



MEMORANDUM

TO: Deschutes County Planning Commission
FROM: Nicole Mardell, Associate Planner
DATE: July 9, 2019
SUBJECT: Model Flood Amendments (247-19-000530-TA / 533-PA) Work Session

I. PROPOSAL

Deschutes County, through File Nos. 247-19-000530-TA / 533-PA, is amending the Deschutes County Zoning Ordinance and Comprehensive Plan to incorporate text from the Department of Land Conservation and Development (DLCD)'s 2014 *Oregon Model Flood Damage Prevention Ordinance* referred to hereafter as "DLCD's Model Flood Ordinance". The purpose of incorporating these changes is to provide greater consistency between local land use approvals and state requirements.

II. BACKGROUND

On September 19, 2018, the Board adopted Ordinance 2018-005, reflecting large scale changes to the Flood Plain Zone, including a proposal to change the Base Zone to a Combining Zone, and proposed text changes to incorporate DLCD's 2014 Oregon Model Flood Ordinance language, and to clarify procedures on cluster developments and land divisions on property zoned Flood Plain. The ordinance was then appealed to the Land Use Board of Appeals (LUBA), on the basis that the findings were incomplete and did not adequately address State Land Use Planning Goal 5, among other less substantial issues. Prior to the LUBA hearing and in consultation with County legal counsel, the Board found the need for substantial record additions. On May 8, 2019, the Board opted to repeal Ordinance No. 2018-005 (Ordinance 2019-010), and initiate a new Post Acknowledgement Plan Amendment (PAPA).

Following this process, the County determined the proposed amendments should be broken up into three separate packages in order to efficiently and effectively analyze the potential impacts to state and local goals and regulations. These amendments are solely focused on



amendments to the Deschutes County Code (DCC) and Comprehensive Plan that incorporate language from DLCD's Model Flood Ordinance. The Model Flood Ordinance is a statewide standard and includes requirements for critical facilities, accessory structures, and storage in the Flood Plain Zone, among other items listed in the attached Findings. Staff is proposing these amendments to ensure consistency among local land use approvals and state requirements.

III. GOAL 5 ANALYSIS

The amendments are incorporating minor changes or clarifications to uses that are currently allowed in the zone, or adding additional requirements to ensure development in the Flood Plain Zone is consistent with National Flood Insurance Program (NFIP) and DLCD requirements. As no new uses are being added, and the proposed amendments address natural hazard risks, no Goal 5 analysis is required.

IV. NEXT STEPS

The Planning Commission is scheduled to hold a work session on July 25, 2019 in preparation for a public hearing. The work session will occur in the Terrebonne Community School located at 1199 B Avenue, Terrebonne, OR. The public hearing to take testimony on the proposed amendments will be held on Thursday, August 8, 2019 at 5:30 pm, in the Barnes and Sawyer Room, 1300 NW Wall Street, Bend, OR.

V. ATTACHMENTS

1. Draft Findings
2. Zoning Text Amendments
3. Comprehensive Plan Amendments
4. 2014 DLCD Model Flood Damage Prevention Ordinance

FINDINGS – MODEL FLOOD ORDINANCE

I. SUMMARY

Deschutes County, through File No. 247-19-000530-TA / 533-PA is amending the Deschutes County Zoning Ordinance and Comprehensive Plan to incorporate text from the Department of Land Conservation and Development (DLCD)'s 2014 *Oregon Model Flood Damage Prevention Ordinance*. The purpose of incorporating these changes is to provide greater consistency between local land use approvals and state requirements.

II. 2017-2018 FLOOD PLAIN AMENDMENT PROCESS

Between March 2017 and September 2018, Deschutes County planning staff initiated a Post Acknowledgement Plan Amendment (PAPA) to DLCD related to flood plain amendments to the County Comprehensive Plan and Zoning Ordinance. Staff conducted public outreach through four open houses, five Planning Commission public hearings, two citizen involvement meetings, and one Board of County Commissioners (Board) hearing.

On September 19, 2018, the Board adopted Ordinance 2018-005, reflecting large scale changes to the Flood Plain Zone, including a proposal to change the Base Zone to a Combining Zone, and proposed text changes to clarify procedures on cluster developments and land divisions on property zoned Flood Plain.

The ordinance was then appealed to the Land Use Board of Appeals, on the basis that the findings were incomplete and did not adequately address State Land Use Planning Goal 5, among other less substantial issues. Prior to the LUBA hearing and in consultation with County legal counsel, the Board found the need for substantial record additions. On May 8, 2019, the Board opted to repeal Ordinance No. 2018-005 (Ordinance 2019-010), and initiate a new PAPA. This County initiated application is specific to the Model Flood Ordinance edits to the Deschutes County Zoning Code and Comprehensive Plan.

III. NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

The National Flood Insurance Program (NFIP) is based on a mutual agreement between the federal government and Deschutes County. Federally backed flood insurance is made available in Deschutes County, provided that the County agrees to regulate development in mapped Flood Plains. So long as Deschutes County serves its role in ensuring future Flood Plain development meets certain criteria, FEMA provides subsidized flood insurance for properties in rural Deschutes County.

FEMA has prepared a Flood Plain map and flood hazard data for Deschutes County. The NFIP underwrites flood insurance coverage only in those communities that adopt and enforce

Flood Plain regulations that meet or exceed NFIP criteria. The County's Flood Plain regulations are designed to meet FEMA regulations and to ensure that new buildings will be protected from the flood levels shown on the FEMA-provided Flood Insurance Rate Map (FIRM) and that development will not make the flood hazard worse.

Beginning in 1988 Deschutes County adopted the FIRM as the Flood Plain Zone and also adopted Comprehensive Plan policies and implementing zoning code to comply with FEMA requirements. These maps, policies, and zoning code have been periodically updated to match the latest information and requirements provided by FEMA. It is important to note that the FIRM maps and FEMA regulations explicitly recognize that the mapped Flood Plain is subject to refinement. The map does not capture property-specific topographic details and FEMA regulations allow the County to waive FEMA requirements, such as special construction standards, where development is located above the Base Flood Elevation.

IV. 2019 PROPOSED AMENDMENTS

The proposed amendment are included as Exhibits A-C. Text changes in the exhibits are identified by underline for new text and ~~strikethrough~~ for deleted text. Below are explanations of the proposed changes.

A. Title 18, Zoning Text Amendments

Chapter 18.04. TITLE, PURPOSE AND DEFINITIONS

The proposed amendments incorporate terminology related to current best practices included in the 2014 *Oregon Model Flood Damage Prevention Ordinance (Exhibit A)*.

Chapter 18.96. FLOOD PLAIN ZONE

The proposed amendments in Exhibit B include:

- Section 18.96.030. Uses Permitted Outright
 - 18.96.030(J): Provides exception to flood plain zone standards if the location of development is located within the boundary of the Flood Plain Zone but determined to be located outside of the Area of Special Flood Hazard (aka 100-year flood plain).
- Section 18.96.080. Criteria to Evaluate Conditional Uses
 - 18.96.080(B): Clarifies other state and federal agencies that are involved in the alteration and relocation of a water course shall be notified.

- 18.96.080(D)(3): Provides reference that on-site waste disposal systems shall be located consistent with the Oregon Department of Environmental Quality as specified in Oregon Administrative Rule (OAR) 340-071.
- 18.96.080(E)(4): Provides exception to the submission of flood elevation data if the proposal expressly precludes residential and non-residential construction in the flood plain area.
- 18.96.080(G)(2): Requires a comprehensive Maintenance Plan for nonresidential construction and an Emergency Action Plan (EAP) for the installation and sealing of the structure.
- 18.96.080(G)(3): Provides relief from elevation or floodproofing requirements for small accessory structures that are less than 200 square feet in area, one story, not temperature controlled, not used for human habitation, and several other use and design standards. This recognizes that the risk to human safety and property loss is relatively low for these structures and the additional design and cost associated with elevation and floodproofing is not warranted under these specific conditions and criteria.
- 18.96.080(G)(4) Reformats the standards applicable to manufactured dwellings and the section is renumbered due to addition of new section (G)(3).
- 18.96.080(G)(5): Renumbered due to addition of new section (G)(3).
- 18.96.080(G)(6): Renumbered due to addition of new section (G)(3).
- 18.96.080(G)(7): Requires construction of new critical facilities shall be, to the extent possible, located outside the limits of the Area of Special Flood Hazard. "Critical Facility," as proposed, means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations that produce, use or store hazardous materials or hazardous waste. The purpose of this amendment is to prevent loss of or damage to these critical facilities due to flooding and increase likelihood the facilities are available during and after a flood event.
- 18.96.080(G)(8): Relocates standards applicable to incidental storage of materials or equipment from section 18.96.040 and regulates the use as "flood plain development," a conditional use.

B. Comprehensive Plan Amendments

Text Amendment to Comprehensive Plan, Chapter 2, Section 2.5 - Water Resources.

The proposed amendments (Exhibit C) includes the addition of the flood plain zone purpose statement. The statement identifies the purpose is to promote the public health, safety, and general welfare, and minimize losses due to flood conditions in specific areas.

Chapter 2, Section 2.5 - Water Resources, previously did not include a purpose statement for the Flood Plain zone. This amendment includes adoption of the "Statement of Purpose" from the 2014 *Oregon Model Flood Damage Prevention Ordinance*. The adoption of the model code provisions, including this purpose statement, was recommended by DLCDC. The Flood Plain zone is intended to be responsive to National Flood Insurance Program (NFIP) requirements as well as state guidance and recommendations on the implementation of these requirements.

V. REVIEW CRITERIA

Deschutes County lacks specific criteria in DCC Titles 18, 22, or 23 for reviewing a legislative plan and text amendment. Nonetheless, because this is a Deschutes County initiated amendment, the County bears the responsibility for justifying that the amendments are consistent with the Statewide Planning Goals and its Comprehensive Plan.

VI. APPLICABLE CRITERIA

A. CHAPTER 22.12, LEGISLATIVE PROCEDURES

1. Section 22.12.010.

Hearing Required

FINDING: This criterion will be met because a public hearing will be held before the Deschutes County Planning Commission and Board of County Commissioners.

2. Section 22.12.020, Notice

Notice

A. Published Notice

1. ***Notice of a legislative change shall be published in a newspaper of general circulation in the county at least 10 days prior to each public hearing.***
2. ***The notice shall state the time and place of the hearing and contain a statement describing the general subject matter of the ordinance under consideration.***

FINDING: This criterion will be met by notice being published in the Bend Bulletin newspaper.

- B. *Posted Notice. Notice shall be posted at the discretion of the Planning Director and where necessary to comply with ORS 203.045.***

FINDING: This criterion is met with notices posted on the bulletin board in the lobby of the Deschutes County Community Development Department, 117 NW Lafayette, Bend.

- C. *Individual notice. Individual notice to property owners, as defined in DCC 22.08.010(A), shall be provided at the discretion of the Planning Director, except as required by ORS 215.503.***

FINDING: As this is a legislative process and is not property specific, individual notice is not required. This criterion does not apply.

- D. *Media notice. Copies of the notice of hearing shall be transmitted to other newspapers published in Deschutes County.***

FINDING: Notice will be provided to the County public information official for wider media distribution. This criterion has been met.

3. Section 22.12.030 Initiation of Legislative Changes.

- A legislative change may be initiated by application of individuals upon payment of required fees as well as by the Board of County Commissioners.***

FINDING: The application was initiated by the Deschutes County Planning Division at the direction of the Board of County Commissioners, and has received a fee waiver. This criterion has been met.

4. Section 22.12.040. Hearings Body

- A. *The following shall serve as hearings or review body for legislative changes in this order:***
 - 1. *The Planning Commission.***
 - 2. *The Board of County Commissioners.***
- B. *Any legislative change initiated by the Board of County Commissioners shall be reviewed by the Planning Commission prior to action being taken by the Board of Commissioners.***

FINDING: The Deschutes County Planning Commission will hold the initial public hearing and will provide a recommendation to the Board of County Commissioners. The Board will then hold the second set of public hearings. These criteria will be met.

5. Section 22.12.050 Final Decision

All legislative changes shall be adopted by ordinance

FINDING: The legislative changes included in file nos. 247-19-000530-TA / 533-PA will be implemented by ordinance upon approval and adoption by the Board. This criterion will be met.

B. Statewide Planning Goals

The parameters for evaluating these specific amendments are based on an adequate factual base and supportive evidence demonstrating consistency with Statewide Planning Goals. The following findings demonstrate the proposed amendments comply with applicable statewide planning goals and state law.

- **Goal 1, Citizen Involvement**

The adoption process for the proposed amendments will include public hearings before the Planning Commission and the Board, consistent with ORS 215.060 and DCC 22.12.010. This goal is met.

- **Goal 2, Land Use Planning**

ORS 197.610 allows local governments to initiate post acknowledgments plan amendments (PAPA). An Oregon Department of Land Conservation and Development 35-day notice will be initiated on July 3, 2019. This findings document provides the adequate factual basis and documented analysis for the plan amendment and zoning text amendments. This goal is met.

- **Goal 3, Agricultural Lands**

The proposed amendments add and clarify hazard mitigation measures for development in the Flood Plain. No changes to the EFU zone are proposed. This goal does not apply.

- **Goal 4, Forest Lands**

The proposed amendments add and clarify hazard mitigation measures for development in the Flood Plain. No changes to the F-1 and F-2 zones are proposed. This goal does not apply.

- **Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces**

Local governments are required to apply Goal 5 to a PAPA when the amendment allows a new use and the new use “could be” a conflicting use with a particular Goal 5 resource site on an acknowledged resource list.¹ OAR 660-023-0240 “Relationship of Goal 5 to Other Goals” establishes that the requirements of Goal 5 do not apply to the adoption of measures required by Goals 6 and 7.

As the amendments are incorporating minor changes or clarifications to uses that are currently allowed in the zone and adding additional requirements to ensure development in the Flood Plain Zone is consistent with NFIP and DLCDC requirements, staff finds no Goal 5 resource will be negatively affected. Therefore, this goal is met.

- **Goal 6, Air, Water and Land Resources Quality**

The Deschutes County Code contains numerous regulations pertaining to development in the Flood Plain Zone that are designed to protect air, water and land resources quality. These regulations will be altered using language from DLCDC’s 2014 *Oregon Model Flood Damage Prevention Ordinance* to establish greater consistency between state and local regulations in the Flood Plain Zone. This goal is met.

- **Goal 7, Natural Hazards**

As previously stated, the purpose of the proposed amendments are to update the Flood Plain Zone regulations to establish greater consistency between state and local regulations in the Flood Plain Zone. These amendments are specifically related to mitigation of natural hazards associated with flooding. This goal is met.

- **Goal 8, Recreational Needs**

The proposed amendments are not addressing a recreational use or need. Therefore, this goal is not applicable.

- **Goal 9, Economic Development**

The proposed amendments incorporate requirements from DLCDC’s 2014 *Oregon Model Flood Damage Prevention Ordinance* related to critical facilities, storage of equipment, accessory structures and manufactured dwellings. These requirements provide greater protection from flood damage and associated costs for property owners. The proposed amendments do not limit any existing commercial or industrial activities. This goal is met.

- **Goal 10, Housing**

Unlike municipalities, unincorporated areas in Deschutes County are not obligated to fulfill certain housing requirements as detailed in Goal 10. Therefore, this goal does not apply.

¹ OAR 660-023-0250(3)(b)

- **Goal 11, Public Facilities**

The proposed amendments provide requirements to uses that currently exist within the Flood Plain Zone chapter of the Deschutes County Code. The proposed amendments do not impact any existing public facilities nor do they substantiate a need for the development of new public facilities. Therefore, this goal does not apply.

- **Goal 12, Transportation**

The proposed text amendments pertain to development standards for currently allowed uses in the Flood Plain Zone for greater consistency between state and local requirements and do not approve any specific development proposal or a new land use. Development projects will be reviewed individually for compliance with the Transportation Planning Rule. Therefore, this goal does not apply.

- **Goal 13, Energy Conservation**

The proposed text amendments alter countywide development standards for types of projects in the Flood Plain Zone, that are currently allowed uses. No specific development proposals are proposed. Any future site-specific application will be required to demonstrate consistency with Goal 13. Therefore, this goal does not apply.

- **Goal 14, Urbanization**

The purpose of Goal 14 is to direct urban uses to areas inside urban growth boundaries. As proposed, these amendments do not seek to allow urban uses on rural land, nor do they seek to expand an existing urban growth boundary, this goal does not apply.

- **Goals 15 through 19**

Goals 15 through 19 are not applicable to any amendments to the County's Comprehensive Plan as the County does not contain any of the relevant land types included in the goals.

B. Deschutes County Comprehensive Plan

Chapter 2, Resource Management

Section 2.5, Water Resources

2.5.10 Support educational efforts and identify areas where the County could provide information on the Deschutes River ecosystem, including rivers, riparian areas, floodplains and wetlands.

a. Explore methods of ensuring property owners know and understand regulations for rivers, riparian areas, floodplains and wetlands.

FINDING: In order to ensure all interested persons are aware of the proposed changes, staff will present an overview of the proposed amendments and administration of the Flood Plain Zone during Planning Commission and Board work sessions and public hearings.

2.5.16 Use a combination of incentives and/or regulations to mitigate development impacts on river and riparian ecosystems and wetlands.

FINDING: The Flood Plain Zone limits development and establishes standards to mitigate impacts. DCC 18.96.060(B) requires that no new construction of a dwelling, accessory structure or farm use structure shall be located in the flood plain unless it can be demonstrated that no alternative exists that would allow the structure to be placed outside of the flood plain. If development is located within the Flood Plain Zone, there are specific standards that mitigate development impacts on riparian ecosystems and wetlands. The proposed text amendments add additional regulations to ensure flood proofing, equipment storage, critical facilities, and manufactured homes are compliant with state regulations. In clarifying this consistent message, staff can administratively ensure development impacts are mitigated through the land use review process.

Section 3.5, Natural Hazards

3.5.10 Regulate development in designated floodplains identified on the Deschutes County Zoning Map based on Federal Emergency Management Act regulations.

a. Participate in and implement the Community Rating System as part of the National Flood Insurance Program.

FINDING: The Flood Plain Zone will continue regulating and restricting development within its boundary. The amendment incorporates provisions of the 2014 *Oregon Model Flood Damage Prevention Ordinance*. Administration of the Flood Plain Zone demonstrates the County's commitment to participation and implementation of the County Rating System as part of NFIP.

3.5.11 Review and revise County Code as needed to:

f. Make the Floodplain Zone a combining zone and explore ways to minimize and mitigate floodplain impacts.

FINDING: Although the proposed amendments do not alter the Flood Plain Zone from a base zone to a combining zone, the proposed amendments provide greater consistency with state regulations through incorporation of text through DLCD's 2014 *Oregon Model Flood Damage Prevention Ordinance*, which include additional requirements pertaining to critical facilities, storage of equipment, accessory structures, and manufactured dwellings. The existing Flood Plain protections will remain in place to ensure flood plain impacts are properly mitigated.

ATTACHMENT 2: ZONING TEXT AMENDMENTS

Chapter 18.04. TITLE, PURPOSE AND DEFINITIONS

18.04.030. Definitions.

...

“Base flood” means the flood having a one percent chance of being equaled or exceeded in any given year. Also referred to as the “100-year flood.” Designation on flood plain maps always includes the letters A or V.

“Base flood elevation” means the computed elevation to which floodwater is anticipated to rise during the base flood. Base Flood Elevations (BFEs) are shown on Flood Insurance Rate Maps (FIRMs) and on the flood profiles.

...

“Below-grade crawl space” means an enclosed area below the base flood elevation in which the interior grade is not more than two feet below the lowest adjacent exterior grade and the height, measured from the interior grade of the crawlspace to the top of the crawlspace foundation, does not exceed 4 feet at any point.

...

“Critical facility” means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use or store hazardous materials or hazardous waste.

...

"Flood Insurance Rate Map (FIRM)" is the official map on which the United States Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community. The FIRM is adopted by reference in Ordinance No. ~~88-031~~2007-019.

"Flood Insurance Study" is the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood condition of partial or complete inundation of normally dry land areas. The Study is adopted by reference in Ordinance No. ~~88-031~~2007-019.

~~"Flood plain" means the area adjoining a stream that is subject to inundation by the base flood discharge that is outside the floodway.~~

...

“Substantial damage” means 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" means any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds 50 percent of the true cash value of the structure either:

- A. Before the improvement or repair is started; or
- B. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. ~~The term does not, however, include either;~~

The term does not, however, include either:

A. Any project for improvement of a structure to comply with existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions; or

B. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

...

(Ord. 2019-00x §x, 2019; Ord. 2017-015§1, 2017; Ord. 2016-026§1, 2016; Ord. 2016-015§1, 2016; Ord. 2015-004 §1, 2015; Ord. 2014-009 §1, 2014; Ord. 2013-008 §1, 2013; Ord. 2012-007 §1, 2012; Ord. 2012-004 §1, 2012; Ord. 2011-009 §1, 2011; Ord. 2010-022 §1, 2010; Ord. 2010-018 3, 2010, Ord. 2008-007 §1, 2008; Ord. 2008-015 §1, 2008; Ord. 2007-005 §1, 2007; Ord. 2007- 020 §1, 2007; Ord. 2007-019 §1, 2007; Ord. 2006-008 §1, 2006; Ord. 2005-041 §1, 2005; Ord. Chapter 18.04 35 (04/2015) 2004-024 §1, 2004; Ord. 2004-001 §1, 2004; Ord. 2003-028 §1, 2003; Ord. 2001-048 §1, 2001; Ord. 2001-044 §2, 2001; Ord. 2001-037 §1, 2001; Ord. 2001-033 §2, 2001; Ord. 97-078 §5, 1997; Ord. 97-017 §1, 1997; Ord. 97-003 §1, 1997; Ord. 96-082 §1, 1996; Ord. 96-003 §2, 1996; Ord. 95-077 §2, 1995; Ord. 95-075 §1, 1975; Ord. 95-007 §1, 1995; Ord. 95-001 §1, 1995; Ord. 94-053 §1, 1994; Ord. 94-041 §§2 and 3, 1994; Ord. 94-038 §3, 1994; Ord. 94-008 §§1, 2, 3, 4, 5, 6, 7 and 8, 1994; Ord. 94-001 §§1, 2, and 3, 1994; Ord. 93-043 §§1, 1A and 1B, 1993; Ord. 93- 038 §1, 1993; Ord. 93-005 §§1 and 2, 1993; Ord. 93-002 §§1, 2 and 3, 1993; Ord. 92-066 §1, 1992; Ord. 92-065 §§1 and 2, 1992; Ord. 92-034 §1, 1992; Ord. 92-025 §1, 1992; Ord. 92-004 1 and 2, 1992; Ord. 91-038 §§3 and 4, 1991; Ord. 91-020 §1, 1991; Ord. 91-005 §1, 1991; Ord. 91-002 §11, 1991; Ord. 90-014 §2, 1990; Ord. 89-009 §2, 1989; Ord. 89-004 §1, 1989; Ord. 88- 050 §3, 1988; Ord. 88-030 §3, 1988; Ord. 88-009 §1, 1988; Ord. 87-015 §1, 1987; Ord. 86-056 2, 1986; Ord. 86-054 §1, 1986; Ord. 86-032 §1, 1986; Ord. 86-018 §1, 1986; Ord. 85-002 §2, 1985; Ord. 84-023 §1, 1984; Ord. 83-037 §2, 1983; Ord. 83-033 §1, 1983; Ord. 82-013 §1, 1982)

Chapter 18.96. FLOOD PLAIN ZONE - FP

- 18.96.010. Purposes.**
- 18.96.020. Designated Areas.**
- 18.96.030. Uses Permitted Outright.**
- 18.96.040. Conditional Uses Permitted.**
- 18.96.050. Prohibited Uses.**
- 18.96.060. Limitations on Conditional Uses.**
- 18.96.070. Application for Conditional Use.**
- 18.96.080. Criteria to Evaluate Conditional Uses.**
- 18.96.085. Elevation Certification.**
- 18.96.090. Yard and Setback Requirements.**
- 18.96.100. Stream Setback.**
- 18.96.110. Dimensional Standards.**
- 18.96.120. Warning and Disclaimer of Liability.**
- 18.96.130 Interpretation of FIRM Boundaries**
- 18.96.140 Use Variances.**

...

18.96.030. Uses Permitted Outright.

The following uses and their accessory uses are permitted outright

- A. Agricultural use conducted without establishing or utilizing a structure. For purposes of DCC 18.96.030(A), a "structure" does not include a boundary fence as long as such fence is designed to impede as little as possible the movement of floodwaters and flood-carried material.
- B. Management, propagation and harvesting of a forest product.
- C. Open space.
- D. Portions of a residential use that do not contain structures, such as lawn, garden or play areas.
- E. Class I and II road or street project subject to approval as part of a land partition, subdivision or subject to the standards and criteria established by DCC 18.116.230 that do not involve Floodplain development.
- F. Class III road or street project that does not constitute Floodplain development as defined in DCC 18.04.030.
- G. Excavation, grading and fill for the routine maintenance and repair of existing roads and roadway drainage within the road right-of-way that will have not adverse effect on flood waters.
- H. Operation, maintenance, and piping of existing irrigation systems operated by an Irrigation District except as provided in DCC 18.120.050.
- I. Recreational vehicles provided they meet the standards and criteria established by DCC 18.116.095.

J. Uses and structures determined to be located outside the Special Flood Hazard Area in accordance with 18.96.130.

(Ord. 2019-00x§x, 2019; Ord. 2007-019 §2, 2007; Ord. 93-043 §15, 1993; Ord. 91-020 §1, 1991; Ord. 88-030 §4, 1988)

18.96.080. Criteria to Evaluate Conditional Uses.

- A. A conditional use permit in a Flood Plain Zone shall not be approved unless all standards established by the Federal Emergency Management Agency and DCC Title 18 are addressed and findings are made by the Hearings Body or Planning Director that each of the standards and criteria are satisfied.

- B. Approval to alter or relocate a water course shall require notification to adjacent communities, the Department of Land Conservation and Development ~~and~~ Department of State Lands, and other appropriate state and federal agencies prior to any such alteration or relocation and submit evidence to the Federal Insurance Administration. Maintenance shall be provided within the altered and relocated portion of said watercourse so that the flood carrying capacity is not diminished.
- C. A conditional use permit shall be based upon findings which relate to the property and existing and proposed structure(s). They shall not pertain to the property owner, inhabitants, economic or financial circumstances.
- D. All structures in the flood plain shall meet the following standards.
1. Anchoring.
 - a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.
 - b. All manufactured homes must be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
 2. Construction Materials and Methods.
 - a. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
 - b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
 - c. Electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 3. Utilities.
 - 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 systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the system 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 as specified in OAR 340-071-0100 et seq.:-
 4. Below-grade crawlspace is allowed subject to the standards in FEMA Technical Bulletin 11-01.
- E. Subdivision and Partition Proposals.
1. All subdivision and partition proposals shall be consistent with the need to minimize flood damage.
 2. All subdivision and partition proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.
 3. All subdivision and partition proposals shall have adequate drainage provided to reduce exposure to flood damage.
 4. Where Base Flood Elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less). Generation of Base Flood Elevation data shall not be required for subdivision proposals and other proposed developments that expressly preclude residential and non-residential construction in a Special Flood Hazard Area.

- F. Review of Building Permits. Where elevation data is not available either through the Flood Insurance Study or from another authoritative source, applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. (Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.)
- G. Specific Standards. In the Flood Plain Zone, the following requirements must be met:
1. Residential Construction.
 - a. New construction, including replacement, and substantial improvement of any residential structure shall have the lowest floor of the entire structure, including basement, elevated at least one foot above base flood elevation.
 - b. Fully enclosed areas below the lower floor that are subject to flooding are prohibited unless they are designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must satisfy the standards in FEMA Technical Bulletin 11-01 and must either be certified by a registered professional engineer or architect and must meet or exceed the following criteria:
 - i. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 - ii. The bottom of all openings shall be no higher than one foot above grade.
 - iii. Openings may be equipped with screens, louvers or other coverings or devices, provided that they permit the automatic entry and exit of floodwaters.
 2. Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated at least one foot above the level of the base flood elevation, or, together with attendant utility and sanitary facilities, shall:
 - a. Be flood proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water.
 - b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
 - c. Be certified by a registered professional engineer or architect that the design and methods of construction are subject to accepted standards of practice for meeting provisions of DCC 18.96.080, based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the County as set forth in DCC 18.96.070(H).
 - d. Nonresidential structures that are elevated, but not flood proofed, must meet the same standards for space below the lowest floor as described in DCC 18.96.080(F).
 - e. Applicants for floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building constructed to the flood level will be rated as one foot below that level).
 - f. Applicants shall supply a comprehensive Maintenance Plan for the entire structure that shall include but not limited to: exterior envelope of structure; all penetrations to the exterior of the structure; all shields, gates, barriers, or components designed to provide floodproofing protection to the structure; all seals or gaskets for shields, gates, barriers, or components; and, the location of all shields, gates, barriers, and components as well as all associated hardware, and any materials or specialized tools necessary to seal the structure.
 - g. Applicants shall supply an Emergency Action Plan (EAP) for the installation and sealing of the structure prior to a flooding event that clearly identifies what triggers the EAP and who is responsible for enacting the EAP.

3. Exception for Small Accessory Structures. Relief from elevation or floodproofing as required in (G)(1) or (G)(2) above may be granted for small accessory structures that are:
- a. Less than 200 square feet and do not exceed one story;
 - b. Not temperature controlled;
 - c. Not used for human habitation and are used solely for parking of vehicles or storage of items having low damage potential when submerged;
 - d. Not used to store hazardous or toxic material, oil or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality unless confined in a tank installed in compliance with this ordinance or stored at least one foot above Base Flood Elevation;
 - e. Located and constructed to have low damage potential;
 - f. Constructed with materials resistant to flood damage;
 - g. Anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood;
 - h. Constructed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater. Designs for complying with this requirement must be certified by a licensed professional engineer or architect or:
 - i. Provide a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;
 - ii. The bottom of all openings shall be no higher than one foot above the higher of the exterior or interior grade or floor immediately below the opening; and
 - iii. Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwater in both directions without manual intervention.
 - i. 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.
43. Manufactured Dwellings.
- a. Manufactured dwellings supported on solid foundation walls shall be constructed with flood openings that comply with (G)(1)(b) above;
 - b. The bottom of the longitudinal chassis frame beam in A zones shall be at or above the Base Flood Elevation and the lowest floor of the manufactured dwelling shall be at least one foot above the Base Flood Elevation;
 - c. The manufactured dwelling shall be anchored to prevent flotation, collapse, and lateral movement during the base flood. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques); and
 - d. Electrical crossover connections shall be a minimum of 12 inches above Base Flood Elevation.
- ~~Manufactured Homes. All manufactured homes to be placed or substantially improved shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at least one foot above the base flood elevation. Such manufactured homes shall be securely anchored to an adequately anchored foundation system subject to the provisions of DCC 18.96.080(C)(1).~~
54. Docks, Piers and Walkways.
- a. No individual boat dock or pier shall be allowed on any lot with less than 200 feet of river frontage.
 - b. No community boat dock or pier shall be allowed on any lot with less than 100 feet of river frontage.

- c. No individual boat dock or pier shall be more than 20 feet in length or more than eight feet in width. The total surface area shall not exceed 160 square feet.
 - d. No community boat dock or pier shall be more than 20 feet in length. The total surface area shall not exceed 320 square feet.
 - e. A boat dock or pier shall not extend into or over the water more than 20 feet as measured from the ordinary high water mark (OHM), or five percent of the distance between the ordinary low water mark (OLM) on each river or stream bank measured at right angles to the shoreline, whichever is less, unless it can be shown that a greater extension:
 - i. Is necessary to allow access to the OHM;
 - ii. Will not increase flood hazard; and
 - iii. Will not cause the deterioration or destruction of marine life or wildlife habitat. When the lines of ordinary high or low water cannot be determined by survey or inspection, then such lines shall be determined by a registered professional engineer using the annual mean high or low water for the preceding year, using data from the State of Oregon Watermaster.
 - f. Individual boat docks and piers shall have a minimum five foot setback from adjoining property boundaries projected over the water surface.
 - g. Dock, pier and walkway structures shall not be covered or enclosed.
 - h. All materials used in dock, pier or walkway construction must be in compliance with all DEQ and EPA regulations.
 - i. Docks, piers and walkways shall use either pilings or Styrofoam floats if such floats are fully enclosed and sealed.
 - j. Docks, piers and walkways shall not impede water movement or cause deposition on waterway beds.
 - k. Docks, piers and walkways containing concrete or wood preservatives shall be fully cured or dried prior to placement in the water.
 - l. No walkway shall be more than four feet in width. The length of the walkway shall be no more than the minimum required to allow access to a dock.
 - m. Walkways shall include at least one handrail if the structure is elevated 30 inches or more from ground level.
 - n. All docks, piers and walkways shall meet the test of noninterference with navigation.
65. Parking Facilities. No parking facility shall be located within 20 feet (measured at right angles) of the ordinary high water mark (OHM).
7. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Area of Special Flood Hazard (100-year floodplain). Construction of new critical facilities shall be permissible within the Area of Special Flood Hazard if no feasible alternative site is available. Critical facilities constructed within the Area of Special Flood Hazard shall have the lowest floor elevated three feet above Base Flood Elevation or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that hazardous or toxic substances, oil or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the Base Flood Elevation shall be provided to all critical facilities to the extent possible unless deemed impractical by the Hearings Body or Planning Director.
8. Storage of material or equipment, incidental to an established primary use on the property that is either not subject to damage by flood may be permitted. If such material is not readily removable, it shall be anchored to prevent flotation and shall not obstruct water flow. Material or equipment stored shall include only items which will not create a hazard

to the health or safety of persons, property, animals or plant life should the storage area be inundated.

H. Floodways. In floodways the following provisions shall apply:

1. Encroachments, including fill and removal, replacement of a dwelling lawfully in existence on the effective date of Ordinance 88-030 and other development are prohibited unless certification by a registered professional engineer is provided demonstrating that the proposed encroachments will not result in any increase in flood levels during a base flood discharge.
2. The applicant must demonstrate that all necessary federal, state and local government agency permits have been or can be obtained and that all other applicable sections of DCC Title 18 have been satisfied.
3. Replacement of a dwelling shall not increase the square footage or footprint of the structure by more than 20 percent of the square footage or footprint of such dwelling as of the effective date of Ordinance 88-030.
4. No replacement of a dwelling shall be allowed if the use of the preexisting dwelling has been abandoned or otherwise terminated for a period of over one year.

~~((Ord. 2019-0xx §1, 2019;~~ Ord. 2007-019 §2, 2007; Ord. 2000-033 §6, 2000; Ord. 95-075 §1, 1995; Ord. 95-022 §1, 1995; Ord. 93-043 §15B, 1993; Ord. 93-002 §§6-8, and 9, 1993; Ord. 91-020 §1, 1991; Ord. 89-009 §7, 1989; Ord. 88-030 §4, 1988)

Attachment 3: Comprehensive Plan Amendments

Section 2.5 Water Resources

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Riparian Areas

Riparian areas are areas adjacent to rivers, streams, lakes or ponds where there is vegetation that requires free or unbound water or conditions that are more moist than normal. Riparian areas form an interconnected system within a watershed. At the water's edge they define the transition zone between aquatic and terrestrial systems. Riparian areas often contain a diversity of vegetation not found in upland areas. Riparian areas are limited in Deschutes County and are important habitats for both fish and wildlife.

The Deschutes County Comprehensive Plan, adopted in 1979 and revised, mapped riparian areas along the following rivers and streams.

Table 2.5.5 - Riparian Acreage in Deschutes County

Streams	Riparian Acres
Deschutes River	1,440
Little Deschutes River	2,920
Paulina Creek	846
Indian Ford Creek	573
Tumalo Creek	50
Whychus Creek	47
Fall River	43
Crooked River	38
TOTAL	5,966

Source: Deschutes County/City of Bend River Study 1986

Significant riparian habitat is located in one or more of the following three areas:

- The area within 100 feet of the ordinary high water mark of an inventoried river or stream. The 100 foot wide area may contain both riparian vegetation and upland vegetation.
- Wetlands and flood plain are also frequently within 100 feet of a stream or river. In some cases the riparian vegetation may extend beyond 100 feet from the ordinary high water mark if it is a designated wetland or flood plain.
- The area adjacent to an inventoried river or stream and located within a flood plain mapped by the Federal Emergency Management Agency and zoned Flood Plain by the County. The flood plain may extend beyond 100 feet from the ordinary high water mark of the stream and may contain wetland.

The County has not conducted an inventory of riparian areas adjacent to lakes and ponds on private land. However, many of these areas are included in National Wetland Inventory Maps and are subject to County, State and/or Federal wetland fill and removal regulations. Riparian areas adjacent to the many lakes on federal lands are managed and protected under federal land and resource management plans and are not included in the County inventory.

...

Floodplains

Federal Emergency Management Agency Maps

The Federal Emergency Management Agency (FEMA) maps flood-plains adjacent to the following rivers and streams in Deschutes County. The floodplain along these rivers and streams is recognized in a Flood Plain zone by the County.

Table 2.5.6 - Floodplains Adjacent to Rivers and Streams

• Deschutes River	• Long Prairie
• Little Deschutes River	• Dry River
• Whychus Creek	• Spring River
• Crooked River	• Indian Ford Creek
• Paulina Creek	

Source: Deschutes County GIS

Floodplains are defined as the lowland and relatively flat areas adjoining inland waters including at a minimum, that area subject to a one percent (100-year recurrence) or greater chance of flooding in any one year. Generally, river flooding along the Deschutes River has not historically been a serious problem in Deschutes County. This is due to the porous nature of the local geology, irrigation diversion canals and reservoir retention. Studies completed by the U.S. Army Corp of Engineers have resulted in designating a 100 year flood-plain for the Little Deschutes River and Whychus Creek. Regular flooding events have occurred near the headwaters of Tumalo Creek and in the Tumalo community. Along Whychus Creek, the city of Sisters frequently experiences flooding, with the most significant event occurring in 1964 (see also Section 3.5).

In 2019, Deschutes County amended its Flood Plain Zone to incorporate additional standards from the 2014 DLCD Model Flood Ordinance.

The purpose of the Zone is to continue promoting public health, safety, and general welfare, and minimize losses due to flood conditions in specific areas. It is designed to:

- (1) Protect human life and health;
- (2) Minimize expenditure of public money and costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) Minimize prolonged business interruptions;
- (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
- (6) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- (7) Ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- (8) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

The Zone also provides secondary benefits including riparian area conservation along rivers and streams for fish and wildlife and preservation of significant scenic and natural resources. Comprehensive plan policies for Water Resources (Section 2.5), Wildlife Resources (Section 2.6), Open Space and Scenic Views and Sites Resources (Section 2.7), and the corresponding development standards in Title 18 implement protections pertaining to Goal 5.

**OREGON MODEL
FLOOD DAMAGE PREVENTION ORDINANCE**

Effective January 2009

Modified August 2009

Modified January 2014

Adoption of this ordinance will ensure compliance with the standards for participation in the National Flood Insurance Program (NFIP). The model includes standards and provisions that encourage sound flood plain management and if implemented allows property owners to obtain flood insurance at a more affordable rate.

Development Permits

FEMA requires that a permit be issued for all development (see DEFINITIONS) in the regulatory floodplain. A floodplain development permit is not the same as a building permit. A floodplain development permit is intended to provide a mechanism for jurisdictions to review all proposed development in the regulatory floodplain.

Lowest Floor

NFIP minimum standards require that residential buildings have their lowest floor elevated to the base flood elevation (BFE). However, the Oregon Residential Specialty Code requires that the lowest floor be elevated one foot or more above BFE. Elevating one foot above the base flood elevation allows homeowners to receive a substantial reduction in the cost of their flood insurance. Also, as increased development happens, flood elevations can increase, and the one foot above standard allows for an additional margin of safety.

The NFIP allows non-residential buildings to be elevated or floodproofed. NFIP requires that an operations and maintenance plan be provided to the insurance agent in order to rate the policy. As a result, this requirement is included in this model.

Below-grade Crawlspace

Below-grade refers to the inside of the crawlspace being below-grade on all sides, similar to how FEMA defines basement. FEMA would prefer that NFIP communities prohibit below-grade crawl spaces in Special Flood Hazard Areas. If, however, your community decides to allow below grade crawl spaces, specific language must be included in your code. The model code contained herein was derived from Technical Bulletin 11-01: Crawlspace Construction for Buildings located in Special Flood Hazard Areas.

If crawlspace standards are not included in local code, FEMA considers crawlspaces to be basements, which are not allowed as new construction or substantial improvements.

Manufactured Dwellings

The 2011 Oregon Manufactured Dwelling and Park Specialty Code requires that manufactured dwellings be elevated such that the bottom of the chassis is at base flood elevation. The Code also requires that electrical cross-over connections be elevated at least 12" above Base Flood Elevation. Furthermore, the Code makes no distinction between existing and new manufactured dwelling parks. All new installations, repair of substantial damage, or substantial improvements must be elevated above the base flood elevation.

Accessory and Agricultural Buildings

Finally, the NFIP requires that accessory structures, including agricultural buildings be elevated or floodproofed. Agricultural buildings located in the Special Flood Hazard Area are not exempt from building codes.

Agricultural Buildings:

ORS 455.315 exempts certain agricultural buildings from application of the Oregon Structural Specialty Code, however, **the exemption does not apply to:**

- (A) A dwelling;
- (B) A structure used for a purpose other than growing plants in which 10 or more persons are present at any one time;
- (C) A structure regulated by the State Fire Marshal pursuant to ORS chapter 476;
- (D) A structure used by the public; or
- (E) A structure subject to sections 4001 to 4127, title 42, United States Code (the National Flood Insurance Act of 1968) as amended, and regulations promulgated thereunder.**

AO and V Zones

This model code includes sections for development in Shallow Flooding Areas (AO Zones), Section 5.5 and Coastal High Hazard Areas (V1-V30, VE and/or V), Section 5.6. If your community does not have either of these zones designated on your Flood Insurance Rate Map, it is not necessary to adopt these sections of the model code.

If you have any questions concerning adoption of this model or participation in the NFIP, please contact our Regional Office at (425) 487-4677.

KEY

Items in *underlined italics* (on electronic copies) or *underlined italics* (on paper copies) of the ordinance need to be filled in by the community.

Highlighted text recommended but not in CFR or Oregon Building Codes
Blue means V-zone requirement

OREGON MODEL FLOOD DAMAGE PREVENTION ORDINANCE

SECTION 1.0 AUTHORIZATION, FINDINGS OF FACT, PURPOSE, AND OBJECTIVES

1.1 AUTHORIZATION

The State of Oregon has in _____¹ delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the *city/town/county*, does ordain as follows: {change for tribal government}

1.2 FINDINGS OF FACT

- (1) The flood hazard areas of *city/town/county/tribe* are subject to periodic inundation which results 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.
- (2) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

1.3 STATEMENT OF PURPOSE

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

- (1) To protect human life and health;
- (2) To minimize expenditure of public money and costly flood control projects;
- (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) To minimize prolonged business interruptions;

¹ Almost all Oregon cities and some Oregon counties will derive their authority to adopt a flood damage prevention ordinance from the home rule provisions of the Oregon Constitution. See Article XI, Section 2 of the Oregon Constitution and your local government charter, if applicable. All counties, including those without home rule charters, have been granted authority to enact ordinances under Oregon Revised Statute 203.035.

- (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
- (6) To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- (7) To ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- (8) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

1.4 METHODS OF REDUCING FLOOD LOSSES

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

- (1) Restricting or prohibiting uses which are 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;
- (2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- (4) Controlling filling, grading, dredging, and other development which may increase flood damage;
- (5) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.
- (6) Coordinating and supplementing the provisions of the state building code with local land use and development ordinances.

SECTION 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 and to give this ordinance its most reasonable application.

“APPEAL” means a request for a review of the interpretation of any provision of this ordinance or a request for a variance.

“AREA OF SHALLOW FLOODING” means a designated AO, or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

“AREA OF SPECIAL FLOOD HAZARD” means the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

“BASE FLOOD” means the flood having a one percent chance of being equaled or exceeded in any given year. Also referred to as the “100-year flood.” Designation on maps always includes the letters A or V.

“BASEMENT” means any area of the building having its floor subgrade (below ground level) on all sides.

“BELOW-GRADE CRAWL SPACE” means an enclosed area below the base flood elevation in which the interior grade is not more than two feet below the lowest adjacent exterior grade and the height, measured from the interior grade of the crawlspace to the top of the crawlspace foundation, does not exceed 4 feet at any point

“BREAKAWAY WALL” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

“COASTAL HIGH HAZARD AREA” means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1-V30, VE or V.

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

“DEVELOPMENT” means 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 located within the area of special flood hazard.

“ELEVATED BUILDING” means for insurance purposes, a nonbasement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

“FLOOD” OR “FLOODING” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) The overflow of inland or tidal waters and/or

- (2) The unusual and rapid accumulation of runoff of surface waters from any source.

“FLOOD INSURANCE RATE MAP (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

“FLOOD INSURANCE STUDY” means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

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

“LOWEST FLOOR” means 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 found at Section 5.2-1(2).

“MANUFACTURED DWELLING” means 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.”

“MANUFACTURED HOME PARK OR SUBDIVISION” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“NEW CONSTRUCTION” means structures for which the “start of construction” commenced on or after the effective date of this ordinance.

“RECREATIONAL VEHICLE” means 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.

“START OF CONSTRUCTION” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date.

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 home 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” means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

“SUBSTANTIAL DAMAGE” means 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” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:

- (1) Before the improvement or repair is started; or
- (2) If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include either:

- (1) 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
- (2) Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

“VARIANCE” means a grant of relief from the requirements of this ordinance which permits construction in a manner that would otherwise be prohibited by this ordinance.

“WATER DEPENDENT” means a structure for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

SECTION 3.0 GENERAL PROVISIONS

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all areas of special flood hazards within the jurisdiction of city/town/county/tribe.

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for the city/town/county/tribe – use county if FIRMs are in countywide format,” dated month day, 20yr, with accompanying Flood Insurance Maps are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study is on file at location. The best available information for flood hazard area identification as outlined in Section 4.3-2 shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under section 4.3-2.

3.3 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 ordinance or fails to comply with any of its requirements shall upon conviction thereof be fined not more than \$ amount or imprisoned for not more than number days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the city/town/county/tribe from taking such other lawful action as is necessary to prevent or remedy any violation.

3.4 ABROGATION AND SEVERABILITY

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.

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.

3.5 INTERPRETATION

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

- (1) Considered as minimum requirements;
- (2) Liberally construed in favor of the governing body; and,
- (3) Deemed neither to limit or repeal any other powers granted under State statutes.

3.6 WARNING AND DISCLAIMER OF LIABILITY

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. This ordinance shall not create liability on the part of *city/town/county/tribe*, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

SECTION 4.0 ADMINISTRATION

4.1 ESTABLISHMENT OF DEVELOPMENT PERMIT

4.1-1 Development Permit Required

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.2. The permit shall be for all structures including manufactured homes, as set forth in the "DEFINITIONS," and for all development including fill and other activities, also as set forth in the "DEFINITIONS."

4.1-2 Application for Development Permit

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

- (1) Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- (2) Elevation in relation to mean sea level of floodproofing in any structure;
- (3) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 5.2-2; and
- (4) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

4.2 DESIGNATION OF THE LOCAL ADMINISTRATOR

The _____ is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.

4.3 DUTIES AND RESPONSIBILITIES OF THE LOCAL ADMINISTRATOR

Duties of the local administrator shall include, but not be limited to:

4.3-1 Permit Review

- (1) Review all development permits to determine that the permit requirements of this ordinance have been satisfied.
- (2) Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required.
- (3) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 5.4 are met.

4.3-2 Use of Other Base Flood Data (In A and V Zones)

When base flood elevation data has not been provided (A and V Zones) in accordance with Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the local administrator shall obtain, review, and

reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, in order to administer Sections 5.2, SPECIFIC STANDARDS, and 5.3 FLOODWAYS.

4.3-3 Information to be Obtained and Maintained

- (1) Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in Section 4.3-2, obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basements and below-grade crawlspaces) of all new or substantially improved structures, and whether or not the structure contains a basement.
- (2) For all new or substantially improved floodproofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in Section 4.3-2:
 - (i) Verify and record the actual elevation (in relation to mean seal level), and
 - (ii) Maintain the floodproofing certifications required in Section 4.1-2(3).
- (3) Maintain for public inspection all records pertaining to the provisions of this ordinance.

4.3-4 Alteration of Watercourses

- (1) 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.
- (2) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

4.3-5 Requirement to Submit New Technical Data

- (1) Notify FEMA within six months of project completion when an applicant had obtained a Conditional Letter of Map Revision (CLOMR) from FEMA, or when development altered a watercourse, modified floodplain boundaries, or modified Base Flood Elevations. This notification shall be provided as a Letter of Map Revision (LOMR).
- (2) The property owner shall be responsible for preparing technical data to support the LOMR application and paying any processing or application fees to FEMA.
- (3) The Floodplain Administrator shall be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application, until the applicant demonstrates that the project will or has met the requirements of this code and all applicable State and Federal laws.

4.3-5 Interpretation of FIRM Boundaries

Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 4.4.

NOTE: If you do not include Section 4.4 (Variance Procedure), end the above sentence after the word "interpretation," and add the following sentence: "such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59-76).

4.4 VARIANCE PROCEDURE

4.4-1 Appeal Board

- (1) The _____ as established by *ordinance* shall hear and decide appeals and requests for variances from the requirements of this ordinance.
- (2) The _____ shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the *city/town/county/tribe* in the enforcement or administration of this ordinance.
- (3) Those aggrieved by the decision of the _____, or any taxpayer, may appeal such decision to the _____, as provided in *ordinance*.
- (4) In passing upon such applications, the _____ shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and:
 - (i) The danger that materials may be swept onto other lands to the injury of others;
 - (ii) The danger to life and property due to flooding or erosion damage;
 - (iii) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - (iv) The importance of the services provided by the proposed facility to the community;
 - (v) The necessity to the facility of a waterfront location, where applicable;
 - (vi) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - (vii) The compatibility of the proposed use with existing and anticipated development;
 - (viii) The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;

- (ix) The safety of access to the property in times of flood for ordinary and emergency vehicles;
- (x) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
- (xi) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

(5) Upon consideration of the factors of Section 4.4-1(4) and the purposes of this ordinance, the _____ may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(6) The *local floodplain administrator* shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

4.4-2 Conditions for Variances

- (1) Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (i-xi) in Section 4.4-1(4) have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.
- (2) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the Statewide Inventory of Historic Properties, without regard to the procedures set forth in this section.
- (3) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- (4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (5) Variances shall only be issued upon:
 - (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;
 - (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 as identified in Section 4.1-4(4), or conflict with existing local laws or ordinances.

- (6) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece or property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
- (7) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except 4.4-2(1), and otherwise complies with Sections 5.1-1 through 5.1-3 of the GENERAL STANDARDS.
- (8) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

SECTION 5.0 PROVISIONS FOR FLOOD HAZARD REDUCTION

5.1 GENERAL STANDARDS

In all areas of special flood hazards, the following standards are required:

5.1-1 Anchoring

- (1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- (2) All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

5.1-2 Construction Materials and Methods

- (1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- (2) All new construction and substantial improvements shall be constructed using

methods and practices that minimize flood damage.

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

5.1-3 Utilities

- (1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- (2) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and,
- (3) 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 Subdivision Proposals

- (1) All subdivision proposals shall be consistent with the need to minimize flood damage;
- (2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;
- (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and,
- (4) Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).

5.1-5 Review of Building Permits

Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source (Section 4.3-2), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

5.1-6 AH Zone Drainage

Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.

5.2 SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH, and AE) as set forth in Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD or Section 4.3-2, Use of Other Base Flood Data (In A and V Zones), the following provisions are required:

5.2-1 Residential Construction

- (1) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation.
- (2) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:
 - (i) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 - (ii) The bottom of all openings shall be no higher than one foot above grade.
 - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

5.2-2 Nonresidential Construction

New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated at or above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

- (1) Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
- (2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- (3) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development

- and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Section 4.3-3(2);
- (4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in 5.2-1(2);
 - (5) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building floodproofed to the base flood level will be rated as one foot below.
 - (6) Applicants shall supply a comprehensive Maintenance Plan for the entire structure to include but not limited to: exterior envelope of structure; all penetrations to the exterior of the structure; all shields, gates, barriers, or components designed to provide floodproofing protection to the structure; all seals or gaskets for shields, gates, barriers, or components; and, the location of all shields, gates, barriers, and components as well as all associated hardware, and any materials or specialized tools necessary to seal the structure.
 - (7) Applicants shall supply an Emergency Action Plan (EAP) for the installation and sealing of the structure prior to a flooding event that clearly identifies what triggers the EAP and who is responsible for enacting the EAP.

5.2-3 Manufactured Dwellings

- (4) Manufactured dwellings supported on solid foundation walls shall be constructed with flood openings that comply with 5.1-1(2) above;
- (5) The bottom of the longitudinal chassis frame beam in A zones, shall be at or above BFE;
- (6) The manufactured dwelling shall be anchored to prevent flotation, collapse, and lateral movement during the base flood. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques), and;
- (7) Electrical crossover connections shall be a minimum of 12 inches above BFE.

5.2-4 Recreational Vehicles

Recreational vehicles placed on sites are required to:

- (1) Be on the site for fewer than 180 consecutive days, and
- (2) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
- (3) Meet the requirements of 5.2-3 above and the elevation and anchoring

requirements for manufactured homes.

5.2-5 Small Accessory Structures

Relief from elevation or floodproofing as required in 5.2-1 or 5-2-2 above may be granted for small accessory structures that are:

- (1) less than 200 square feet and do not exceed one story;
- (2) not temperature controlled;
- (3) not used for human habitation and are used solely for parking of vehicles or storage of items having low damage potential when submerged;
- (4) not used to store toxic material, oil or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality shall unless confined in a tank installed in compliance with this ordinance or stored at least one foot above Base Flood Elevation
- (5) located and constructed to have low damage potential;
- (6) constructed with materials resistant to flood damage;
- (7) anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood;
- (8) constructed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater. Designs for complying with this requirement must be certified by a licensed professional engineer or architect or
 - (i) provide a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;
 - (ii) the bottom of all openings shall be no higher than one foot above the higher of the exterior or interior grade or floor immediately below the opening;
 - (iii) openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwater in both directions without manual intervention.
- (9) 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.

5.2-6 Below-grade crawl spaces

Below-grade crawlspaces are allowed subject to the following standards as found in FEMA Technical Bulletin 11-01, *Crawlspace Construction for Buildings Located in Special Flood Hazard Areas*:

- (1) The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B below. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
- (2) The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.
- (3) Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
- (4) Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.
- (5) The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.
- (6) The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.
- (7) There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles

or gravel or crushed stone drainage by gravity or mechanical means.

- (8) The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.

For more detailed information refer to FEMA Technical Bulletin 11-01.

ADDITIONAL OPTIONS

Include the diagrams from the Technical Bulletin in the ordinance to illustrate the 2 ft./4 ft. rules but revise to correctly reference the state building code requirements to elevate 1 ft. above BFE for residential structures.

Include language advising citizens about the increased insurance cost associated with below-grade crawlspaces. There is a charge added to the basic policy premium for a below-grade crawlspace.

5.3 BEFORE REGULATORY FLOODWAY

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

5.4 FLOODWAYS

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

- (1) Except as provided in paragraph (3), prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- (2) If Section 5.4(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction

provisions of Section 5.0, PROVISIONS FOR FLOOD HAZARD REDUCTION.

(3) Projects for stream habitat restoration may be permitted in the floodway provided:

- (i) The project qualifies for a Department of the Army, Portland District *Regional General Permit for Stream Habitat Restoration* (NWP-2007-1023); and,
- (ii) A qualified professional (a Registered Professional Engineer; or staff of NRCS; the county; or fisheries, natural resources, or water resources agencies) has provided a feasibility analysis and certification that the project was designed to keep any rise in 100-year flood levels as close to zero as practically possible given the goals of the project; and,
- (iii) No structures would be impacted by a potential rise in flood elevation; and,
- (iv) An agreement to monitor the project, correct problems, and ensure that flood carrying capacity remains unchanged is included as part of the local approval.

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

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

5.5 STANDARDS FOR SHALLOW FLOODING AREAS (AO ZONES)

Shallow flooding areas appear on FIRMs as AO zones with depth designations. The base flood depths in these zones range from 1 to 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. In these areas, the following provisions apply:

- (1) New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest grade adjacent to the building, a minimum of one foot above the depth number specified on the FIRM (at least two feet if no depth number is specified).
- (2) New construction and substantial improvements of nonresidential structures

within AO zones shall either:

- (i) Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or
 - (ii) Together with attendant utility and sanitary facilities, be completely flood proofed to or above that level 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 effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect as in section 5.2-2(3).
- (3) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
- (4) Recreational vehicles placed on sites within AO Zones on the community's FIRM 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 requirements of 5.5 above and the elevation and anchoring requirements for manufactured homes.

5.6 COASTAL HIGH HAZARD AREAS

Located within areas of special flood hazard established in Section 3.2 are Coastal High Hazard Areas, designated as Zones V1-V30, VE and/or V. These areas have special flood hazards associated with high velocity waters from surges and, therefore, in addition to meeting all provisions in this ordinance and **state building code**, the following provisions shall also apply:

- (1) All new construction and substantial improvements in Zones V1-V30 and VE (V if base flood elevation data is available) shall be elevated on pilings and columns so that:
- (i) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated a minimum of one foot above the base flood level; and
 - (ii) The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building

components. Wind and water loading values shall each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval);

- (2) A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of (i) and (ii) of this Section.
- (3) Obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V1-30, VE, and V, and whether or not such structures contain a basement. The local administrator shall maintain a record of all such information.
- (4) All new construction shall be located landward of the reach of mean high tide.
- (5) Provide that all new construction and substantial improvements have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or State codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:
 - (i) Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and
 - (ii) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).
- (6) If breakaway walls are utilized, such enclosed space shall be useable solely for parking of vehicles, building access, or storage. Such space shall not be used for human habitation.
- (7) Prohibit the use of fill for structural support of buildings.
- (8) Prohibit man-made alteration of sand dunes which would increase potential flood damage.

(9) All manufactured homes to be placed or substantially improved within Zones V1-V30, V, and VE on the community's FIRM on sites:

- (i) Outside of a manufactured home park or subdivision,
- (ii) In a new manufactured home park or subdivision,
- (iii) In an expansion to an existing manufactured home park or subdivision, or
- (iv) In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood;

meet the standards of paragraphs 5.6(1) through (8) of this section and that manufactured homes placed or substantially improved on other sites in an existing manufactured home park or subdivision within Zones V1-30, V, and VE on the FIRM meet the requirements of Section 5.2-3.

(10) Recreational vehicles placed on sites within Zones V1-30, V, and VE on the community's FIRM either:

- (i) Be on the site for fewer than 180 consecutive days,
- (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 requirements of Section 4.1-1(Permitting requirements) and paragraphs 5.6(1) through (8) of this section.

(11) For construction of new essential and new special occupancy structures refer to ORS 455.446 and 447 which states that new essential and new special occupancy structures may not be constructed in the Tsunami Inundation Zone. The Tsunami Inundation Zone would include V, A, and potentially other flood zones. If an exception is granted then the Coastal High Hazard Area construction standards in the model ordinance shall apply to the building of these new structures in the Tsunami Inundation Zone.

Coastal communities should be encouraged to adopt Coastal High Hazard Area standards to all new structures or substantially improved or damaged structures that fall within the Tsunami Inundation Zone.

5.7 CRITICAL FACILITY

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain).

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