFR 65.12 are fulfilled, and the encroachment(s) comply with the no net loss standards in section 6.0.
- B. If the requirements of section 5.2.4 (A) are satisfied, all new construction, substantial improvements, and other development shall comply with all other applicable flood hazard reduction provisions of section 5.0 and 6.0.

### 5.2.5 STANDARDS FOR SHALLOW FLOODING AREAS

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

#### 5.2.5.1 STANDARDS FOR AH ZONES

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

#### 5.2.5.2 STANDARDS FOR AO ZONES

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

- A. New construction, conversion to, and substantial improvement of residential structures and manufactured dwellings within AO zones shall have the lowest floor, including basement, elevated above the highest grade adjacent to the building, at minimum to or above the depth number specified on the Flood Insurance Rate Maps (FIRM). (at least two (2) feet if no depth number is specified). For manufactured dwellings the lowest floor is considered to be the bottom of the longitudinal chassis frame beam.
- B. New construction, conversion to, and substantial improvements of non-residential structures within AO zones shall either:
  - i. Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, at minimum to or above the depth number specified on the Flood Insurance Rate
- C. Maps (FIRMS) (at least two (2) feet if no depth number is specified); or
  - ii. Together with attendant utility and sanitary facilities, be completely floodproofed to or above the depth number specified on the FIRM or a 900 minimum of two (2) feet above the highest adjacent grade if no depth number is specified, so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or

- architect as stated in section 5.2.3.3(A)(4).
- C. Recreational vehicles placed on sites within AO Zones on the community's Flood Insurance Rate Maps (FIRM) shall either:
    - i. Be on the site for fewer than 180 consecutive days, and
    - ii. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
    - iii. Meet the elevation requirements of section 5.2.5.2(A), and the anchoring and other requirements for manufactured dwellings of section 5.2.3.4.
  - D. In AO zones, new and substantially improved appurtenant structures must comply with the standards in section 5.2.3.6.
  - E. In AO zones, enclosed areas beneath elevated structures shall comply with the requirements in section 5.2.1.

## 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. Prior to the issuance of any development authorization, the applicant shall:
  - i. Demonstrate a legal right by the project proponent to implement the proposed activities to achieve no net loss (e.g., property owner agreement);
  - ii. Demonstrate that financial assurances are in place for the long-term maintenance and monitoring of all projects to achieve no net loss;
  - iii. Include a management plan that identifies the responsible site manager, stipulates what activities are allowed on site, and requires the posting of signage identifying the site as a mitigation area.
- 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. To offset the impacts of delay in implementing no net loss, a 25 percent increase in the required minimum area is added for each year no net loss implementation is delayed.
- 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.
- B. 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.
  - ii. Hydrologically connected to the waterbody that is the flooding source;
- C. Lost undeveloped space must be replaced with fish-accessible and egress-able compensatory volume based on the ratio in Table 1 and at the same flood level at which the development causes an impact (i.e., plus or minus 1 foot of the hydraulically equivalent elevation).
  - i. Hydraulically equivalent sites must be found within either the equivalent 1-foot elevations or the same flood elevation bands of the development proposal. The flood elevation bands are identified as follows:
    - 1. Ordinary High Water Mark to 10-year,
    - 2. 10-year to 25-year,
    - 3. 25-year to 50-year,
    - 4. And 50-year to 100-year
  - ii. Hydrologically connected to the waterbody that is the flooding source;
  - iii. Designed so that there is no increase in velocity; and
  - iv. Designed to fill and drain in a manner that minimizes anadromous fish stranding to the greatest extent possible.

#### **6.1.2 IMPERVIOUS SURFACES**

Designed so that there is no increase in velocity.

Impervious surface mitigation shall be mitigated through any of the following options:

- A. Development proposals shall not result in a net increase in impervious surface area within the SFHA through the use of ratios prescribed in Tabel 1, or
- B. Use low impact development or green infrastructure to infiltrate and treat stormwater produced by the new impervious surface, as documented by a qualified professional, or
- C. If prior methods are not feasible and documented by a qualified professional stormwater retention is required to ensure no increase in peak volume or flow and to maximize infiltration, and treatment is required to minimize pollutant loading. See section 6.2.C for stormwater retention specifications.

#### **6.1.3 TREES**

- A. Development proposals shall result in no net loss of trees 6-inches dbh or greater within the special flood hazard area. This requirement does not apply to silviculture where there is no development.
  - i. Trees of or exceeding 6-inches dbh that are removed from the RBZ, Floodway, or RBZ-fringe must be replaced at the ratios in Table 1 and planted within the special flood hazard area.
  - ii. Replacement trees must be native species that would occur naturally in the Level III ecoregion of the impact area.

#### **6.2 STORMWATER MANAGEMENT**

Any development proposal that cannot mitigate as specified in 6.1.2(A)-(B) must include the following:

- A. Water quality (pollution reduction) treatment for post-construction stormwater runoff from any net increase in impervious area; and
- B. Water quantity treatment (retention or detention facilities) unless the outfall discharges in the ocean.
- C. Retention and detention facilities must:
  - i. Limit discharge to match the pre-development peak discharge rate (i.e., the discharge rate of the site based on its natural groundcover and grade before any development occurred) for the 10-year peak flow using a continuous simulation for flows between 50 percent of the 2-year event and the 10-year flow event (annual series).
  - ii. Treat stormwater to remove sediment and pollutants from impervious surfaces such that at least 80 percent of the suspended solids are removed from the stormwater prior to discharging to the receiving water body.
  - iii. Be designed to not entrap fish and drain to the source of flooding.
  - iv. Be certified by a qualified professional.
- D. Detention facilities must:
  - i. Drain to the source of flooding.
  - ii. Designed by a qualified professional.
- E. Stormwater treatment practices for multi-parcel facilities, including subdivisions, shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement will include:
  - i. Access to stormwater treatment facilities at the site by the city for the purpose of inspection and repair.
  - ii. A legally binding document specifying the parties responsible for the proper maintenance of the stormwater treatment facilities. The agreement will be recorded and bind subsequent purchasers and sellers even if they were not party to the original agreement.
  - iii. For stormwater controls that include vegetation and/or soil permeability, the operation and maintenance manual must include maintenance of these elements to maintain the functionality of the feature.
  - iv. The responsible party for the operation and maintenance of the stormwater facility shall have the operation and maintenance manual on site and available at all times. Records of the maintenance and repairs shall be retained and made available for inspection by the city for five years

### 6.3 ACTIVITIES EXEMPT FROM NO NET LOSS STANDARDS

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

- A. Normal maintenance of structures, such as re-roofing and replacing siding, provided there is no change in the footprint or expansion of the roof of the structure;
- B. Normal street, sidewalk, and road maintenance, including filling potholes, repaving, and installing signs and traffic signals, that does not alter contours, use, or alter culverts and is less than six inches above grade. Activities exempt do not include expansion of paved areas;
- C. Routine maintenance of landscaping that does not involve grading, excavation, or filling;
- D. Routine agricultural practices such as tilling, plowing, harvesting, soil amendments, and ditch cleaning that does not alter the ditch configuration provided the spoils are removed from special flood hazard area or tilled into fields as a soil amendment;
- E. Routine silviculture practices (harvesting of trees), including hazardous fuels reduction and hazard tree removal as long as root balls are left in place and forest road construction or

maintenance that does not alter contours, use, or alter culverts and is less than six inches above grade;

- F. Removal of noxious weeds and hazard trees, and replacement of non-native vegetation with native vegetation;
- G. Normal maintenance of above ground utilities and facilities, such as replacing downed power lines and utility poles provided there is no net change in footprint;
- H. Normal maintenance of a levee or other flood control facility prescribed in the operations and maintenance plan for the levee or flood control facility. Normal maintenance does not include repair from flood damage, expansion of the prism, expansion of the face or toe or addition of protection on the face or toe with rock armor.
- I. Habitat restoration activities.
- J. Pre-emptive removal of documented susceptible trees to manage the spread of invasive species.
- K. Projects that are covered under separate consultations under Section 4(d), 7, or 10 of the endangered Species Act (ESA).

#### **6.4 RIPARIAN BUFER ZONE (RBZ)**

- A. The Riparian Buffer Zone is measured from the ordinary high-water line of a fresh waterbody (lake; pond; ephemeral, intermittent, or perennial stream) or mean higher-high water of a marine shoreline or tidally influenced river reach to 170 feet horizontally on each side of the stream or inland of the MHHW. The riparian buffer zone includes the area between these outer boundaries on each side of the stream, including the stream channel.
- B. Habitat restoration activities in the RBZ are considered self-mitigating and are not subject to the no net loss standards described above.
- C. Functionally dependent uses are only subject to the no net loss standards in Section 6.1 for development in the RBZ. Ancillary features that are associated with but do not directly impact the functionally dependent use in the RBZ (including manufacturing support facilities and restrooms) are subject to the beneficial gain standard in addition to no net loss standards.
- D. Any other use of the RBZ requires a greater offset to achieve no net loss of floodplain functions, on top of the no net loss standards described above, through the beneficial gain standard.
- E. Under FEMA's beneficial gain standard, an area within the same reach of the project equivalent to 5% of the total project area within the RBZ shall be planted with native herbaceous, shrub and tree vegetation.

1182 Table 1 No Net Loss Standards

<u>Basic Mitigate Ratios</u>	Undeveloped Space (ft <sup>3</sup> )	Impervious Surface (ft <sup>2</sup> )	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 (5 <sup>th</sup> Field)	200%*	200%*	200%*	200%	200%

Notes:

1. Ratios with asterisks are indicated in the BiOP
2. Mitigation multipliers of 100% result in the required mitigation occurring at the same value described by the ratios above, while multipliers of 200% result in the required mitigation being doubled.
  - a. For example, if a development would create 1,000 square feet of new impervious surface, then 1,000 square feet of new pervious surface would need to be created. However, if only 500 square feet can be created within the same reach, the remaining 500 square feet created within a different reach would need to be double the required amount because of the 200 percent multiplier. In other words, another 1,000 square feet of pervious surface would need to be created at the location in the different reach, in addition to the 500 square feet created within the same reach.
3. RBZ impacts must be offset in the RBZ, on-site or off-site.
4. Additional standards may apply in the RBZ (See 6.4 Riparian Buffer Zone)

**2. Repeal.** All other ordinances or parts thereof, in conflict herewith are hereby repealed.

**3. Severability.** If any provision, section, sentence or phrase of this Ordinance shall for any reason be adjudged or declared by any court of competent jurisdiction to be unconstitutional or invalid, such judgment or decision shall not affect the validity of the remaining portions of this Ordinance.

**4. Effective Date.** This Ordinance shall take effect 30 days after passage by the City Council.

Approved this \_\_\_\_\_ day of \_\_\_\_\_, 2025, by the City Council for the City of Lyons, Linn County, Oregon.

APPROVED: 

COPY
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\_\_\_\_\_  
Mike Wagner - Mayor  
City of Lyons, Oregon  
  
Date: \_\_\_\_\_

ATTEST: 

COPY
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By: \_\_\_\_\_  
Micki Valentine – City Manager  
City of Lyons, Oregon  
  
Date: \_\_\_\_\_

# Oregon National Flood Insurance Program Endangered Species Act Integration

## Pre-Implementation Compliance Measures Basics

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### What are PICMs?

Pre-Implementation Compliance Measures, also known as PICMS, are short-term measures that communities must adopt to comply with Endangered Species Act (ESA) requirements under the NFIP. FEMA has developed these measures to address Reasonable and Prudent Alternative (RPA) Element 2 (Interim Measures) in the 2016 National Fisheries and Marine Services (NMFS) Biological Opinion (BiOp). These interim measures are intended to occur as the agency undertakes a National Environmental Policy Act (NEPA) review to assess the effects of FEMA's NFIP-ESA integration efforts.

Under PICM, communities may select one of three compliance measures:

1. Prohibit all new development in the floodplain;
2. Incorporate the ESA performance standards into local floodplain ordinances through a model ordinance; or
3. Require permit applications to develop a Floodplain Habitat Assessment documenting that their proposed development in the Special Flood Hazard Area (SFHA) will achieve "No Net Loss."

### Which communities in Oregon are subject to PICM?

PICM, and future Oregon NFIP-ESA integration performance standards, apply to communities that are:

1. Located in the Oregon implementation area, as specified by the 2016 NMFS BiOp;
2. Participating in the NFIP; and
3. Have a mapped SFHA

**PICM standards and requirements only apply to areas located within the SFHA.**



### What is "no net loss"?

**Any development action resulting in negative impacts to one or more key floodplain functions that are then mitigated or avoided to offset said impacts.**

**In other words: when developing in the SFHA, all development actions must be adequately avoided or mitigated to ensure that floodplain functions can operate at the same capacity as before the development action occurred.**

**No Net Loss focuses on the floodplain functions of:**

- Floodplain Storage
- Water Quality
- Vegetation

## The NFIP is a national program, why is only Oregon subject to PICM?

NFIP-ESA integration is occurring in areas where FEMA has consulted with the US Fish and Wildlife Service (USFWS) and NMFS. FEMA consulted with NMFS to address changes needed to the NFIP program within Oregon's Columbia River drainage basin and Coast to better protect ESA-listed species of salmonoids and Southern Resident Killer Whales within the area.

Other areas where consultations have occurred are in the Puget Sound of Washington, California, New Mexico, and Florida. Other ESA-listed species may have their needs addressed in the future in other parts of the country.

## What authority allows FEMA to apply additional performance standards for No Net Loss?

Under 44 CFR 60.3(a)(2) a community must ensure that all other Federal, State and Local permits have been obtained when they are permitting a project in the SFHA. As such a local community must ensure that a "take permit" under section 10 of the ESA is not required. The NMFS Biological Opinion on the implementation of the NFIP in Oregon has determined that developing a floodplain may affect the three key floodplain functions and potentially cause take.

Therefore, a community must ensure that any project that has an adverse effect on those three functions mitigates for the effect to a "no net loss" standard. FEMA has been authorized take under the RPAs in the NMFS BiOp on the implementation of the NFIP in Oregon. A community participating in the NFIP can use the NFIP take authorization for coverage as long as they are abiding by the NFIP-ESA performance standards.

A community also has the option of seeking their own take coverage for a project through another federal nexus. They may also choose to develop a Habitat Conservation Plan for their floodplain development program under section 10 of the ESA and obtain their own take permit.

## How long is PICM supposed to last?

PICM is intended to address ESA compliance as interim measures while the agency undertakes a NEPA review of FEMA's proposed NFIP-ESA integration efforts. PICM will be required for communities through the remainder of the Environmental Impact Statement (EIS) process. Once the Record of Decision (ROD) for the EIS is issued, and thus marking the end of the EIS process, PICM will no longer be required. The ROD is expected to be issued in 2026.

## When will PICM go into effect?

Communities must adopt and implement a PICM by **December 1st, 2024**. If communities do not select a PICM by this deadline, they will be defaulted to the Permit-by-Permit approach (PICM #3). Communities adopting the model ordinance (PICM #2), must ensure the ordinance is adopted by their community by July 31st, 2025. As communities work to adopt the ordinance, they will still be required to implement another PICM option between December 1st, 2024 and July 31st, 2025.

### Learn more and participate

Visit [www.fema.gov/about/organization/region-10/oregon/nfip-esa-integration](https://www.fema.gov/about/organization/region-10/oregon/nfip-esa-integration) to access the model ordinance, habitat assessment guide, and read the latest information about NFIP-ESA Integration in Oregon.

You can also contact us at [FEMA-R10-MIT-PICM@fema.dhs.gov](mailto:FEMA-R10-MIT-PICM@fema.dhs.gov)

# Oregon National Flood Insurance Program Endangered Species Act Integration Guidance for Communities

FEMA is assisting communities with coming changes to the National Flood Insurance Program (NFIP) in Oregon. Changes are needed to protect the habitat of several species of fish and the Southern Resident killer whales to comply with the Endangered Species Act (ESA).

FEMA outlined these changes in the draft NFIP-ESA Implementation Plan, which FEMA will fully implement in 2027. Until then, communities need to begin implementing interim measures, known as Pre-Implementation Compliance Measures (PICMs), to protect habitat and achieve no net loss. FEMA has developed these measures to address the 2016 National Marine Fisheries Service (NMFS) Biological Opinion (BiOp).

These measures are intended to occur as the agency undertakes a National Environmental Policy Act (NEPA) review to assess the effects of FEMA's proposed NFIP-ESA integration efforts.



The 2021 Plan outlines the actions FEMA plans to take to ensure Oregon NFIP implementation is compliant with the ESA and the 2016 BiOp issued by NMFS.

**What is “no net loss”?**  
Any development actions that result in a loss to one or more key floodplain functions must be mitigated or avoided.

## The PICMs include the following three options:

**Prohibit all new development**

**Model Ordinance**

**Permit-by-Permit**





## Prohibit All New Development

### What is involved?

With this option, communities could protect essential fish habitat by prohibiting all new development in the floodplain. A prohibition on floodplain development may take many forms, such as a Moratorium and Director's decisions.



### How this complies with NFIP-ESA Integration in Oregon

Avoids adverse impacts to floodplain functions and essential fish habitat associated with floodplain development.

### Key considerations

- Historically, communities applying this option have small areas of floodplain that have little development pressure, or the Special Flood Hazard Area is already in community ownership.
- Communities have the option of going through the process to prohibit development or move forward with approval to prohibit development from a planning director.
- FEMA advises communities to consult with their attorneys on how to legally enact this option.
- Exceptions to prohibition of all new development may include habitat restoration projects and activities identified as exempt from no net loss, but will have to be specified when implementing this PICM.

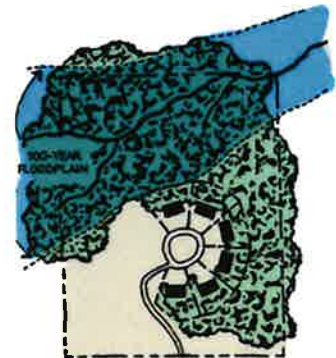
## Model Ordinance

### What is involved?

Communities could incorporate the ESA requirements into local floodplain ordinances.

### How this complies with NFIP-ESA Integration in Oregon

Section 6.0 of the Model Ordinance provides ESA compliance through no net loss standards.



### Key considerations

- FEMA used the current Oregon Model Ordinance as the basis for creating the PICM model ordinance. As a result, the language remains consistent with current guidance in other aspects of floodplain management.
- The [Model Floodplain Management Ordinance](#) provides guidance on federal and state standards; however, communities will need to review their existing ordinances and ensure that all the required components are included.
- Compliance with the ESA is built into the code of the Model Ordinance. Therefore, communities do not need to go through a separate or additional process to ensure ESA compliance.

- The Model Ordinance provides new performance standards to address protection of ESA-listed fish and essential fish habitat, including mitigation ratios that will achieve no net loss.
- The Model Ordinance may be the most practical PICM option for communities that receive a large number of permit applications in the floodplain.

## Permit-by-Permit

### What is involved?

Requires permit applicants to develop a habitat assessment documenting that their proposed development in the Special Flood Hazard Area will achieve no net loss. Communities would review each floodplain development permit for potential impacts to ESA-listed fish and essential fish habitat.



### How this complies with NFIP-ESA Integration in Oregon

Individual habitat assessments identify the existing floodplain functions at the development site in question and identify the mitigation measures taken to ensure ESA compliance.

### Key considerations

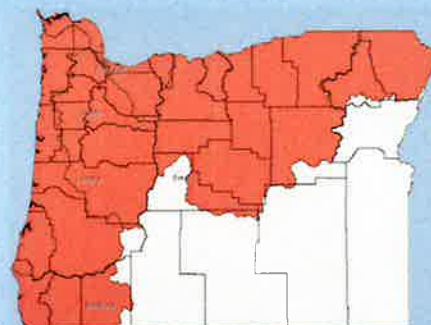
- Regional [Habitat Assessment Guidance](#) provides a methodology for conducting and reviewing the assessment.
- This guidance also includes:
  - Instructions for how to prepare a mitigation plan that will meet the mitigation ratios.
  - Suggestions on who should conduct these analyses.
  - Ideas for how communities can obtain reviews of these assessments if they do not have internal capacity.
- The Permit-by-Permit approach may be the most practical for communities that have some development in the floodplain or larger communities where floodplain regulations are dispersed across their code.

### Affected Communities

The PICMs and the Oregon NFIP-ESA integration performance standards apply to communities that are:

- Located in the Oregon implementation area, as specified by the 2016 NMFS BiOp;
- Participating in the NFIP; and
- Have a mapped SFHA

For more information in determining if your community is in the plan area, please visit [National Flood Insurance Program – Endangered Species Act Integration in Oregon | FEMA.gov](#).



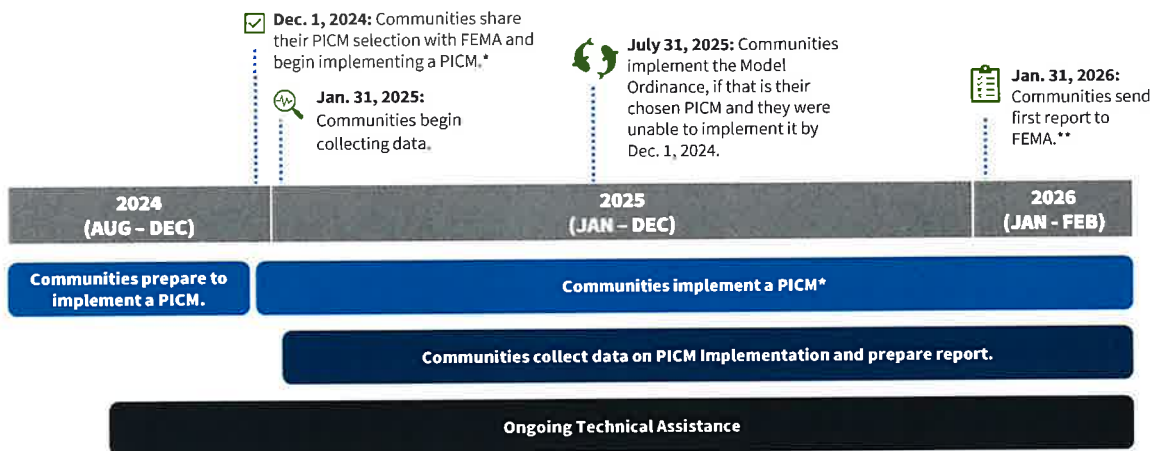
*A total of 227 communities across 31 counties are affected in Oregon.*

## Next Steps

By Dec. 1, 2024 communities will share their PICM selection with FEMA and begin implementing a PICM. Key reporting and enforcement dates are highlighted in the timeline below.

Communities are required to implement the PICMs through the remainder of the Environmental Impact Statement (EIS) process. The Final Implementation Plan is anticipated by 2026 following the Record of Decision in the EIS process. Once the Record of Decision (ROD) for the EIS is issued, and thus marking the end of the EIS process, PICM will no longer be required. The ROD is expected to be issued in 2026.

### PRE-IMPLEMENTATION COMPLIANCE MEASURES (PICM) IMPLEMENTATION TIMELINE



\*If a community chooses the Model Ordinance approach and is unable to put it in place by Dec. 1, the community must implement the Permit-by-Permit approach or prohibit all new development in the Special Floodplain Hazard Area until they are able to implement the Model Ordinance approach, which must be implemented by July 31, 2025.  
 \*\*FEMA will provide a reporting tool. If report is not provided, it will result in a community visit.



## FEMA Resources and Assistance



FEMA is offering several resources to assist communities in preparing for Oregon NFIP-ESA integration. Visit this website to learn more and review information about NFIP-ESA Integration: <https://www.fema.gov/about/organization/region-10/oregon/nfip-esa-integration>

You can also contact us at [FEMA-R10-MIT-PICM@fema.dhs.gov](mailto:FEMA-R10-MIT-PICM@fema.dhs.gov)

# Floodplain Functions Overview

FEMA is assisting communities with coming changes to the National Flood Insurance Program (NFIP) in Oregon. Changes are needed to protect the habitat of several species of fish and the Southern Resident killer whales to comply with the Endangered Species Act (ESA).

FEMA outlined these changes in the draft 2021 NFIP-ESA Implementation Plan, which FEMA will fully implement in 2027. Until then, communities need to begin implementing interim measures, known as Pre-Implementation Compliance Measures (PICMs), to protect habitat and achieve no net loss.

No net loss is a standard where any development action resulting in negative impacts to one or more key floodplain functions are then mitigated or avoided to offset said impacts. Communities must mitigate for each impact to the floodplain function. Floodplain functions include:

- Floodplain storage
- Water quality
- Vegetation

To make mitigating for these three functions measurable, FEMA has identified proxies for each of the functions that translate to potential development actions occurring in the floodplain. Mitigation ratios will be tied to these proxies, which include:

- Undeveloped Space (Floodplain Storage)
- Pervious Surface (Water Quality)
- Trees (Vegetation)

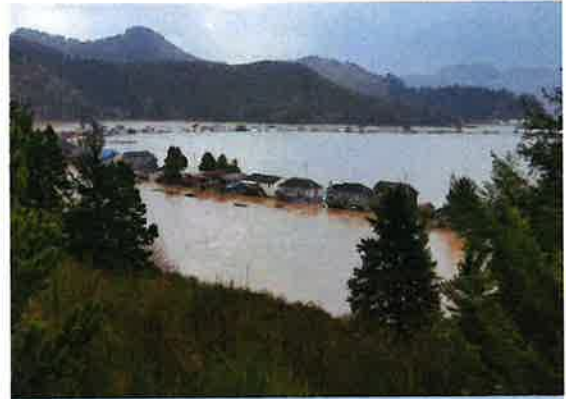
## Floodplain Storage

### About

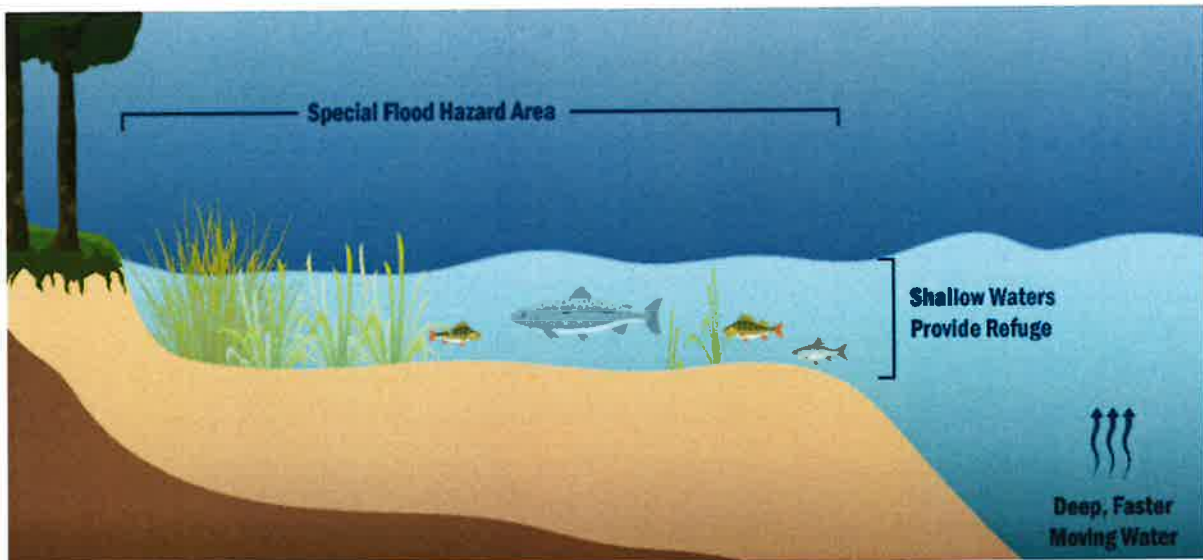
**Floodplain storage** is the three-dimensional space in which floodwaters can flow across and where fish can take refuge during the one-percent annual chance flood (i.e., 100-year flood, special flood hazard area). The proxy for this function, undeveloped space, will be measured from the existing ground to the Base Flood Elevation (BFE) that is undeveloped.

### Why does it matter?

During flood events, fish find refuge in the Special Flood Hazard Area (SFHA) to move away from deeper, fast-moving water.



**The National Flood Insurance Program serves to protect lives and property, while reducing costs to taxpayers due to flooding loss.**



### Potential development impacts

- Development such as buildings, storage tanks, roads or other structures reduces where floodwaters can spread and where fish have access to shelter and food.
- When fish cannot find slower moving water or areas where they can take refuge during a flood, they may be killed or swept downstream to areas that are not suitable for their stage of life.
- Development can alter streamflows and increase water velocity during flood events, endangering fish.

### What is base flood elevation?

The base flood elevation, or BFE, is the expected height floodwaters could reach during the base flood. A “base flood” is a flood which has a one percent chance of being equaled or exceeded in any given year. Learn more about BFEs in your area by reviewing Flood Insurance Rate Maps, flood profiles in the Flood Insurance Study, or working with your local floodplain administrator.

### How to comply with the NFIP-ESA Integration in Oregon

The following actions help to achieve no net loss standards:

- Avoid impacts by not reducing the amount of floodplain storage capacity between the ground and BFE in the SFHA.
- Minimize impacts by reducing the amount of new fill or structures at or below the BFE in the SFHA.
- Create new floodplain storage capacity to offset the loss caused by any development, such as removing fill and structures that occupy space.

## Water Quality

### About

Water quality is a measure of the condition of water and how suitable it is for a specific use or purpose.

### Why does it matter?

- Serves an important role in the health of ESA-listed fish and essential fish habitat.
- Decreased water quality can harm fish and organisms living in the water that fish feed on.

## Potential development impacts

- Development can add new surfaces like concrete or asphalt, known as impervious surfaces, that prevent water from absorbing into the ground where soils and plants filter pollutants.
- Impervious surfaces can collect debris and pollutants. As a result, water flowing over these surfaces picks up debris and pollutants and carries them into surface waters or stormwater collection surfaces.
- Additionally, impervious surfaces can:
  - o Absorb heat, which can result in warmer water temperatures and negatively impact fish.
  - o Increase the volume or speed of water downstream if water is not absorbed into the ground.
  - o Result in erosion, increased flood damage, or reduced groundwater recharge due to stormwater runoff.

## How to comply with the NFIP-ESA Integration in Oregon

The following actions help to achieve no net loss standards:

- Avoid impacts by minimizing the amount of impervious surface in the SFHA, such as expanding structures vertically instead of horizontally.
- Minimize impacts by reducing the amount of new impervious surface, like including planted areas to filter stormwater within parking lots.
- Remove an area of existing impervious surface or use low impact development or green infrastructure practices to filter stormwater to offset impacts. If those methods are not possible, providing stormwater retention or detention and treatment to minimize pollutants and avoid increases to peak volume or flow.



## Vegetation

### About

Vegetation, as it relates to the SFHA, includes both native and non-native plants growing in the floodplain and on the edge of a waterbody, such as along streams or riverbanks.

### Why does it matter?

- Vegetation like grasses, shrubs, trees, and flowering plants serve as habitat for fish and the invertebrates fish eat, and reduces the risk of erosion by stabilizing soils.
- Trees, particularly those that are six inches in diameter at breast height (dbh) or larger, provide several important habitat benefits:
  - o Offering shade, which helps regulate water temperature.
  - o Providing woody debris, which contributes to habitat-forming processes for ESA-listed fish.
  - o Reducing the risk of erosion by stabilizing soils with their roots.

### Potential development impacts

Development can lead to removing trees to accommodate construction equipment or clear the ground for fill, infrastructure, and structures.

### How to comply with the NFIP-ESA Integration in Oregon

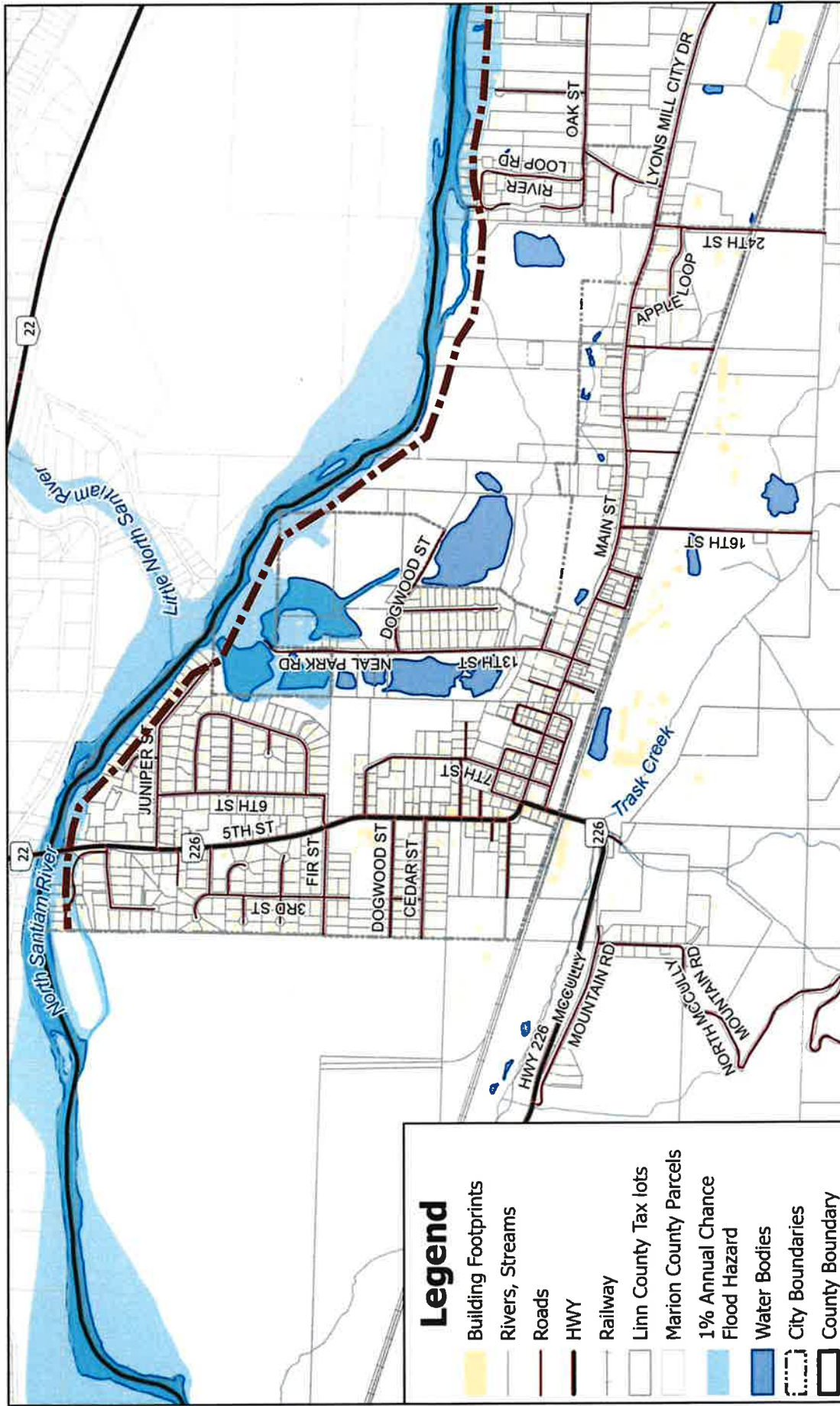
The following actions help to achieve no net loss standards:

- Avoid removing trees that are six inches dbh or larger.
- Reduce the number of trees six inches dbh or larger that are removed, such as locating a house to remove the fewest trees possible.
- Replace any trees six inches dbh or larger that are removed per mitigation ratio tables identified in the Model Ordinance and Habitat Assessment Guide.

### FEMA Resources and Assistance

FEMA is offering several resources to assist communities in preparing for Oregon NFIP-ESA integration. Visit this website to learn more and review information about NFIP-ESA Integration: [www.fema.gov/about/organization/region-10/oregon/nfip-esa-integration](http://www.fema.gov/about/organization/region-10/oregon/nfip-esa-integration)

You can also contact us at [FEMA-R10-MIT-PICM@fema.dhs.gov](mailto:FEMA-R10-MIT-PICM@fema.dhs.gov)



- Legend**
- Building Footprints
  - Rivers, Streams
  - Roads
  - HWY
  - Railway
  - Linn County Tax lots
  - Marion County Parcels
  - 1% Annual Chance Flood Hazard
  - Water Bodies
  - City Boundaries
  - County Boundary

# Flood Hazard Areas: City of Lyons

This product is for informational purposes only and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Data Sources: Linn County, Marion County, FEMA

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

# 2025