

## **CHAPTER 4.5 FLOODPLAIN PROVISIONS**

### **Section 4.5.10 - PURPOSES - FLOODPLAIN PROVISIONS**

Without establishing any priority, the purposes of this Chapter are intended to:

- a.** Protect human life, health, and property in areas subject to periodic flooding;
- b.** Implement the Floodplain requirements of Statewide Planning Goal 7 - which relates to Areas Subject to Natural Disasters and Hazards;
- c.** Implement some of the land use aspects of the City's Stormwater Master Plan, as well as some aspects of the City's Endangered Species Act Salmon Response Plan;
- d.** Through Floodplain regulation, contribute to the Properly Functioning Condition of Streams and rivers and address, in part, the water quality aspects of Statewide Planning Goal 6;
- e.** Manage stormwater drainage in a manner that:
  - 1. Maintains the Properly Functioning Conditions of Streams;
  - 2. Provides for the conveyance and temporary storage of floodwater;
  - 3. Reduces floodwater velocity;
  - 4. Facilitates sediment deposition in the Floodplain;
  - 5. Provides an opportunity for groundwater recharge; and
  - 6. Promotes other Stormwater and Floodplain functions.

These provisions are also intended to minimize maintenance costs, eliminate potential hazards before they occur, and protect properties and persons adjacent to drainageways and to other Natural Hazard areas;

- f.** Implement requirements for the City's participation in the National Flood Insurance Program, including the Community Rating System;

- g. Minimize damage to public facilities and utilities such as water purification and sewage treatment plants, water and gas mains, electric, telephone and sewer lines, streets, and bridges located in Floodplains;
- h. Help maintain a stable tax base by providing for the sound use and Development of flood-prone areas;
- i. Minimize expenditure of public money for costly flood control projects;
- j. Minimize the need for rescue and emergency services associated with flooding and generally undertaken at the expense of the general public;
- k. Minimize unnecessary disruption of commerce, access, and public service during times of flood;
- l. Facilitate the notification of potential buyers that property is in an Special Flood Hazard Area;
- m. Compel those who occupy the Special Flood Hazard Areas to assume responsibility for their actions;
- n. Manage the alteration of Special Flood Hazard Areas, stream channels, and shorelines to minimize the impact of Development on the natural and beneficial functions of the Floodplain; and
- o. **Methods of Reducing Flood Losses** - In order to accomplish its purpose, this chapter and Chapter 2.11 - Floodplain Development Permit include methods and provisions to:
  - 1. Require that Development that is vulnerable to floods, including buildings, structures, and facilities necessary for the general health, safety and welfare of citizens, be protected against flood damage at the time of initial construction;
  - 2. Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which increase flood heights, velocities, or erosion;
  - 3. Control filling, grading, dredging and other Development which may increase flood damage or erosion;

4. Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or that may increase flood hazards to other lands;
  5. Preserve and restore natural Floodplains, stream channels, and natural protective barriers which carry and store flood waters, and;
  6. Coordinate with and supplement provisions of Oregon Building Codes; and
- p. To advance these purposes, where not required, creation of open space tracts is encouraged within areas designated as Natural Resources or Natural Hazards on the Comprehensive Plan and Official Zoning Maps.

## **Section 4.5.20 - APPLICABILITY**

### **4.5.20.01 - Natural Hazards that are Subject to this Chapter**

- a. These provisions apply to public and private properties in the 100-yr. Floodplain of rivers and local streams;
- b. **Mapping of Natural Hazards** - The Natural Hazard areas in “a,” above, are mapped on the Corvallis Natural Hazards Map.

The Special Flood Hazard Areas identified by the Federal Emergency Management Agency in its Flood Insurance Study for Benton County and Incorporated Areas, dated June 2, 2011, with accompanying Flood Insurance Rate Maps or Digital Flood Insurance Rate Maps, and other supporting data, are adopted by reference and declared a part of the 100-yr. Floodplain regulations presented below. The Flood Insurance Study and the Flood Insurance Rate Map are on file at the office of the City of Corvallis Engineer at 1245 NE Third Street, Corvallis, Oregon 97330, and at the Development Services Division at 501 SW Madison Avenue, Corvallis, Oregon, 97333. Not every Special Flood Hazard Area within the Urban Growth Boundary has been mapped by the Federal Emergency Management Agency through the Flood Insurance Study, Flood Insurance Rate Maps, and Digital Flood Insurance Rate Maps cited above. The Floodplain Administrator or designee is authorized through Sections 4.5.50.02, 4.5.50.03.p, and 4.5.60.02.b to obtain from applicants the information necessary to determine the presence and extent of unmapped Special Flood Hazard Areas as part of reviewing Development proposals that affect the 100-yr. Floodplain. Once approved by the Floodplain Administrator or designee, such information shall be incorporated into the Natural Hazards Map and used by the City of Corvallis to supplement the Flood Insurance Study, Flood Insurance Rate Maps, and

Digital Flood Insurance Rate Maps cited above to ensure consistency with the 100-yr. Floodplain regulations contained in this Chapter and Chapter 2.11 - Floodplain Development Permit.

#### **4.5.20.02 - Coordination with Building Codes and Greater Restrictions**

- a. Coordination with Building Codes** - Pursuant to the requirement established in ORS 455 that the City of Corvallis administers and enforces the State Building Codes, the City Council of the City of Corvallis does hereby acknowledge that the State Building Codes contain certain provisions that apply to the design and construction of buildings and structures located in Special Flood Hazard Areas. Therefore, this chapter and Chapter 2.11 - Floodplain Development Permit are intended to be administered and enforced in conjunction with the State Building Codes.
- b. Greater Restrictions** - This Chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Chapter and any other ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

#### **4.5.20.03 - Exceptions to Achieve Minimum Assured Development Area (MADA)**

- a. General** - Chapter 4.11 - Minimum Assured Development Area (MADA) explains how Minimum Assured Development Area (MADA) is determined. If the application of Natural Hazard regulations outside prohibited areas, or if the cumulative impact of such Natural Hazard regulations and the application of the regulations in Chapter 4.12 - Significant Vegetation Protection Provisions and Chapter 4.13 - Riparian Corridor and Wetland Provisions would limit the developable portion of a property below the property's MADA, then development will be allowed on the property, to the degree necessary to achieve the MADA, as explained in Chapter 4.11 - Minimum Assured Development Area. However, use of MADA provisions to develop in the 0.2-ft. Floodway is prohibited, as outlined in Sections 4.5.90.05 and 4.5.100.03, as well as Section 4.11.50.05 of Chapter 4.11 - Minimum Assured Development Area; and
- b. Floodway Fringe Development Pursuant to MADA Provisions Requires Adherence to Partial Protection Floodplain Provisions** - In cases where encroachment into the Floodway Fringe is allowed per the Minimum Assured Development Area provisions in Chapter 4.11 - Minimum Assured

Development Area (MADA), all such Development shall comply with Section 4.5.100 - Standards in Partial Protection Floodway Fringe. See Sections 4.5.90.05 and 4.5.100.03.

### **Section 4.5.30 - DISCLAIMER OF LIABILITY**

The degree of flood protection required by this Chapter and Chapter 2.11 - Floodplain Development Permit is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods and hazard events can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. Areas impacted by other Natural Hazards may differ from those shown on the Corvallis Natural Hazards Map. Neither this Chapter nor Chapter 2.11 - Floodplain Development Permit implies that land outside the Special Flood Hazard Areas or Uses permitted within such areas will be free from flooding or flood damages, nor does it imply that land outside of mapped hazard areas will be free from damage or earth movement in a hazard event. Neither this Chapter nor Chapter 2.11 - Floodplain Development Permit shall create liability on the part of the City of Corvallis, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages or other hazard damages that result from reliance on this chapter and Chapter 2.11 - Floodplain Development Permit, or any administrative decision lawfully made hereunder. Compliance with the minimum standards established by this Chapter is not intended to relieve any private party from liability for the design or construction of Development which causes damage or injury by increasing flooding or aggravating an existing and known hazard.

### **Section 4.5.40 - FINDINGS OF FACT, DEFINITIONS, AND RELATED STANDARDS**

#### **4.5.40.01 - Findings of Fact**

- a.** The Special Flood Hazard Areas of the City of Corvallis are subject to periodic inundation that results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood relief and protection, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.
- b.** These flood losses are caused by buildings and structures in Special Flood Hazard Areas, which are inadequately elevated, flood-proofed, or otherwise unprotected from flood damages, and by the cumulative effect of obstructions in Floodplains causing increases in flood heights and velocities.

- c. The City of Corvallis has the primary responsibility for planning, adoption and enforcement of land use regulations to accomplish proper Floodplain management.

#### 4.5.40.02 - Definitions

- a. **Specific Definitions for Phrases Related to 100-Yr. Floodplain Regulations** - See Section 1.6.40 for the full set of definitions that are unique to the 100-yr. Floodplain regulations presented below.

- b. **100-yr. Floodplain, 0.2-ft. Floodway, and Floodway Fringe -**

1. 100-yr. Floodplain - The 100-yr. Floodplain is a land area adjacent to a river, stream or other water body that is subject to a one percent or greater chance of flooding in any given year. The Floodplain is divided into two sections: the Floodway and Floodway Fringe areas. The 100-yr. Floodplain is mapped by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRMs) or, for areas not mapped by FEMA, it is mapped via Floodplain studies approved by the Floodplain Administrator or designee. It is also referred to as the Special Flood Hazard Area and is the area subject to Base Flood regulations. See Figure 4.5-1 - Components of 100-yr. Floodplain; and the following definitions in Section 1.6.40: Floodway (Regulatory Floodway); Floodplain - 100-yr.; Flood, 100-yr.; Base Flood; and Floodway Fringe.
2. 0.2-ft. Floodway - The 0.2-ft. Floodway is defined as the river channel or other watercourse and the adjacent land areas that must be reserved in order to discharge the Base Flood (100-yr. Flood) without cumulatively increasing the Water Surface Elevation more than 0.2 ft. See Figure 4.5 -1 - Components of 100-yr. Floodplain; and the Floodway (Regulatory Floodway) definition in Section 1.6.40. The Regulatory Floodway for the City of Corvallis is the 0.2-ft. Floodway. However, unless development qualifies as one of the exceptions per Sections 2.11.40, 4.5.50.04, or 4.5.80.05, no rise in Base Flood Elevation (BFE) is allowed.
3. Floodway Fringe - The Floodway Fringe is defined as the area of the 100-yr. Floodplain lying outside of the 0.2-ft. Floodway. See Figure 4.5 -1 - Components of 100-yr. Floodplain; and the following definitions in Section 1.6.40: Floodway Fringe and Floodway (Regulatory Floodway). However, unless development qualifies as

one of the exceptions per Section 2.11.40, 4.5.50.04, or 4.5.80.05, no rise in Base Flood Elevation (BFE) is allowed.

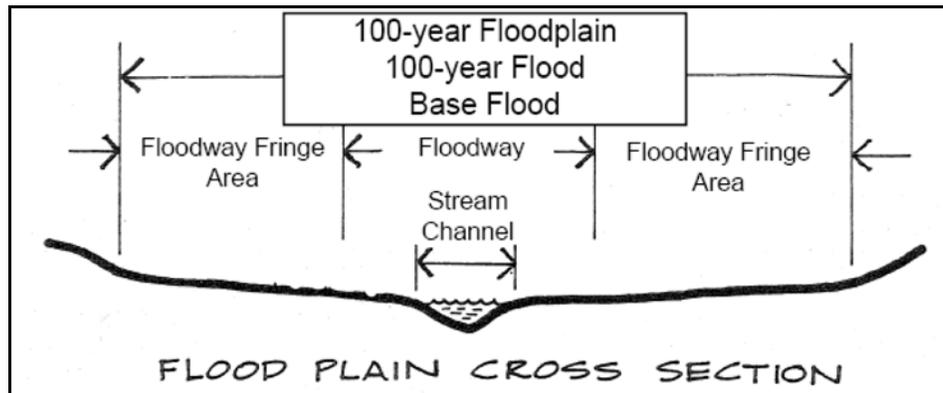


Figure 4.5-1 - Components of the 100-year Floodplain  
Where development is allowed per Code provisions, no rise in Base Flood Elevation (BFE) is allowed, unless the development qualifies as one of the specific exceptions outlined in Section 2.11.40, 4.5.50.04, or 4.5.80.05.

#### **4.5.40.03 - Relationship of 0.2-ft. Floodway and Floodway Fringe to Regulated Riparian Corridors**

Areas of the 0.2-ft. Floodway and Floodway Fringe that fall within a Regulated Riparian Corridor are also subject to the provisions of Chapter 4.13 - Riparian Corridor and Wetland Provisions. Where regulations are in conflict, the most restrictive shall apply. See Riparian Corridor, Regulated in Chapter 1.6 - Definitions.

### **Section 4.5.50 - PROCEDURES**

Compliance with the provisions of this Chapter shall be determined through the development review processes identified in Section 1.2.110 of Chapter 1.2 - Legal Framework and in Chapter 2.11 - Floodplain Development Permit. Applications for Excavation and Grading Permits, Floodplain Development Permits, Building Permits or other permits for buildings and structures on sites containing the 100-yr. Floodplain shall be submitted and reviewed to ensure compliance with specifications referenced herein; and to ensure that development is reasonably safe from anticipated hazards. Such applications also include those needed for Manufactured Dwellings. Other development activities as described in this provision include all the activities listed in the Section 1.6.40 definition for Development. However, unless development qualifies as one of the exceptions per Section 2.11.40, 4.5.50.04, or 4.5.80.05, no rise in Base Flood Elevation (BFE) is allowed.

#### **4.5.50.01 - Floodplain Development Permit**

A Floodplain Development Permit shall be obtained consistent with Chapter 2.11 - Floodplain Development Permit, prior to initiating Development activities in any Special Flood Hazard Area established through Section 4.5.20.01.b. Floodplain Development Permit applications shall include the items listed in Sections 4.5.50.02, 4.5.50.03, 4.5.50.04, as applicable, and the items listed in Section 2.11.50.01.

#### **4.5.50.02 - Development Application**

Development applications for all properties containing or abutting a mapped or unmapped Special Flood Hazard Area shall accurately indicate the locations of these features and the location of any proposed Development. These Development applications include Floodplain Development Permits, Excavation and Grading Permits, Building Permits, Public Improvements by Private Contract Permits (PIPC), and any land use application identified in Chapter 2.1 - Comprehensive Plan Amendment through Chapter 2.14 - Partitions, Minor Replats, and Property Line Adjustments. The Building Official, City Engineer, Floodplain Administrator or designee, or Community Development Director may determine that the following information is not necessary in conjunction with permits for work that would not exacerbate hazard conditions in any way.

#### **4.5.50.03 - Required Information**

Unless deemed unnecessary per Section 4.5.50.02, all such Development applications shall include the following information:

- a. A site plan showing the proposed Development on the site, drawn to a standard scale and including an illustrated scale for use in reductions;
- b. Location of all proposed infrastructure necessary to serve the proposed Development. Such infrastructure includes streets, driveways, water, sanitary sewer, and storm drainage;
- c. Land uses within 300 ft. of the subject property;
- d. Title block;
- e. North arrow and bar scale;
- f. Date(s) of field check(s);

- g. A grading plan, if grading is to occur, showing existing and finished contours on the site, at two- ft. contour intervals;
- h. Sources of information, such as national, state, or local soil survey maps; and City maps such as Comprehensive Plan and Zoning Maps, the Natural Hazards Map, the Significant Vegetation Map, the Riparian Corridors and Wetlands Map; and date and scale of aerial photos, etc.;
- i. Any other relevant submittal requirements identified for Development in areas with other specific Natural Hazards, as specified in Chapter 4.14 - Landslide Hazard and Hillside Development Provisions.
- j. **Building and Structure Elevations** - For all existing and proposed, relocated, or expanded buildings and structures, elevation in relation to the Highest Adjacent Grade, the North American Vertical Datum 1988 (NAVD88), and the Base Flood Elevation, or the flood Depth Number in AO Federal Flood Zones, as applicable, of the:
  - 1. Lowest enclosed area of all existing and proposed, relocated, or expanded buildings and structures. This includes Crawlspace, basement floors, and attached garages, electrical equipment (except utility meters), heating and ventilation equipment, plumbing, air conditioning equipment, and/or other service facilities (including ductwork);
  - 2. Top of proposed garage slabs; and
  - 3. Next highest floor situated above the items in “1,” and “2,” above.
- k. Elevation to which any existing building or structure has been or is proposed to be flood-proofed; and certification by a registered professional engineer that the flood-proofing methods for any nonresidential structure meet the flood-proofing criteria in Section 4.5.110.08, below;
- l. The locations and sizes of all flood openings in any proposed buildings and structures;
- m. A description of the extent to which any Floodplain or Watercourse is proposed to be altered or affected as a result of proposed Development;
- n. **Topographic Survey** - A topographic survey of the Development site, showing existing and proposed topography in two-ft. contour intervals. The

survey shall indicate the location of Top-of-bank, consistent with the definition in Chapter 1.6 - Definitions. The survey shall show the 0.2-ft. Floodway boundary and the 100-yr. Floodway Fringe boundary. The survey shall also show the location of existing and proposed improvements on the site, including buildings, structures, fencing, walls, landscaping, storage of materials or equipment, drainage facilities, parking areas, and other impervious surface areas. The survey shall be drawn to scale and shall note the distance from Top-of-bank to the improvements on the site;

- o. Flood Elevation** - The applicable Base Flood Elevation or, in AO Federal Flood Zones, the flood Depth Number;
- p. Determination of Unmapped 100-yr. Floodplain Information** - The following shall be included with applications involving properties for which any of the items listed below have not been mapped consistent with Section 4.5.20.01.b, and contain or are suspected to contain a portion of the 100-yr. Floodplain. The applicant shall provide a scope of work for a Floodplain study to the Floodplain Administrator or designee. The Floodplain Administrator or designee shall review the scope of work to determine whether or not it is compliant with established procedures. The scope of work may or may not be required to include off-site areas. The final scope of work and Floodplain study shall be prepared by a licensed engineer and reviewed and approved by the Floodplain Administrator or designee.

  - 1. The boundary of the 100-yr. Floodplain. Newly mapped 100-yr. Floodplain areas shall be designated High Protection Floodplain;
  - 2. The boundary of the 0.2-ft. Floodway;
  - 3. A determination of the corresponding Federal Flood Zone (e.g., "A1-30," "AE," "AH," approximate "A," and "AO"), as applicable; and
  - 4. The Base Flood Elevation for Federal Flood Zones "A1-30," "AE," "AH," and approximate "A," or flood Depth Number for Federal Flood Zone "AO," as applicable; and
- q.** All federally-mandated or state-mandated permits issued by other governmental agencies shall be obtained, or obtaining such permits shall be a Condition of Approval to be satisfied prior to issuance of any construction permit. Such permits include but are not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, 16 U.S.C. 1531-1544, and State of Oregon Removal-Fill permits, as amended.

#### **4.5.50.04 - Provisions for New Technical Data When Conditional Letter of Map Revision (CLOMR) and Associated Letter of Map Revision (LOMR) Required**

Notwithstanding prohibitions contained in Sections 4.5.80.01, 4.5.90.02, and 4.5.100, exceptional circumstances directly related to the construction of public infrastructure may necessitate an increase in the Base Flood Elevation within the 0.2-ft. Floodway and/or Floodway Fringe. The Floodplain Administrator or designee shall be responsible for determining whether exceptional circumstances exist. If such exceptional circumstances are found to exist, the applicant shall provide materials required by Section 4.5.50.02, 4.5.50.03, and 2.11.50.01 as part of a Floodplain Development Permit application and shall also be responsible for:

- a.** Having technical data prepared in a format required for a Conditional Letter of Map Revision (CLOMR) or Letter of Map Revision (LOMR) and submitting such data to FEMA on the appropriate application forms. Submittal and processing fees for these map revisions shall be the responsibility of the applicant;
- b.** Covering all costs associated with obtaining a CLOMR or LOMR from FEMA. The City of Corvallis shall be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application;
- c.** Obtaining FEMA approval for the CLOMR or LOMR and including the written documentation of the approval to the Floodplain Administrator or designee as part of the application materials in Section 4.5.50.02 and 4.5.50.03, as well as part of the application materials for a Floodplain Development Permit required by Chapter 2.11 - Floodplain Development Permit; and
- d.** Obtaining from FEMA, within six months of project completion, a LOMR reflecting the as-built changes to the FIRM, and providing a copy of the FEMA-approved materials to the Floodplain Administrator or designee. This provision applies when the applicant obtains an approved CLOMR from FEMA, or when the applicant's Development modifies Floodplain boundaries or Base Flood Elevations.

## Section 4.5.60 - ADMINISTRATION AND INTERPRETATION

### 4.5.60.01 - Administration

- a. **Designation of a Local Floodplain Administrator** - The City Engineer is hereby appointed as the Floodplain Administrator. The City Engineer or designee is responsible for administering and implementing the provisions of this chapter and Chapter 2.11 - Floodplain Development Permit;
- b. **Duties and Responsibilities of the Floodplain Administrator or Designee** - Duties of the Floodplain Administrator or designee shall include, but shall not be limited to:
  1. Review all Floodplain Development Permit applications to determine whether proposed new Development will be located in Special Flood Hazard Area;
  2. Review applications for modifications of any existing Development in Special Flood Hazard Areas for compliance with the requirements of this Chapter and Chapter 2.11 - Floodplain Development Permit;
  3. Interpret Special Flood Hazard Area boundaries, provide available Special Flood Hazard Area information, and provide Base Flood Elevations, where they exist;
  4. Review proposed Development to assure that applicants have obtained and provided the necessary permits from governmental agencies from which approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334; the Endangered Species Act of 1973, 16 U.S.C. 1531-1544; and State of Oregon Removal-Fill permits. Copies of such permits shall be maintained on file;
  5. Review all Floodplain Development Permit applications to determine if the proposed Development is located in the 0.2-ft. Floodway and, if so, ensure that the encroachment standards of Section 4.5.80 are met;
  6. When Base Flood Elevation or Floodway data have not been identified by FEMA in a Flood Insurance Study and/or Flood Insurance Rate Maps, the Floodplain Administrator or designee shall require an

applicant to provide a Floodplain study prepared by a licensed engineer, and the study shall be in accordance with Section 4.5.50.03.p. Newly mapped 100-yr. Floodplain areas shall be designated as High Protection Floodplain. Upon receipt and approval of this Floodplain study, the Floodplain Administrator or designee shall review, and reasonably utilize scientific or historic Base Flood Elevation and Floodway data available from a federal, state, or other source, in order to administer this chapter and Chapter 2.11 - Floodplain Development Permit;

7. When Base Flood Elevations or other engineering data are not available from an authoritative source, the Floodplain Administrator or designee shall take into account the Special Flood Hazard Areas, to the extent they are known, to determine whether a proposed building site or Subdivision will be reasonably safe from flooding. Oregon Residential Specialty Code R324.1.3 authorizes the Building Official to require an applicant to determine a Base Flood Elevation where none exists. Additionally, Section 4.5.50.03.p authorizes the Floodplain Administrator or designee to require an applicant to provide a Floodplain study in accordance with the provisions of that Code section. Newly mapped 100-yr. Floodplain areas shall be designated as High Protection Floodplain;
8. Where interpretation is needed of the exact location of boundaries of the Special Flood Hazard Areas, including regulatory Floodway (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), the Floodplain Administrator or designee shall make the interpretation. Any person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 1.1.30;
9. Issue Floodplain Development Permits when the provisions of Chapter 2.11 - Floodplain Development Permit have been met, or deny the same in the event of noncompliance;
10. Coordinate with the Building Official to assure that applications for Building Permits comply with the requirements of this chapter and Chapter 2.11 - Floodplain Development Permit;
11. Obtain from applicants, verify, and record the actual elevation in relation to the vertical datum used on the effective Flood Insurance Rate Map, or Highest Adjacent Grade where no Base Flood Elevation

is available, of the Lowest Floor level, including Basement, of all New Construction or Substantially Improved buildings and structures;

12. Obtain from applicants, verify, and record the actual elevation, in relation to the vertical datum used on the effective Flood Insurance Rate Map, or Highest Adjacent Grade where no Base Flood Elevation is available, to which any new or Substantially Improved buildings or structures have been flood-proofed. When flood-proofing is utilized for a structure, the Floodplain Administrator or designee shall obtain from applicants certification of design criteria from a registered professional engineer or architect;
13. Ensure that all records pertaining to the 100-yr. Floodplain regulations presented in this Chapter are permanently maintained in the office of the Floodplain Administrator or designee and shall be open for public inspection;
14. Make inspections in Special Flood Hazard Areas to determine whether Development has been undertaken without issuance of a Floodplain Development Permit, ensure that Development is undertaken in accordance with a Floodplain Development Permit and the provisions of this Chapter and Chapter 2.11 - Floodplain Development Permit, and verify that existing buildings and structures maintain compliance with the provisions of this Chapter and Chapter 2.11 - Floodplain Development Permit;
15. The Floodplain Administrator or designee shall make periodic inspections of Floodplain areas to establish that Development activities within the Floodplain are being performed in compliance with an approved Floodplain Development Permit. The Floodplain Administrator or designee shall prepare a field report listing non-complying conditions and shall proceed with enforcement actions including, but not limited to: the issuance of a Stop Work Order; the issuance of a citation; and the commencement of civil legal proceedings;
16. Coordinate with the Building Official to inspect areas where existing buildings and structures in Special Flood Hazard Areas have been damaged, regardless of the cause of damage, and notify owners that permits may be required prior to repair, rehabilitation, demolition, relocation, or reconstruction of the Building or Structure; and

17. Make Substantial Improvement or Substantial Damage determinations.

#### **4.5.60.02 - Interpretation**

- a. **Interpretation and Application of this Chapter and Chapter 2.11 - Floodplain Development Permit** - In the interpretation and application of the 100-yr. Floodplain regulations presented below, all provisions shall be:
  1. Considered as minimum requirements;
  2. Liberally construed in favor of the governing body, and;
  3. Deemed neither to limit nor repeal any other powers granted under state statutes, including state Building Codes.
- b. **Interpretation of Flood Insurance Rate Map and Other Floodplain Boundaries** - When there appears to be a conflict between a mapped boundary and actual field conditions, the Floodplain Administrator or designee shall determine the exact location of the boundaries of the Floodplain. Where FEMA Base Flood Elevation information is unavailable for Special Flood Hazard Areas, the Floodplain Administrator or designee shall obtain, review, and reasonably utilize any Base Flood Elevation and Floodway data as a basis for applying standards in the Floodway Fringe and 0.2-ft. Floodway. The Floodplain Administrator or designee is authorized to require applicants to provide such information via Section 4.5.50.03.p.

#### **Section 4.5.70 - INCENTIVES FOR RELOCATING BUILDINGS, STRUCTURES, PARKING LOTS, AND OTHER IMPERVIOUS SURFACES OUTSIDE THE 100-YR. FLOODPLAIN**

Existing buildings and structures, parking lots, and other impervious surface areas that are removed from the 100-yr. Floodplain will qualify for the benefits in “a,” and “b,” below. Additionally, new Development is also eligible for the benefits in “a,” and “b,” below, in areas of the 100-yr. Floodplain where such Development is allowed, including identified portions of the Willamette River, Mary’s River, Millrace Floodplain, and Partially Protected local Stream areas.

#### **4.5.70.01 - Allowed Intensification**

- a. **Residentially Zoned Properties** - Development or redevelopment of a residentially zoned property, or of a group of contiguous residentially zoned

properties, may transfer density from portions of the site within the Floodway Fringe to portions of the site outside of the Floodway Fringe to the extent allowed by use of the Development standards in the next most intensive Development zone. However, this intensification is only allowed provided that, in resultant Development, no buildings, structures or parking areas are located within the Floodway Fringe portion of the site.

**b. Nonresidentially Zoned Properties for which at Least 25 Percent of the Total Site Area is within the 100-yr. Floodplain -**

1. Allowed building height of the underlying zone may be increased by 10 ft. if all improvements, including buildings and parking areas, are removed from at least 75 percent of the site area within the Floodplain. This is not a cumulative standard and cannot be combined with height exceptions allowed elsewhere in this Code.
2. Allowed building height of the underlying zone may be increased by 20 ft. if all improvements, including buildings and parking areas, are removed from 100 percent of the site area within the Floodplain. This is not a cumulative standard and cannot be combined with height exceptions allowed elsewhere in this Code.

**4.5.70.02 - Reduction of Impervious Surface Area for Development Sites with at Least 50 percent of Their Area within the 100-yr. Floodplain**

When a Development site has at least 50 percent of its site area within the 100-yr. Floodplain, the height of buildings and structures may be increased by 10 ft. above the height normally allowed in the applicable underlying Development zone if Development or redevelopment of the site results in pervious surface area for at least 50 percent of the entire Development site. Gravel, paving, concrete, buildings, and structures are all impervious. This is not a cumulative standard and cannot be combined with height exceptions allowed elsewhere in this Code.

**Section 4.5.80 - STANDARDS IN THE 0.2-FT. FLOODWAY**

**4.5.80.01 - Encroachments**

Except as provided in Section 4.5.80.05, no encroachments are allowed within the 0.2-ft. Floodway, with the exception of bridges, infrastructure, utilities, or Water-dependent Uses, for which it may be demonstrated, through hydrologic and hydraulic analyses certified by a registered professional civil engineer and

performed in accordance with standard engineering practices, that the proposed encroachment would not result in any increase in flood levels within the community during the Base Flood discharge. Encroachments include fill, New Construction, fences, Substantial Improvements, except as provided in Section 4.5.80.03.c, below, and other Development. Development within the 0.2-ft. Floodway shall comply with all applicable state and federal requirements. Construction of these facilities must be shown to cause minimal harm to the Properly Functioning Condition of the stream. These improvements shall be subject to the City's Engineering Design Standards.

#### **4.5.80.02 - Watercourse Relocations**

Watercourse relocation by artificial means is prohibited, except for emergency management purposes, the realignment of Dunawi Creek back to its natural alignment as allowed by the note on the Comprehensive Plan Map, or as mandated by state or federal actions that supercede local authority. For riverine situations, the applicant who is authorized for such a relocation must notify the Oregon Department of State Lands (DSL) and the Oregon Department of Land Conservation and Development, and submit copies of such notification to the Floodplain Administrator or designee, prior to the relocation of the Watercourse. The applicant is required to submit copies of said notification to those adjacent communities that the Floodplain Administrator or designee determines should receive such notification. The applicant shall submit to the Floodplain Administrator or designee certification provided by a registered professional engineer, assuring that the flood carrying capacity of a relocated Watercourse can and will be maintained.

#### **4.5.80.03 - Limitations and Exceptions to Activities in the 0.2-ft. Floodway**

In addition to the requirements of the underlying zone, the limitations and exceptions in "a," through "c," below, and in Sections 4.5.80.04 and 4.5.80.05 shall apply to activities within the 0.2-ft. Floodway. Where applicable state or federal regulations provide greater restrictions, such regulations shall apply. All necessary local, state, and federal approvals shall be secured prior to the commencement of earth movement or construction in these areas.

- a. Removal of Vegetation** - Removal of vegetation from the 0.2-ft. Floodway is prohibited, except for the following purposes, as approved by the Floodplain Administrator or designee:
  - 1. Stream restoration and enhancement programs;

2. Removal of Invasive and/or Noxious Vegetation as defined in Chapter 1.6 - Definitions. If necessary in conjunction with vegetation removal, non-rip-rap erosion control measures shall be utilized;
3. For the Development of Water-related or Water-dependent Uses, provided they are designed and constructed to minimize impact on the existing Riparian Vegetation;
4. Removal of emergent in-channel vegetation and debris likely to cause flooding events that result in structural damage;
5. Mowing/cutting of vegetation and in a 20-ft. perimeter around buildings and structures for fire hazard prevention;
6. Continuation of agricultural activities occurring on a property prior to December 31, 2004, such as grazing livestock, growing crops, etc. However, the use of herbicides, or other pesticides, the application of synthetic fertilizers, and the storage of toxic materials in these areas is subject to applicable state and federal regulations and is also subject to the restrictions set forth in the Corvallis Municipal Code;
7. Removal of Hazardous Trees - Requests for removal of Hazardous Trees, except in emergency circumstances, shall be reviewed by the City Urban Forester (or another qualified arborist) and approved, conditionally approved, or denied by the Community Development Director. Any trees removed shall be replaced by like native species or alternative approved native species listed on the City of Corvallis Native Plant List; and
8. For maintenance consistent with the City of Corvallis Public Works Department Urban Stream Maintenance Guidelines. However, any maintenance conducted according to these guidelines may only be done if it is consistent with the other applicable provisions of this Chapter 4.5 - Floodplain Provisions, as well as the applicable provisions of Chapter 4.11 - Minimum Assured Development Area (MADA), Chapter 4.12 - Significant Vegetation Protection Provisions, Chapter 4.13 - Riparian Corridor and Wetland Provisions, and Chapter 4.14 - Landslide Hazard and Hillside Development Provisions.

**b. Maintenance within the 0.2-ft. Floodway -**

1. The limitations imposed by this Section do not preclude the routine maintenance of existing buildings and structures, nor the routine maintenance, repair, and replacement of infrastructure in the 0.2-ft. Floodway.
2. Maintenance of lawns, non-native riparian planted vegetation, and landscaping shall be kept to a minimum. Additionally, the application of herbicides or other pesticides, and the application of synthetic fertilizers is subject to applicable state and federal regulations and developed properties shall be subject to the restrictions set forth in the Corvallis Municipal Code;
3. Where replanting is done, native species shall be used, with the exception of continuing agricultural uses, as specified in Section 4.5.80.03.a.6;
4. Maintenance pruning of existing trees shall be kept to a minimum and shall be in accordance with the American National Standards Institute (ANSI) A300 standards for Tree Care Operations. Under no circumstances shall the maintenance pruning be so severe that it compromises the tree's health, longevity, and resource functions;
5. Vegetation within utility easements shall be kept in a natural state and replanted when necessary with native plant species. However, no trees shall be planted within utility easements;
6. Disposal of yard waste or other organic materials is prohibited within the Top-of-bank boundary of any Stream, and is regulated by restrictions in the Corvallis Municipal Code; and
7. Maintenance consistent with the City of Corvallis Public Works Department Urban Stream Maintenance Guidelines. However, any maintenance conducted according to these guidelines may only be done if it is consistent with the other applicable provisions of this Chapter 4.5 - Floodplain Provisions, as well as the applicable provisions of Chapter 4.11 - Minimum Assured Development Area (MADA), Chapter 4.12 - Significant Vegetation Protection Provisions, Chapter 4.13 - Riparian Corridor and Wetland Provisions, and Chapter 4.14 - Landslide Hazard and Hillside Development Provisions.

- c. **Existing Buildings and Structures Constructed Prior to December 4, 1984** - Existing buildings and structures that were constructed prior to December 4, 1984, and are located in the area between the 1.0-ft. Floodway and the 0.2-ft. Floodway shall not be considered Nonconforming Structures for the purposes of this Chapter. Additionally, Substantial Improvement or replacement within the same footprint is permitted. Such replacements shall comply with the mandatory construction standards in Sections 4.5.100.02, 4.5.100.03, and 4.5.110.

#### **4.5.80.04 - Placement of Fill within the 0.2-ft. Floodway**

Any fill allowed to be placed within the 0.2-ft. Floodway, per Sections 2.11.40, 4.5.80.01, or 4.5.80.05, shall be designed to be stable under conditions of flooding, including rapid rise and rapid drawdown of floodwaters, prolonged inundation, and flood-related erosion and scour. This standard shall not be varied.

#### **4.5.80.05 - Exception to the 0.2-ft. Floodway “No Rise” Standard**

Notwithstanding Section 4.5.80.01, an increase in the Base Flood Elevation within the 0.2-ft. Floodway may be permitted in exceptional circumstances, if the Floodplain Administrator or designee approves the exceptional circumstances and if the applicant obtains approval of a Conditional Letter of Map Revision (CLOMR) by the Federal Emergency Management Agency. An applicant must strictly adhere to the procedures for obtaining a CLOMR, as described in Section 4.5.50.04, and provide copies of a valid CLOMR to the Floodplain Administrator or designee prior to receiving approval of a local land use request that will result in any increase in Base Flood Elevation within the 0.2-ft. Floodway.

### **Section 4.5.90 - STANDARDS IN HIGH PROTECTION FLOODWAY FRINGE AREAS**

The following standards shall apply to activities and Development in High Protection Floodway Fringe areas, as identified on the Natural Hazards Map. Generally, these areas contain the 100-yr. Floodplain of local Streams, but not the portions of the Millrace and Willamette and Mary’s River 100-yr. Floodplains within the City Limits boundary, as of December 31, 2004. Additionally, Special Flood Hazard Areas mapped after December 31, 2004, shall all be designated High Protection Floodway Fringe and, once annexed, shall be subject to the standards of this chapter and Chapter 2.11 - Floodplain Development Permit.

In addition to the requirements of the underlying zone, the following limitations and exceptions shall apply to activities within the High Protection Floodway Fringe. Where applicable state or federal regulations provide greater restrictions, such regulations shall

apply. All necessary local, state, and federal approvals shall be secured prior to the commencement of earth movement or construction in these areas.

#### **4.5.90.01 - Removal of Vegetation**

Removal of vegetation from High Protection Floodway Fringe areas is prohibited, except for the following purposes, as approved by the Floodplain Administrator or designee:

- a. Stream restoration and enhancement programs;
- b. Removal of Invasive and/or Noxious Vegetation as defined in Chapter 1.6 - Definitions. If necessary in conjunction with vegetation removal, non-rip-rap erosion control measures shall be utilized;
- c. For the Development of Water-related or Water-dependent Uses, provided they are designed and constructed to minimize impact on the existing Riparian Vegetation;
- d. Removal of emergent in-channel vegetation likely to cause flooding events that result in structural damage;
- e. Mowing/cutting of vegetation in a 20-ft. perimeter around buildings and structures for fire hazard prevention;
- f. Continuation of agricultural activities occurring on a property prior to December 31, 2004, such as grazing livestock, growing crops, etc. However, the use of herbicides, or other pesticides, the application of synthetic fertilizers, and the storage of toxic materials in these areas is subject to applicable state and federal regulations, and is also subject to the restrictions set forth in the Corvallis Municipal Code;
- g. Maintenance and protection of the function of City utilities and transportation facilities located within Floodway Fringe areas;
- h. Removal of Hazardous Trees - Requests for removal of Hazardous Trees, except in emergency circumstances, shall be reviewed by the City Urban Forester (or another qualified arborist) and approved, conditionally approved, or denied by the Community Development Director. Any trees removed shall be replaced by like native species or alternative approved native species listed on the City of Corvallis Native Plant List;

- i. Maintenance consistent with the City of Corvallis Public Works Department Urban Stream Maintenance Guidelines. However, any maintenance conducted according to these guidelines may only be done if it is consistent with the other applicable provisions of this Chapter 4.5 - Floodplain Provisions, as well as the applicable provisions of Chapter 4.11 - Minimum Assured Development Area (MADA), Chapter 4.12 - Significant Vegetation Protection Provisions, Chapter 4.13 - Riparian Corridor and Wetland Provisions, and Chapter 4.14 - Landslide Hazard and Hillside Development Provisions; and
- j. Removal of vegetation and maintenance within areas allowed to be developed per the Code's Minimum Assured Development Area (MADA) provisions.

#### **4.5.90.02 - Building, Paving, and Grading Activities**

Within High Protection Floodway Fringe areas, the placement of buildings and structures or impervious surfaces, as well as grading, excavation, and the placement of fill, is prohibited except as provided in Section 2.11.40 and as stated below. Exceptions to the Floodway Fringe restrictions may be made for the purposes identified in items "a," through "g," of this Section, provided they are designed and constructed to minimize adverse impacts to Stormwater and Floodplain Functions within the Floodway Fringe, comply with the mandatory construction standards in Section 4.5.100 and, unless permitted in accordance with Section 4.5.50.04, result in no increase in Base Flood Elevation.

- a. **Replacement or Relocation of Existing Buildings and Other Structures -** Replacement or relocation of existing buildings and/or other structures, either within the original footprint, or with the same or reduced square footage area elsewhere in the Floodplain portion of the site. A relocation of an existing building and/or other structure within the same square footage area, but located elsewhere within the Floodplain portion of the site, is only allowed if the relocated building and/or other structure enhances Stormwater and Floodplain Function. The relocation shall be considered to enhance Stormwater and Floodplain Function if it furthers any of the following goals without worsening any other goal:
  - 1. Replaces standard construction with flow-through construction;
  - 2. Moves the structure or paved area to a higher elevation;

3. Moves the structure or paved area further from the Top-of-bank of the adjacent Watercourse;
4. Reduces the amount of impervious surface area in the Floodway Fringe;
5. Does not negatively impact non-noxious Riparian Vegetation. Invasive and/or Noxious Vegetation is defined in Chapter 1.6 - Definitions; and/or
6. Maintains or reduces the volume of floodwater displacement.

**b. Additions to existing buildings and structures that either:**

1. Fall below the threshold of Substantial Improvement as defined in Chapter 1.6 - Definitions; or
2. Will not result in the filling of additional Floodway Fringe area, such as a second story addition or Flow-through Design construction;

**c.** Location, maintenance, repair, and replacement of infrastructure, and construction of streets, utilities, bridges, bicycle, and pedestrian facilities. Location and construction of such facilities within High Protection Floodway Fringe areas must be deemed necessary to maintain a functional system by the City Engineer. This Code, City Transportation and Utility Master Plans, and other adopted City plans shall guide this determination. The design standards of Chapter 4.0 - Improvements Required with Development shall be applied to minimize the impact to the Floodway Fringe area;

**d.** Redevelopment of utility operations existing as of December 31, 2004, is also permitted. Required riparian easement areas shall be re-vegetated consistent with Section 4.13.50.d.1 and Section 4.13.50.d.2 of Chapter 4.13 - Riparian Corridor and Wetland Provisions;

**e.** Development of Water-related and Water-dependent Uses, including associated drainage facilities, water and sewer utilities, stormwater detention and retention facilities, flood control projects, and drainage pumps. These improvements shall be subject to the City's Engineering Design Standards;

**f.** Erosion control or flood control measures that have been approved by the Oregon Department of State Lands (DSL), the U.S. Army Corps of Engineers, or other state or federal regulatory agency with jurisdiction in this

area. Erosion control or flood control measures shall either utilize bio-engineering methods other than rip-rap, or shall utilize rip-rap only to address an imminent hazard to a structure built prior to December 31, 2004. If utilized, the rip-rap installation shall be designed by a Professional Engineer Licensed by the State of Oregon and approved by the Oregon Department of Fish and Wildlife; and

- g.** Development associated with a Minimum Assured Development Area that would be allowed in accordance with Chapter 4.11 - Minimum Assured Development Area (MADA).

#### **4.5.90.03 Subdivisions, Land Partitions, and Property Line Adjustments**

For properties with Natural Resources or Natural Hazards subject to Chapter 4.5 - Floodplain Provisions, Chapter 4.12 - Significant Vegetation Protection Provisions, Chapter 4.13 - Riparian Corridor and Wetland Provisions, or Chapter 4.14 - Landslide Hazard and Hillside Development Provisions, no Subdivision, Partition, or Property Line Adjustment shall create new lots or parcels unless each new and remaining lot or parcel contains:

- a.** An area unconstrained by Natural Resources or Natural Hazards;
- b.** An area that includes Formerly Constrained Areas; or
- c.** Contains an area that includes the areas in “a,” and “b,” above;

and that area is equal to or greater than the Minimum Assured Development Area for the zone or zones in which the Development site falls.

Exceptions to this requirement are lots created for public park purposes and privately- or publicly-owned lots completely contained within land zoned Conservation-Open Space. New Subdivisions and Partitions may contain common open space tracts for the purpose of protecting Natural Resources and/or avoiding Natural Hazards.

#### **4.5.90.04 - Maintenance within Floodway Fringe Areas**

The limitations imposed by this Section do not preclude the routine maintenance of allowed or pre-existing buildings, structures, infrastructure, and landscaped areas.

- a.** Maintenance of lawns, non-native riparian planted vegetation and landscaping shall not expand lawn areas or remove or damage any non-

hazardous tree. A lawn area is defined as vegetated area mowed to an 18-in. or less height;

- b. The application of herbicides or other pesticides, and the application of synthetic fertilizers are subject to applicable state and federal regulations; and developed properties shall be subject to the restrictions set forth in the Corvallis Municipal Code;
- c. Where replanting is done, native species shall be used, with the exception of continuing agricultural uses, as specified in Section 4.5.90.01.f;
- d. Maintenance pruning of existing trees shall be kept to a minimum and shall be in accordance with the American National Standards Institute (ANSI) A300 standards for Tree Care Operations. Under no circumstances shall the maintenance pruning be so severe that it compromises the tree's health, longevity, and resource functions;
- e. Vegetation within utility easements shall be kept in a natural state and replanted when necessary with native plant species. However, no trees shall be planted within utility easements;
- f. Disposal of yard waste or other organic materials is prohibited within 25 ft. of the Top-of-bank boundary of any Stream, and is regulated by restrictions in the Corvallis Municipal Code; and
- g. Maintenance consistent with the City of Corvallis Public Works Department Urban Stream Maintenance Guidelines. However, any maintenance conducted according to these guidelines may only be done if it is consistent with the other applicable provisions of this Chapter 4.5 - Floodplain Provisions, as well as the applicable provisions of Chapter 4.11 - Minimum Assured Development Area (MADA), Chapter 4.12 - Significant Vegetation Protection Provisions, Chapter 4.13 - Riparian Corridor and Wetland Provisions, and Chapter 4.14 - Landslide Hazard and Hillside Development Provisions.

**4.5.90.05 - Use of Minimum Assured Development Area (MADA) Provisions in the 100-yr. Floodway Fringe -**

- a. **MADA Provisions Cannot be Used to Encroach into the 0.2-ft. Floodway** - While Section 4.5.80 does allow for some very limited types of activities into the 0.2-ft. Floodway, encroachments for the specific purpose of achieving a Minimum Assured Development Area per Chapter 4.11 - Minimum Assured

Development Area (MADA) are prohibited in the 0.2-ft. Floodway. This prohibition is consistent with Section 4.11.50.05.

- b. Floodway Fringe Development Pursuant to MADA Provisions Requires Adherence to Partial Protection Floodplain Provisions** - In cases where encroachment into the Floodway Fringe is allowed per the Minimum Assured Development Area provisions in Chapter 4.11 - Minimum Assured Development Area (MADA), all such Development shall comply with Section 4.5.100 - Standards in Partial Protection Floodway Fringe.

#### **Section 4.5.100 - STANDARDS IN PARTIAL PROTECTION FLOODWAY FRINGE AREAS**

The following standards shall apply to activities and Development in Partial Protection Floodway Fringe areas, as identified on the Natural Hazards Map. These areas contain the portions of the Millrace and Willamette and Mary's River 100-yr. Floodplain within the City Limits boundary, as of December 31, 2004; and specific portions of local Streams as noted on the Riparian Corridors and Wetlands Map.

In addition to the requirements of the underlying zone, the following limitations and exceptions shall apply to activities within the Partial Protection Floodway Fringe. Where applicable state or federal regulations provide greater restrictions, such regulations shall apply. All necessary local, state, and federal approvals shall be secured prior to the commencement of earth movement or construction in these areas.

Except as provided in Sections 4.5.100.01 and 2.11.40, the placement of fill is prohibited within Partial Protection Floodway Fringe areas.

##### **4.5.100.01 - Volumetric Exchange**

To compensate for the deposition of fill materials or construction of flood-proofed buildings within any portion of the 100-yr. Floodplain, an equal amount of material shall be removed from the same property or Development site to ensure that the available flood volume of the 100-yr. Floodplain is not reduced. Unless permitted in accordance with Section 4.5.50.04, no increase in Base Flood Elevation shall be permitted. In addition, the following provisions shall apply:

- a. Volumetric exchange shall be limited to the following areas:**
  - 1. Floodway Fringe portions of the Mill Race and Willamette and Marys Rivers; and

2. Floodway Fringe portions of other local streams, provided the area is designated as Partial Protection Floodplain on the Natural Hazards Map and at least one of the following is true:
  - a) The development is nonresidential construction; or
  - b) The development is residential construction and the development is less than a Substantial Improvement; or
  - c) The development is residential on a site where the natural grade is such that, if flow-through design were used and the finished floor elevation were constructed at one ft. above Base Flood Elevation, the resulting Crawlspace would not be deep enough to accommodate the FEMA-required venting which must be installed below Base Flood Elevation; or
  - d) The development is a garage; or
  - e) The development is a driveway or building access.
- b.** Material removed from the site shall not be taken from Significant Natural Resource areas as mapped on the Corvallis Significant Vegetation Map and Riparian Corridors and Wetlands Map, and shall be removed consistent with all requirements of this Code and other applicable City policies;
- c.** Areas of fill and excavation shall be designed to accommodate floodwater flows and shall not create barriers to the flow of floodwater. Proposals to alter topography in the Floodplain must demonstrate that they will not result in alteration of hydrology or flow regimes that would cause erosion, ponding, new or increased drainage onto neighboring properties, or other problems;
- d.** Volumetric exchange will not be required of buildings within the Floodway Fringe constructed with Flow-through Design, but will be required of flood-proofed buildings and structures within the Floodway Fringe;
- e.** Dikes are prohibited in these areas; and
- f.** The volume of a stormwater detention facility necessary to accommodate the designed-for storm event shall not count as an element of volumetric exchange.

#### **4.5.100.02 - Parking Limitation - to Reduce Impervious Surface Area in the Floodplain**

- a.** Where permitted, no expansion, redevelopment, or Development of a parking lot containing four or more parking spaces within any portion of the Floodway Fringe shall contain more than the minimum amount of parking that would be required per Chapter 4.1 - Parking, Loading, and Access Requirements, unless “1,” or “2,” below, is true. Parking lots within the Floodway Fringe may be reduced to 80 percent of the minimum parking required by Chapter 4.1. To achieve greater than minimum parking in the Floodway Fringe, parking area shall:
  - 1. Be constructed of pervious materials, such as grass-crete; or
  - 2. Be contained in a multi-story structured parking facility with at least 50 percent of the provided parking located above ground level and utilizing Flow-through Design. If this option is used, the parking lot may contain up to 130 percent of the required parking amount.
  
- b. Compact Spaces -** Where parking lots are permitted in the Floodway Fringe:
  - 1. 40 percent of the parking spaces within new and redeveloped parking lots shall be compact spaces; and
  - 2. If existing parking lots within the Floodway Fringe are permitted to expand, per the provisions of this Chapter, all additional parking spaces created in the expanded parking lot shall be compact spaces, until the 40 percent threshold in “1,” above, is reached for the overall parking lot.

#### **4.5.100.03 - Adherence to Sections 4.5.110, 4.5.120, and 4.5.90.05**

- a.** Development is required to adhere to the Construction standards in Section 4.5.110 and the Subdivision, Land Partition, and Property Line Adjustment standards in Section 4.5.120.
  
- b. Use of MADA -** In cases where encroachment into the Floodway Fringe is allowed per the Minimum Assured Development Area provisions in Chapter 4.11 - Minimum Assured Development Area (MADA), all such Development shall comply with Section 4.5.90.05.

## **Section 4.5.110 - CONSTRUCTION STANDARDS WITHIN THE 100-YR. FLOODPLAIN**

**General Standards for All Construction** - Development within the Floodway Fringe (Federal Flood Zones A, AH, A1-A30, AE, AO, and A99 on the Flood Insurance Rate Map), including residential and nonresidential buildings and structures and the public and private facilities serving these buildings and structures, shall adhere to the following standards so as to minimize damage from flooding. Unless permitted in accordance with Section 4.5.50.04, no increase in Base Flood Elevation shall be permitted. Although other types of construction are allowed by this Code, Flow-through Designs are preferable. These standards in Section 4.5.110.01 through Section 4.5.110.05, below, shall apply to all construction within the Floodway Fringe. In addition, the standards in Section 4.5.110.06 through Section 4.5.110.14, below, apply, as applicable.

**4.5.110.01** - All necessary permits shall be obtained from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, as amended. If obtaining such permits is a Condition of Approval for a land use application, such Condition of Approval shall be satisfied prior to issuance of any construction permit.

**4.5.110.02** - All Land Division and Building Permit applications, including the placement of mobile and Manufactured Dwellings within Federal Flood Zones A, A1-A30, AE, AH, AO, and A99, shall be reviewed for conformance with these standards. Land Division and mobile or Manufactured Dwelling Facility proposals shall:

- a. Be consistent with the need to minimize flood damage;
- b. Locate and construct utilities such as sewer, gas, electrical, and water systems to minimize or eliminate flood damage;
- c. Provide adequate drainage to reduce exposure to flood hazards;
- d. Design new and replacement water systems within flood-prone areas to minimize or eliminate infiltration of flood waters into the systems; and
- e. Design new and replacement sanitary sewer systems within flood-prone areas to minimize or eliminate infiltration of flood

waters into the systems and discharges from the systems into flood waters. On-site waste disposal systems are not allowed.

#### **4.5.110.03 - Flood Protection Construction Standards**

- a. All New Construction and Substantial Improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from Hydrodynamic and Hydrostatic Loads, including the effects of buoyancy;
- b. All mobile and Manufactured Dwellings shall 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 as approved by the Building Official. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces; and
- c. All building materials not elevated one ft. above Base Flood Elevation shall be constructed with materials that resist, and methods that minimize, flood damages.

#### **4.5.110.04 - Use of Fill within the Floodway Fringe**

Any fill allowed to be placed within the Floodway Fringe shall be stable under conditions of flooding, including rapid rise and rapid drawdown of floodwaters, prolonged inundation, and flood-related erosion and scour. This standard shall not be varied.

#### **4.5.110.05 - Below-grade Crawlspace**

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

- a. The building shall 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 "b," below. Because of hydrodynamic loads, Crawlspace construction is not allowed in areas with flood velocities greater than five ft. per second unless the design is reviewed by a qualified design professional,

such as a registered architect or licensed professional engineer. Other types of foundations are recommended for these areas;

- b.** The Crawlspace is an enclosed area below the Base Flood Elevation (BFE) and, as such, shall have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening shall be no more than one ft. above the lowest adjacent exterior grade;
- c.** Portions of the building below the Base Flood Elevation (BFE) must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the Crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE;
- d.** Any building utility systems within the Crawlspace shall be elevated above Base Flood Elevation (BFE) or designed so that flood waters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, shall either be placed above the BFE or sealed from flood waters;
- e.** The interior grade of a Crawlspace below the Base Flood Elevation (BFE) shall not be more than two ft. below the lowest adjacent exterior grade;
- f.** The height of the below-grade Crawlspace, measured from the interior grade of the Crawlspace to the top of the Crawlspace foundation wall shall not exceed four ft. at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and Building Code requirements for Special Flood Hazard Areas;
- g.** There shall be an adequate drainage system that removes flood waters 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; and
- h.** The velocity of flood waters at the site should not exceed five ft. per second for any Crawlspace. For velocities in excess of five ft. per second, other foundation types should be used (see "a," above).

#### **4.5.110.06 - Standards for Recreational Vehicles**

- a.** For the purposes of this Section, Recreational Vehicle is defined as a vehicle which includes all the following characteristics:
  - 1. Built on a single chassis;
  - 2. 400 sq. ft. or less in size when measured at the largest horizontal projection;
  - 3. Designed to be self-propelled or permanently towable by a light duty truck; and
  - 4. Designed primarily not for use as a permanent dwelling, but as temporary living quarters for recreational, camping, travel, or seasonal use.
  
- b.** All Recreational Vehicles placed on sites within Federal Flood Zones A, AH, A1-A30, AE, AO, and A99 shall either:
  - 1. Be on the site for fewer than 180 consecutive days;
  - 2. Be fully licensed and ready for highway use, on its wheels or jacking system, attached to the site only by quick disconnect-type utilities and security devices, and have no permanently attached structures or addition; or
  - 3. Meet all standards of Section 4.5.110.03.

#### **4.5.110.07 - Residential Construction**

- a.** New Construction and Substantial Improvement (as defined in Chapter 1.6 - Definitions) of any residential structure, including mobile and Manufactured Dwellings, shall have the Lowest Floor elevated to a minimum of one ft. above Base Flood Elevation. In AO Federal Flood Zones, the Lowest Floor shall be elevated a minimum of one ft. above the flood Depth Number or, in areas where the Depth Number is unknown, the Lowest Floor shall be elevated a minimum of three ft. above the Highest Adjacent Grade. Lowest Floor includes basements and Habitable attached garages, and electrical (except utility meters), heating, ventilation, plumbing, and air conditioning

equipment and other service facilities (including ductwork). See definition for Lowest Floor in Section 1.6.40.

- b.** Accessory buildings and structures less than 200 sq. ft., and fully enclosed nonhabitable areas below the Lowest Floor that are subject to flooding are prohibited, unless designed to automatically equalize Hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters (fences and walls are not governed by this section, but are subject to the standards in Section 4.5.110.12). These accessory buildings and structures and fully enclosed nonhabitable areas include nonhabitable attached or detached garages, provided they meet the description of an “unfinished or flood-resistant enclosure” in the Section 1.6.40 definition for Lowest Floor. Designs for meeting these requirements shall meet standards outlined in the adopted Oregon Structural Specialty Code and shall meet or exceed the following minimum criteria:
1. A minimum of two openings having a total net area of not less than one sq. in. for every sq. ft. of enclosed area subject to flooding shall be provided;
  2. The bottom of all openings shall be no higher than one ft. above grade; and
  3. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of flood waters.

#### **4.5.110.08 - Nonresidential Construction**

- a.** New Construction and Substantial Improvement of any commercial, industrial, or other nonresidential structure shall either have the Lowest Floor elevated a minimum of one ft. above the level of the Base Flood Elevation, or accomplish the alternative approach in “1,” through “3,” below. Lowest Floor includes basements and Habitable attached garages, and electrical (except utility meters), heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork). See definition for Lowest Floor in Section 1.6.40. The alternative approach includes:
1. Flood-proofing the Lowest Floor together with attendant utilities and sanitary facilities, so that the structure is watertight a minimum of one ft. above the Base Flood level;

2. Having the structural components of the Lowest Floor capable of resisting Hydrostatic and Hydrodynamic Loads and effects of buoyancy; and
  3. Having the alternative design certified by a registered professional engineer or architect, stating that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection, based on his/her Development and/or review of the structural design, specifications, and plans.
- b.** Designs for meeting the requirements in “a,” above, shall meet standards outlined in the adopted Oregon Structural Specialty Code.
1. Nonresidential buildings and structures that are elevated and not flood-proofed must have structural components capable of resisting Hydrostatic and Hydrodynamic Loads and effects of buoyancy, for space below the Lowest Floor; and
  2. Applicants proposing to flood-proof nonresidential buildings shall be notified that the flood insurance premiums shall be based on rates for buildings and structures with a Lowest Floor that is one ft. below the flood-proofed level.

#### **4.5.110.09 - Critical Facilities**

Construction of new Critical Facilities, as defined in Section 1.6.40, shall be, to the maximum extent possible, located outside the limits of Special Flood Hazard Areas. Construction of new Critical Facilities shall be permissible within the Special Flood Hazard Area if no feasible alternative site is available. Critical Facilities constructed within Special Flood Hazard Areas shall have the Lowest Floor elevated three feet above Base Flood Elevation (or Depth Number in AO Federal Flood Zones). Access to and from the Critical Facility shall also, to the maximum extent possible, be protected to the height utilized above within the corresponding Special Flood Hazard Area(s). Any grade transition necessary to achieve the access protection requirement shall be achieved outside of the corresponding Special Flood Hazard Area(s). Dry floodproofing and sealing measures must be used to ensure that toxic substances or priority organic pollutants, as defined by the Oregon Department of Environmental Quality, will not be displaced by or released into floodwaters. The Floodplain Administrator or designee shall make the determination as to whether or not the Critical Facility’s siting and access have achieved this provision’s standards of “to the maximum extent possible.”

Some types of facilities may be critical to a community, but require location within or partially within Special Flood Hazard Areas because of the nature of the facilities. The Taylor Water Treatment plant along the Willamette River is an example of such a facility. It is pulling water from the Willamette River. Because of this fact, these types of facilities have purposefully been excluded from the definition of Critical Facility in Section 1.6.40.

#### **4.5.110.10 - Storage Tanks**

- a. Underground tanks in Special Flood Hazard Areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy assuming the tank is empty, during conditions of the design flood.
  
- b. **Above-ground tanks in Special Flood Hazard Areas shall be:**
  - 1. Attached to and elevated to or above the Base Flood Elevation (or Depth Number in AO Federal Flood Zones) and attached to a supporting structure that is designed to prevent flotation, collapse or lateral movement during conditions of the design flood; or be
  
  - 2. Anchored or otherwise designed and constructed to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy assuming the tank is empty, during conditions of the design flood.
  
- c. **Tank inlets, fill openings, outlets and vents shall be:**
  - 1. A minimum of 2 ft. above Base Flood Elevation (BFE) or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tank during conditions of the design flood; and
  
  - 2. Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood.

#### **4.5.110.11 - On-site Sewage Systems**

- a. Soil absorption systems shall be located outside of Special Flood Hazard Areas. Where suitable soil absorption sites outside of Special Flood Hazard Areas are not available, the soil absorption site is permitted to be located within an Special Flood Hazard Area, provided the Floodplain Administrator

or designee finds that it is located to minimize the effects of inundation under conditions of the Base Flood; and

- b. Mound systems are prohibited in Special Flood Hazard Areas.

#### **4.5.110.12 - Fences and Walls**

Unless exempt per Section 2.11.40.b, a Floodplain Development Permit shall be obtained for fences and walls, and the fences and walls shall comply with all of the standards in “a,” and “b,” below:

- a. **Applicability** - These provisions apply when fences and walls are not exempt per Section 2.11.40.b, and at least one of the following is true:

1. The velocity of the flood waters where the fence or wall is proposed is equal to or greater than 5 ft. per second. This velocity information shall be obtained from one of the two following sources:
  - a) The Flood Insurance Study for Benton County and Incorporated Areas, dated June 2, 2011; or
  - b) For sites where no FEMA Flood Insurance Study is available, an independent Floodplain study approved by the Floodplain Administrator or designee and meeting all the requirements as outlined in Section 4.5.50.03.p; or
2. The velocity of flood waters information specified in “1,” above, is not available from one of the two sources in Section 4.5.110.12.a.1. In these instances the velocity of flood waters shall be assumed to be greater than 5 ft. per second.

The purpose of the Floodplain Development Permit for fences and walls in Floodplain areas with unknown flood water velocities or velocities at least 5 ft. per second, even where the fences and walls meet the design parameters in Section 4.5.110.12.b, is to ensure proper documentation and consideration of Floodplain activities for the benefit of the Federal Emergency Management Agency (FEMA) and the Floodplain Administrator or designee.

- b. Fencing shall fully comply with Table 4.5-1 Fencing and Wall Parameters for Fences and Walls that Require a Floodplain Development Permit.

**Table 4.5-1 Fencing and Wall Parameters for Fences and Walls that Require a Floodplain Development Permit  
(Those Fences and Walls Meeting Section 4.5.110.12.a)**

Fencing or Walls Allowed?				
Fence or Wall Type	Floodway Fringe	Floodway	Federal Flood Zones AH and AO	
A	Yes	Yes, provided Section 4.5.80.01 is met.	Yes	
B	Yes	Yes, provided Section 4.5.80.01 is met & there is limited cross channel fencing.	Yes	
C & D	Yes, if fence is completely open below the Base Flood Elevation	Yes, provided Section 4.5.80.01 is met & there is limited cross channel fencing.	<u>AH Federal Flood Zone -</u> Yes, if fence is completely open below the Base Flood Elevation.	<u>AO Federal Flood Zone -</u> Yes, if fence is completely open below the Flood Depth Number where Base Flood Elevation not known.
E & F	<p>Yes, if both of the following are met:</p> <ol style="list-style-type: none"> <li>1. An opening or a flap is provided in the areas at or below the Base Flood Elevation at least once every three fence panels or 24 ft., whichever is less. Fences less than 24 ft. in length shall have at least one flap or opening in the areas at or below Base Flood Elevation. The minimum dimensions of the opening or flap shall not be less than 12 in. x 12 or 8 in. x 18 in. In areas of the Floodway Fringe where Base Flood Elevation data is not available, the opening or flap shall be placed within one ft. of the existing grade along the fence alignment; and</li> <li>2. Openings shall not include any screening of any size or type, except for flaps that are capable of self-release and open to the full dimensions when under pressure of no greater than 20 pounds per sq. ft.</li> </ol>	Yes, provided Section 4.5.80.01 is met & there is limited cross channel fencing.	<p>Yes, if both of the following are met:</p> <ol style="list-style-type: none"> <li>1. An opening or a flap is provided in the areas at or below the Base Flood Elevation in AH Federal Flood Zone and below Flood Depth Number in AO Federal Flood Zone, at least once every three fence panels or 24 ft., whichever is less. Fences less than 24 ft. in length shall have at least one flap or opening in the areas at or below Base Flood Elevation. The minimum dimensions of the opening or flap shall not be less than 12 in. x 12 or 8 in. x 18 in. In areas of the Floodway Fringe where Base Flood Elevation data is not available, the opening or flap shall be placed within one ft. of the existing grade along the fence alignment; and</li> <li>2. Openings shall not include any screening of any size or type, except for flaps that are capable of self-release and open to the full dimensions when under pressure of no greater than 20 pounds per sq. ft.</li> </ol>	

**Table 4.5-1 Fencing and Wall Parameters for Fences and Walls that Require a Floodplain Development Permit  
(Those Fences and Walls Meeting Section 4.5.110.12.a)**

<b>Fencing or Walls Allowed?</b>			
<b>Fence or Wall Type</b>	<b>Floodway Fringe</b>	<b>Floodway</b>	<b>Federal Flood Zones AH and AO</b>
<b>G</b>	Yes for fence only, provided a licensed engineer provides documentation showing that the fence is designed to collapse under anticipated flood Base Flood conditions. The engineering analysis shall consider debris impact, size of posts, and velocity and depth of flood waters.	No	Yes for fence only, provided a licensed engineer provides documentation showing that the fence is designed to collapse under anticipated flood Base Flood conditions. The engineering analysis shall consider debris impact, size of posts, and velocity and depth of flood waters.
<p>A = Open barb or barbless wire. Open means no more than one horizontal strand per one ft. of height.</p> <p>B = Open pipe or rail fencing (e.g. corrals). Open means rails occupy less than 10 percent of the fence area and posts are spaced no closer than 8 ft. apart.</p> <p>C = Other wire, pipe, or rail fencing (e.g. field fence, chicken wire, etc.) which does not meet the requirements of "A," or "B," above.</p> <p>D = Chain link fencing</p> <p>E = Continuous Wood Fencing</p> <p>F = Masonry Walls (excluding retaining walls, as retaining walls are required by Section 4.5.110.12 to meet the same standards as other building, paving, and grading activities)</p> <p>G = Collapsible Fencing</p>			

**4.5.110.13 - Temporary Structures, Storage, and Bridges**

A Floodplain Development Permit is required for construction or placement of temporary structures, temporary storage associated with nonresidential uses, and temporary bridges located in Special Flood Hazard Areas:

- a.** Temporary structures, not including bridges, shall be limited by the Floodplain Administrator or designee as to time of service, with the intent that the time of service is limited to the minimum time necessary to accomplish the temporary activity, per the provisions in "c," below. This time of service shall not exceed 90 days. The Floodplain Administrator or designee is authorized to grant extensions for demonstrated cause; such cause shall reaffirm the temporary nature of the structure. Temporary structures shall be anchored to prevent flotation, collapse, or lateral movement.
- b.** Temporary storage of fill shall be limited by the Floodplain Administrator or designee as to time of service, with the intent that the time of service is limited to the minimum time necessary to accomplish the temporary activity, per the provisions in "c," below. This time of service shall not exceed 90 days and the amount of temporary fill shall be limited to no more than 50 cubic yards. The Floodplain Administrator or designee is authorized to grant

extensions for demonstrated cause; such cause shall reaffirm the temporary nature of the storage. Stored material shall be anchored or contained to prevent flotation or release outside the assigned storage area. Hazardous materials priority persistent pollutants identified by the Oregon Department of Environmental Quality shall not be stored in the 0.2-ft. Floodway.

- c. Temporary encroachments, including bridges, in the 0.2-ft. Floodway require approval of a Floodplain Development Permit subject to conditions "1" through "7", below. No CLOMR/LOMR is required<sup>1</sup>.
1. The Floodplain Development Permit shall stipulate the days and dates the Development will be on site. The Floodplain Administrator or designee shall determine the permissible period of encroachment based on the existing and expected hydrologic conditions of the 0.2-Floodway, as well as the type of and need for the encroachment. The Floodplain Administrator or designee is authorized to grant extensions for demonstrated cause; such cause shall reaffirm the temporary nature of the Development and be based on the hydrologic conditions expected during the period of extension. The Floodplain Administrator or designee is authorized to place limits on the volume of materials placed within the 0.2-ft. Floodway as a temporary encroachment and, when making such a determination, shall consider the existing and expected hydrologic conditions during the period of encroachment, as well as the type of and need for the encroachment;
  2. A flood warning plan for the project shall be in place to allow equipment to be evacuated from the site and placed outside the Floodplain prior to inundation by flood waters;
  3. Placement of equipment in the Floodway shall be restricted to only that equipment which is absolutely necessary for the purposes of the project. All other accessory equipment and temporary structures (i.e., construction trailers) shall be restricted from the 0.2-ft. Floodway. Structures should be placed on site so that flood damages are minimized. In instances where the Floodplain Administrator or designee believes that evacuation isn't practical, the Floodplain Administrator or designee is authorized to require anchoring of construction trailers;

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<sup>1</sup> No CLOMR/LOMR will be required because there is no need to modify the FIRM due to the temporary condition of the encroachment.

4. Temporary changes to the Floodplain under a one percent chance flood event (100-yr. flood) shall be identified; and
5. The applicant shall be notified in writing that they may be liable for any flood damages resulting from the temporary structure.

#### **4.5.110.14 - Non-conversion of Enclosed Areas Below the Lowest Floor**

To ensure that the areas below the Base Flood Elevation (BFE) continue to be used solely for parking vehicles, limited storage, or access to the building and not be finished for use as human habitation without first becoming fully compliant with the provisions of this chapter and Chapter 2.11 - Floodplain Development Permit in effect at the time of conversion, the Floodplain Administrator or designee shall:

- a. Determine which applicants for New Construction and/or Substantial Improvements have fully enclosed areas below the Lowest Floor that are five ft. or higher;
- b. Require the property owner to enter into a “NON-CONVERSION AGREEMENT FOR CONSTRUCTION WITHIN SPECIAL FLOOD HAZARD AREAS” or equivalent with the City of Corvallis. The agreement shall be recorded with Benton County as a deed restriction. The non-conversion agreement shall be reviewed and approved by the Floodplain Administrator or designee; and
- c. Have the authority to inspect any area of a structure below the Base Flood Elevation to ensure compliance upon prior notice of at least 72 hours.

#### **Section 4.5.120 - SUBDIVISIONS, LAND PARTITIONS, AND PROPERTY LINE ADJUSTMENTS**

Subdivisions, Property Line Adjustments, and Minor Land Partitions that would create parcels or lots that cannot be developed in conformance with the regulations contained in this Chapter are prohibited, with the exception of lots created for public park purposes. See Section 4.5.90.03.

#### **4.5.130 - MAP REFINEMENTS**

##### **4.5.130.01 - Map Refinements Defined**

Map Refinements are adjustments made through professional analyses to refine the actual boundaries of some Natural Resources and Natural Hazards. Map

Refinements must be made in accordance with the provisions in Chapter 4.5 - Floodplain Provisions, Chapter 4.13 - Riparian Corridor and Wetland Provisions, and Chapter 4.14 - Landslide Hazard and Hillside Development Provisions. The Map Refinements governed by this chapter are specifically allowed to determine the location and extent of the:

- a. 0.2-ft. Floodway;
- b. 1.0-ft. Floodway, in accordance with FEMA regulations; and
- c. 100-yr. Floodplain, in accordance with FEMA regulations.

#### **4.5.130.02 - Map Refinements Provisions**

- a. Map Refinement provisions for the 0.2-ft. Floodway, the 1.0-ft. Floodway, and the 100-yr. Floodplain are outlined below. Map Refinement provisions for Top-of-bank, Riparian Corridor, and Wetland boundaries are outlined in Chapter 4.13 - Riparian Corridor and Wetland Provisions. Map Refinement provisions for Landslide Hazard areas and slopes are outlined in Chapter 4.14 - Landslide Hazard and Hillside Development Provisions. Map Refinements are also adjustments to resolve registration issues that may occur between different GIS layers or maps, or adjustments that may be necessary to comply with updates to applicable Flood Insurance Rate Maps, Digital Flood Insurance Rate Maps, and Flood Insurance Studies issued by the Federal Emergency Management Agency.
- b. **Floodplain and Floodway Boundaries** - The precise locations of Floodplain and Floodway boundaries are determined as follows:
  - 1. 0.2-ft. Floodway - Surveyed and mapped by a licensed surveyor or civil engineer, using two-ft. contour intervals established by the survey, and outlining a river channel or other Watercourse and the adjacent land areas that must be reserved in order to discharge the Base Flood (100-yr. Flood) without cumulatively increasing the water surface elevation more than 0.2 ft.
  - 2. 1.0-ft. Floodway - Surveyed and mapped by a licensed surveyor or civil engineer, using two-ft. contour intervals established by the survey, and outlining a river channel or other Watercourse and the adjacent land areas that must be reserved in order to discharge the Base Flood (100-yr. Flood) without cumulatively increasing the water surface elevation more than one ft.

3. 100-Yr. Floodplain -

- a) 100-yr. Floodplain in Areas Studied by FEMA and Addressed by Current Federal Insurance Rate Map (FIRM) -
  - 1) Surveyed and mapped by a licensed surveyor or civil engineer, using the Base Flood Elevations established by the Federal Emergency Management Agency (FEMA) and two-ft. contour intervals established by the survey; or
  - 2) FEMA-approved adjustments as specified in “i,” and “ii,” below. However, no adjustments to the FIRM other than those specified in “i,” and “ii,” below may occur through the Map Refinement process.
    - i) Adjustments needed to comply with updates to applicable Flood Insurance Rate Maps, Digital Flood Insurance Rate Maps, and Flood Insurance Studies issued by the Federal Emergency Management Agency.
    - ii) Adjustments needed to reflect Letters of Map Amendment (LOMAs) and Letters of Map Revision (LOMRs) approved by the Federal Emergency Management Agency (FEMA). The Director shall only correct the 100-yr. Floodplain portion of the City’s maps to exactly reflect FEMA decisions.
- b) 100-Yr. Floodplain in Areas Not Studied by FEMA and Not Addressed by Current Federal Insurance Rate Map (FIRM) - Sections 4.5.20.01.b and 4.5.50.03.p require Floodplain Studies to identify the 100-yr. Floodplain and related information in areas that are unmapped by the current FEMA Flood Insurance Study for Benton County and Incorporated Areas, dated, June 2, 1011, and are, therefore, not shown on the current Federal Insurance Rate Map (FIRM). Provided the information is entirely consistent with Sections 4.5.20.01.b and 4.5.50.03.p, the Map Refinement process can be used to map the 100-yr. Floodplain for these unstudied and unmapped areas. Once identified and approved by the Floodplain

Administrator or designee, these newly mapped areas shall be reflected in the Natural Hazards Overlay on the Comprehensive Plan and Zoning Maps, and graphically depicted as High Protection Floodplain on the Natural Hazards Map.

#### **4.5.130.03 - Map Refinement Procedures**

- a.** Adjustments to maps consistent with the provisions of Sections 4.5.130.01 and 4.5.130.02, above, are considered to be Map Refinements and may be Ministerially adjusted on the relevant maps, with no land use process required other than a demonstrated adherence to the provisions of Sections 4.5.130.01 and 4.5.130.02.
  
- b.** Adjustments to maps to address FEMA-approved Letters of Map Amendment (LOMAs) and Letters of Map Revisions (LOMRs) for 100-yr. Floodplain information may be requested following written verification of a LOMA or LOMR approved by the Federal Emergency Management Agency (FEMA). When the FEMA determines that a LOMA or LOMR should be approved, and written documentation of the approval is provided to the Community Development Director, the Director shall ensure that changes reflected in the LOMA or LOMR are reflected in the City's affected maps and databases.

