

Chapter 14 – Flood Management

- 14.005 Purpose. Without establishing any priority, the purpose of this Chapter is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions or degradation of water quality in specific areas by provisions designed 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. 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;
 - D. Implement requirements for the City's participation in the National Flood Insurance Program, and voluntary participation in the Community Rating System;
 - E. Implement the actions derived from the Multnomah County Natural Hazard Mitigation Plan to minimize the risk of natural hazards, such as flooding, to people and property;
 - F. Ensure continuity of City services, access to City facilities, and minimal prolonged business interruptions during times of flood;
 - G. Manage stormwater drainage in a manner that:
 - 1. Maintains the properly functioning conditions of waterways;
 - 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;
 - H. 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;

- I. Help maintain a stable tax base by providing for sound use and development;
- J. Ensure that potential buyers are notified that property is in an area of special flood hazard;
- K. Compel those who occupy the areas of special flood hazard assume responsibility for their actions;
- L. Maintain and improve water quality;
- M. Minimize erosion and loss of native vegetation;
- N. Maintain wetlands, including swamps, marshes, bogs, and similar areas within the City, because wetlands help to maintain water quality and flood storage capacities;
- O. Avoid any increase in base flood elevations as a result of development;
- P. Minimize expenditure of public money for costly flood control projects;
- Q. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- R. Reduce flood losses and maintain water quality. In order to accomplish its purpose, this Chapter includes 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 on 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.
- S. To advance these purposes, where not required, creation of open space tracts is encouraged within areas designated as natural hazards on the Comprehensive Plan and official zoning maps.

14.010 Applicability.

- A. These provisions shall apply to public and private properties in the one percent (1%) annual chance of flood floodplain (100-year floodplain or Special Flood Hazard Area) as mapped by the Federal Insurance Administrator of rivers and local streams within the planning jurisdiction of the City of Troutdale, which includes land in unincorporated Multnomah County within the City’s Urban Planning Area.
- B. The areas of special flood hazard identified by the Federal Insurance Administrator in a scientific and engineering report entitled “The Flood Insurance Study for Multnomah County, Oregon and Incorporated Areas of Multnomah County”, with accompanying Flood Insurance Rate Maps, are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study is on file at the Community Development Department located at 2200 SW 18th Way, Troutdale, OR 97060 (storage location subject to change, consult the Floodplain Manager for current file storage location). Metro, a regional metropolitan planning agency representing portions of Clackamas, Multnomah, and Washington Counties, mapped the flood hazard areas from areas inundated by flooding in 1996 on the Title 3 map. The Title 3 maps are adopted for reference only. Not every Special Flood Hazard Area has been mapped by the Federal Insurance Agency through the Flood Insurance Study and Flood Insurance Rate Maps cited above. The Floodplain Manager or designee is authorized through Sections 14.020 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 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 Troutdale to supplement the Flood Insurance Study, Flood Insurance Rate Maps, and Digital Flood Insurance Rate Maps cited above to ensure consistency with the floodplain regulations contained in this Chapter. Contested base flood elevations are to be reviewed under the provisions of Subsection 14.020.D of this Chapter. The City will keep a record of all surveys, delineations, and any Letter of Map Change (LOMC) approved by the Federal Emergency Management Agency, as revisions to the local copy of the Title 3 map. The City will submit this information to Metro for future updates of the Title 3 map.
- C. Warning and Disclaimer of Liability. The degree of flood protection required by this Chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This Code does not imply that land or uses will be free from flooding or flood damage. This Code shall not create liability on the part of the City, any officer or employee thereof, or the Federal Insurance Administrator, for any damages that result from reliance on this Code or any administrative decision lawfully made hereunder.

14.015 Severability. The standards of this Chapter are subject to the severability standards as described in Section 17.100 of this Code.

14.020 Administration and Interpretation of Flood Insurance Rate Map Boundaries and Flood Management Area Standards.

- A. The Community Development Director shall designate a Floodplain Manager to be the Local Administrator of this Chapter. The Floodplain Manager shall implement the provisions and standards of the National Flood Insurance Program, the standards of this Chapter, and make interpretations, where needed, including determinations regarding the exact location of the boundaries of the Special Flood Hazard Area (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) by granting or denying Floodplain Development Permit applications in accordance with its provisions. In the interpretation and application of this Chapter, all provisions shall be:
1. Considered as minimum requirements;
 2. Liberally construed in favor of the governing body;
 3. Judged by established historical facts of flooding as known by, or made known to, the governing body;
 4. Deemed neither to limit nor repeal any other powers granted under State statutes; and
 5. Defined in Section 1.040 of this Code.
- B. Duties and Responsibilities of the Floodplain Manager. Duties of the Floodplain Manager shall include, but not be limited to:
1. Review all Floodplain Development Permits to determine that the permit requirements of this ordinance have been satisfied.
 2. Review all Floodplain Development Permits to determine that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required.
 3. Review all Floodplain Development Permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of this Chapter are met.
 4. When base flood elevation data has not been provided (A Zones) in accordance with Section 14.010 of this Chapter, the Floodplain Manager shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, in order to administer Section 14.040 of this Chapter.
 5. Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in Section 14.020.C, obtain and record the actual elevation

(in relation to mean sea level) of the lowest floor (including basements and below-grade crawlspaces) of all new or substantially improved structures, and whether or not the structure contains a basement.

6. For all new or substantially improved floodproofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in Section 14.020.C, the Floodplain Manager shall:
 - a. Verify and record the actual elevation (in relation to mean sea level), and
 - b. Maintain the floodproofing certifications required in Section 14.040 of this Chapter.
7. Maintain for public inspection all records pertaining to the provisions of this ordinance.
8. Notify adjacent communities, the Oregon Department of Land Conservation and Development, and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administrator.
9. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.
10. Notify FEMA within six (6) months of project completion when an applicant had obtained a Conditional Letter of Map Change from FEMA, or when development altered a watercourse, modified floodplain boundaries, or modified Base Flood Elevations. This notification shall be provided as a Letter of Map Change. The property owner shall be responsible for preparing technical data to support the Letter of Map Change application and paying any processing or application fees to FEMA. The Floodplain Manager shall be under no obligation to sign the Community Acknowledgement Form, which is part of the Conditional Letter of Map Change and Letter of Map Change application, until the applicant demonstrates that the project will or has met the requirements of this Code and all applicable State and Federal laws.
11. Report to FEMA on each development permit issued in the SFHA, including:
 - a. Amount of fill or structural displacement of flood storage, and the amount (in volume and area) of compensatory storage provided;
 - b. Amount of new impervious surface and types and amounts of compensatory mitigation provided;
 - c. The number of trees equal to or greater than six (6) inches in diameter at

breast height removed, and the types and amounts of compensatory mitigation provided;

- d. The area in which clearing and/or grading occurred;
- e. For any project that disconnects or reconnects land to the floodplain, the type of project and amount of land disconnected or reconnected; and
- f. Location of the project and of the corresponding mitigation.

14. Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 14.055 of this Chapter.

- C. Use of Other Base Flood Data for Permit Review. When base flood elevation data is not available through the Flood Insurance Study, FIRM, or has not been provided in accordance with Section 14.010 of this Chapter, the City may obtain, review, and utilize any reasonable base flood elevation and floodway data available from a federal, state, or other source, in order to assure that proposed development will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two (2) feet above grade in these zones may result in higher insurance rates.
- D. Contested Boundaries. A person contesting the location of the boundary has the opportunity to submit a Letter of Map Change (LOMC) directly to the Federal Emergency Management Agency to change the Flood Insurance Rate Map mapping of their property. If a land use application is submitted before a LOMC is approved by the Federal Emergency Management Agency, the application will be processed under the standards of this Chapter.
- E. Inspections. The Floodplain Manager shall inspect development that is subject to the permit requirements of this Chapter, including buildings and structures exempt from the Building Code. The Floodplain Manager shall inspect Special Flood Hazard Areas to determine if development is being undertaken without the issuance of a permit. Annual inspection logs shall be maintained by the Floodplain Manager.

14.025 Uses within the Floodplain but Outside the Floodway and Outside Wetlands.

- A. Prohibited Uses.
 - 1. Any prohibited use in the underlying zoning district.
 - 2. Excavation, fill, or vegetation removal without an approved land use permit.

3. Expansion of legal nonconforming uses.
 4. Uncontained, outside storage areas of hazardous materials for hazardous materials as defined by the State of Oregon Department of Environmental Quality.
 5. No new land divisions will be approved for properties exclusively within the floodplain or that propose to create a buildable lot that is exclusively within the floodplain.
- B. Permitted Uses.
1. Any use permitted in the underlying zoning district, subject to the standards for development outlined in Section 14.040 of this Chapter, including stormwater management facilities developed in accordance with the standards of Section 5.700 of this Code.
 2. Open space, trails, walkways, and bike paths as designated by the Troutdale Parks Plan, or as approved with a land use application and constructed in compliance with Section 4.315.D.
 3. Removal of unauthorized fill.
 4. Removal of nuisance or invasive plant species, and/or the restoration of approved plant species on the City of Portland Plant List as defined in Section 1.040 of this Code.
 5. Removal of dead or dying trees that are an imminent danger to public safety as determined by a certified arborist or the equivalent.
 6. Construction of new roadways and utilities necessary to support permitted development within and outside the Flood Management Area, subject to the standards of Section 14.040 of this Chapter and the Construction Standards on file in the Public Works Department or the applicable jurisdiction of the roadway.
 7. New culverts, stream crossings, and transportation projects may be permitted if designed as balanced cut and fill projects, and in compliance with the standards of Section 14.040 of this Chapter. Such projects shall be designed to minimize the area of fill in Flood Management Areas and to minimize erosive velocities. Stream crossings shall be as close to perpendicular to the stream as practicable. Bridges shall be used instead of culverts wherever practicable.
 8. Excavation and fill required for the construction of detention facilities or structures, and other facilities such as levees specifically designed to reduce or mitigate flood impacts. Levees shall not be used to create vacant buildable land.

9. Emergency temporary bank stabilization necessitating immediate action during a flood event to prevent the loss of an existing structure, or to repair a bank damaged during a natural flooding event.
10. Routine repair and maintenance of existing structures (conforming and nonconforming uses), streets, driveways, utilities, culverts, drainageways and levees constructed for flood control, accessory uses, and other existing development on the site (including landscaped yards, decks, patios, boat ramps, etc.).
11. Rehabilitation or replacement of a structure that is damaged or destroyed to any extent, whether it is partially or fully within the Flood Management Area, and in compliance with Section 4.521 of this Chapter. Any structure or use deliberately removed or demolished may not be restored, replaced, or rebuilt, except in compliance with all applicable provisions of this Code, federal, state, and county regulations.
12. Any development that must implement a Federal Aviation Administration (FAA) compliant wildlife hazard management plan on property owned by the Port of Portland or within ten thousand (10,000) feet of an Aircraft Operating Area, as defined by the FAA, and removal of trees that interfere with the landing or takeoff flight path of aircraft at the Troutdale Airport or otherwise interferes with the safe operation of the airport as determined by the Port of Portland. The removal of trees that interfere with the operation of the Troutdale Airport are permitted outright.
13. Wildfire mitigation projects, such as fuels reduction or the creation of defensible space.
14. Removal of waste as defined in the Troutdale Municipal Code Section 8.40.015.

14.030 Uses within the Floodway or within Wetlands.

- A. Prohibited Uses within the Floodway or within Wetlands. Unless specifically permitted under this Section, the following uses are prohibited within floodways and wetlands:
 1. Manmade structures.
 2. Vegetation removal, fill, or excavation. Vegetation removal in the floodway in concert with an approved wildfire mitigation project may be permitted subject to review under the standards for development of Section 14.040 of this Chapter.
 3. Private road construction.
 4. Alterations and relocations of the watercourses of Arata, Salmon, or Beaver Creeks, the Sandy and Columbia Rivers, or the watercourse of any unnamed

perennial or intermittent stream except as provided for in Subsection B(11) of this Section and Section 14.040.O of this Chapter.

5. Fill of wetlands without both an approved land use application and an approved Joint Fill Permit issued by the Oregon Department of State Lands and the U.S. Army Corps of Engineers.
 6. Uncontained, outside storage areas of hazardous materials for hazardous materials as defined by the State of Oregon Department of Environmental Quality.
 7. Expansion of nonconforming uses.
 8. New installation of manufactured dwellings.
- B. Permitted Uses within the Floodway or within Wetlands. The following uses are permitted subject to review under the standards for development of Section 14.040 of this Chapter:
1. Open space, trails, walkways, and bike paths, as designated by the Troutdale Parks Plan, or as approved with a land use application.
 2. Removal of unauthorized fill.
 3. Removal of dead or dying trees that are an imminent danger to public safety as determined by a certified arborist or the equivalent.
 4. Routine repair and maintenance of existing structures (conforming and nonconforming uses), streets, driveways, utilities, culverts, drainageways and levees constructed for flood control by the Sandy Drainage Improvement Company or its successor, accessory uses, and other existing development on the site (including landscaped yards, decks, patios, boat ramps, and the operation, maintenance, and repair of manmade water control facilities such as irrigation and drainage ditches, constructed ponds or lakes, wastewater facilities, and stormwater quality facilities, and similar development.
 5. Construction, expansion, and/or maintenance of public roadways and public utility facilities necessary to support permitted development. A “No-Rise” Certification for construction or expansion of public roadways and public utilities shall be required consistent with Section 14.040.G(4) for all approved projects.
 6. Balanced excavation and fill required for the construction of detention facilities or structures and other facilities such as levees specifically designed to reduce or mitigate flood impacts. Levees shall not be used to create vacant buildable lands.
 7. New culverts, stream crossings, and transportation projects necessary to implement the City, County, or State Transportation System Plans or other

development permitted under this Chapter, and as applicable, meets the specifications of the Oregon Department of State Lands, Oregon Department of Fish and Wildlife, and federal regulations.

8. Permanent bank stabilization necessary to preserve an existing structure provided the balanced cut and fill standard is met if the work is in the floodplain or a “No-Rise” certification if the work is within the floodway. Exception: Bank stabilization is not permitted for development on a vacant lot of record.
9. Emergency temporary bank stabilization necessitating immediate action during a flood event to prevent the loss of an existing structure, or to repair a bank damaged during a natural flooding event.
10. Fill of wetlands when there is no other practicable way to build on the site as established through Section 14.040 of this Chapter, and provided fill of wetlands within the floodplain is balanced with cut elsewhere within the floodplain, and a Fill/Removal Permit is issued from the Oregon Department of State Lands (DSL) and U.S. Army Corps of Engineers (Corps), as applicable. The application to DSL and the Corps may be processed concurrently with a land use application for site and design review, land division, a planned development application, or a conditional use. A joint fill permit may be applied for prior to application for a land use permit. However, if a joint fill permit is approved by the Oregon Department of State Lands and the U.S. Army Corps of Engineers prior to applying for the land use application, fill may not proceed until the final decision for the land use application has been made by the City. Mitigation for fill of wetlands and the location of the mitigation shall be as prescribed by the DSL/Corps permit.
11. New drainageways, levees, or alteration of watercourses to accommodate public projects administered by the Sandy Drainage Improvement Company or its successor, the City, Multnomah County, the state, or a federal agency, provided it is in compliance with Sections 14.035(C), and 14.040(R) and (S) of this Chapter.
12. Any development that must implement a Federal Aviation Administration (FAA) compliant wildlife hazard management plan on property owned by the Port of Portland or within ten thousand (10,000) feet of an Aircraft Operating Area, as defined by the FAA, and removal of trees that interfere with the landing or takeoff flight path of aircraft at the Troutdale Airport or otherwise interferes with the safe operation of the airport as determined by the Port of Portland. The removal of trees that interfere with the operation of the Troutdale Airport are permitted outright.
13. Removal of waste as defined in the Troutdale Municipal Code Section 8.40.015.

14.035 Floodplain Development Permit

- A. Background. To participate in the National Flood Insurance Program (NFIP), a community must adopt and enforce a floodplain management ordinance that regulates development in the floodplain. This floodplain management ordinance is housed primarily in Chapter 14 of this Code, but is in part addressed in other Chapters of this Code. One of the basic Federal requirements for regulating Development in the Floodplain is a requirement for a Floodplain Development Permit (locally, a Floodplain Development Permit) before construction or other development begins within any Special Flood Hazard Area. In this context, the term "development" is defined in Section 1.040. This chapter contains provisions for the federally required Floodplain Development Permit and is consistent with the National Flood Insurance Program (NFIP) regulations. A Floodplain Development Permit is required for development within the Flood Management Area except as noted in Section 14.035.C of this Chapter.
- B. Applicability. Unless exempt per Section 14.035.C, below, approval of a Floodplain Development Permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 14.010.B of this Chapter. The permit shall be for all structures including manufactured dwellings, as set forth in the Section 1.040 and for all development including fill and other activities, also as set forth in the Section 1.040.
- C. Exemptions. The following activities do not require a Floodplain Development Permit:
1. Removal of invasive, nuisance, or prohibited plant species that exposes the ground, provided a revegetation plan approved or prepared by the City, state, a federal agency, Metro, SOLV, the East Multnomah Soil & Water Conservation District, or other similar organizations as determined by the Floodplain Manager, is carried out to provide shade and habitat, prevent erosion of steep slopes and/or sedimentation into the protected water feature. A copy of the plan shall be provided to the Floodplain Manager prior to beginning the work.
 2. Placement of fill in residential zones, provided it is consistent with other applicable provisions of this Code, and provided the fill is used solely for the purpose of constructing a sandbox, a raised gardening bed, or other similar landscape feature.
 3. Installation of three strand, on bendable pole, wire farm type fencing that is constructed consistent with the provisions in Section 14.040 of this Chapter.
 4. Landscape maintenance activities consistent with the standards identified in this Section.
 5. Wetlands not subject to flooding as described Section 14.010.B of this Chapter, nor identified as designated habitat covered under the Endangered Species Act, and are not exempt from review under Section 4.300 of this Code.

- D. Submission Requirements. An application for a Floodplain Development Permit within the Flood Management Area shall include the following, and these requirements apply to all applicants for development approval unless otherwise noted below:
1. A site plan showing the proposed development on the site, drawn to a standard scale, and including an illustrated scale for use in reductions. A site plan shall also consist of the following:
 - a. SFHA boundaries, and the base flood elevations based upon the North American Vertical Datum of 1988 (NAVD 88);
 - b. The 1996 flood boundaries established by Metro;
 - c. Floodway boundaries as determined by datum available from the FIRM and Flood Insurance Study;
 - d. The name, location, and dimensions of affected streams or rivers, and the bankfull stage or the two-year storm level.
 - e. The area comprising the vegetation corridor as established by Sections 4.316 and 4.317 of this Code;
 - f. Wetlands that are determined significant by the Oregon Department of State Lands or have the following characteristics. All wetland determinations made prior to development must be reviewed and acknowledged by the Oregon Department of State Lands prior to issuance of City permits. The characteristics shall be determined by a qualified scientist.
 - i. The wetland is fed by surface flows, sheet flows, or precipitation; has evidence of flooding during the growing season; at least sixty percent (60%) of the area is vegetation; and is over one-half acre in size; or, the wetland qualifies as having “intact water quality function” under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
 - ii. The wetland is in the Flood Management Area; has evidence of flooding during the growing season; is five (5) acres or more in size; and has a restricted outlet or no outlet; or, the wetland qualifies as having “intact hydrologic control function” under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
 - iii. The wetland, or a portion of the wetland, is within a horizontal distance of less than one-fourth (1/4) mile from a water body which meets the State of Oregon Department of Environmental Quality definition of “water quality limited water body” in OAR Chapter 340, Division 41 (1996).

2. Topographic survey. The survey shall show the floodway and floodplain. The survey shall also show the location of existing and proposed improvements on the site, trees or tree clusters (including those to be removed), existing roads, utilities, and structures, 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, with two (2) foot contours, and shall note the distance from Top-of-bank to the improvements on the site;
3. Where base flood elevation data is provided through the City's Flood Insurance Study, or by other means as permitted in this Chapter, the developer shall obtain and record the actual elevation of the lowest floor (including basement) of all new or substantially improved structures, including the placement of a manufactured dwelling, and whether or not the structure contains a basement. This information shall be based upon NAVD 88 and provided on a City Floodplain Development Permit form, and should include the following, as applicable:
 - a. For all new or substantially improved, elevated, or floodproofed structures, verify and record the actual elevation.
 - b. Where development occurs within Zone A of the Flood Management Area and the Base Flood Elevation (BFE) data is not available either through the Flood Insurance Study or from another authoritative source as authorized in Subsection 14.020(C) of this Chapter, the Floodplain Development Permit shall be reviewed for compliance with FEMA Publication 265 issued July 1995 "Managing Floodplain Development in Approximate Zone A Areas", adopted herein for reference, and applicable State of Oregon Building Codes.
4. Hydrology and soils report. Where ground disturbance or vegetation removal is proposed that exposes the soil, this report shall be required. This report shall include information on the hydrological activities of the site, the effect of hydrologic conditions on the proposed development, and any hydrological or erosion hazards. This report shall also include characteristics of the soils on the site, suitability for development, its carrying capacity, and erosion or slumping characteristics that might present a hazard to life and property, or adversely affect the function or stability of a public use or facility. This report shall also include information on the nature, distribution, and strength of existing soils; the adequacy of the site for development purposes; and an assessment of grading procedures required to impose the minimum disturbance to the natural state. The report shall be prepared by a professional engineer registered in Oregon. In Oregon Department of Geology and Mineral Industries (DOGAMI) inventory of landslide hazard areas, on hillsides where grading will lessen stability, or in areas where historic or prehistoric mudflows have occurred, a soils engineer and/or engineering geologist registered in Oregon shall certify the development will not negatively impact public safety, adjacent properties, or water quality.

5. Grading plan. If grading is to occur, a grading plan shall be required that shows existing and finished contours (two-foot contour intervals), drainage, all cut and fill slopes and proposed drainage channels, direction of drainage flow, location of proposed structures and existing structures which may be affected by the proposed grading operations, and water quality facilities.
6. Vegetation report. Where vegetation is to be removed or other impacts to the onsite vegetation is to be expected as a result of development, this report shall be required. This report shall consist of a survey of existing vegetation, whether it is native or introduced, and how it will be altered by the proposed development. Measures for enhancement of the site, including revegetation with approved plant species, will be clearly stated, as well as methods for immediate and long-term stabilization of slopes and control of soil erosion. The vegetation report shall be prepared by a landscape architect, landscape designer, botanist, arborist, wetland specialist, or other similar credentialed authority as determined by the Floodplain Manager with specific knowledge of approved plant species, planting and maintenance methods, survival rates, and their ability to control erosion and sedimentation. The contractor for installation and maintenance will be responsible for replacing any approved plant species that do not survive the first two (2) years after planting.
7. A “No-Rise” certification and a Letter of Map Change (LOMC) shall be submitted with the land use application for the following activities within the floodway as mapped by FEMA:
 - a. Permanent bank stabilization that occurs in the floodway.
 - b. Development, alterations, or relocations of the floodway, including any permanent fill within the floodway.
8. 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 as applicable, of the:
 - a. Lowest enclosed area of all existing and proposed, relocated, or expanded buildings and structures. This includes crawlspaces, 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); top of proposed garage slabs; and next highest floor situated above the items herein.
 - b. 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 floodproofing criteria in this Chapter.

- c. The locations and sizes of all flood openings in any proposed buildings and structures.
 - 9. Infrastructure. Location of all proposed infrastructure necessary to serve the proposed development shall be required when such new development is proposed by the applicant. Such infrastructure includes, but is not limited to, streets, driveways, water, sanitary sewer, and storm drainage.
 - 10. Floodplain or watercourse alterations. Where floodplain or watercourse alterations are proposed, a description of the extent to which any floodplain or watercourse is proposed to be altered or affected as a result of proposed development shall be required.
 - 11. 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.
- E. Application for Floodplain Development Permit. A Floodplain Development Permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 14.010 of this Chapter. The permit shall be for all structures including manufactured dwellings, as set forth in Section 1.040 and for all development including fill and other activities, also as set forth in Section 1.040. Applications for a Floodplain Development Permit shall be made on forms furnished by the Community Development Department and may include, but not be limited to, plans drawn to scale showing the nature, location, dimensions, elevations of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing.
- 1. A Type I Floodplain Development Permit is required for the following:
 - a. Construction of a single-family dwelling, including the placement of a manufactured dwelling or repair or alteration of existing single-family dwellings and manufactured dwellings. Single-family dwellings and manufactured dwellings shall be built in compliance with the applicable development standards in Section 14.040 of this Chapter.
 - b. Emergency bank stabilization necessary to preserve an existing structure during a flood emergency. During the flood event the permit is not required; however, within 90 days of the water receding a Floodplain Development Permit shall be obtained that documents the bank

stabilization measures taken during the emergency and the schedule and procedure that will be used to remove any temporary fill, including sand bags. If the stabilization measures will not be removed, a Type II Floodplain Development Permit will be required as well as a “No-Rise” certification and LOMC as applicable.

- c. Wildfire mitigation projects as identified in this Chapter.
 - 2. A Type II Floodplain Development Permit is required for:
 - a. Any use in the underlying zoning district requiring a Type II Site Development review.
 - b. New or expanded streets or bridges.
 - c. New or expanded railroads or trestles.
 - d. Permanent bank stabilization or fill within the floodplain or floodway.
 - e. Balanced cut and fill activity within the floodplain, with a Letter of Map Change, as required in this Code.
 - f. Fill of wetlands. If the wetland is outside of the floodplain and not hydrologically connected, a Floodplain Development Permit is not required, only the Site Development Review.
 - g. Other uses similar in nature to those listed above.
 - 3. A Type III procedure and Floodplain Development Permit shall be processed for uses requiring a Type III review in the underlying zoning district, for all special variances requested from the standards of this Chapter, and for any proposed alteration of a watercourse of any perennial or intermittent streams.
- F. Review Criteria - Requests for approval of a Floodplain Development Permit shall be reviewed by the Floodplain Manager or designee to ensure:
- 1. Consistency with the standards from Sections 1.040, Chapter 2, and Section 14.040 of this Code, as applicable;
 - 2. Consistency with other applicable standards of this Code and all other applicable policies and standards adopted by the City.
- G. Mandatory Conditions of Approval - The following Conditions of Approval are mandatory and shall be imposed on every approved Floodplain Development Permit:
- 1. Required During Construction Elevation Certificate. For all new construction,

development, and substantial improvements, the permit holder shall provide to the Floodplain Manager or designee an as-built certification of the floor elevation or flood-proofing elevation immediately after the lowest floor or flood-proofing is placed and prior to further vertical construction. Any deficiencies identified by the Floodplain Administrator or designee shall be corrected by the permit holder immediately and prior to work proceeding. Failure to submit certification or failure to make the corrections shall be cause for the Floodplain Administrator or designee or the Building Official to issue a stop-work order for the project.

2. Required Documentation Prior to Issuance of Certificate of Occupancy

- a. In addition to the requirements of the Building Codes pertaining to Certificate of Occupancy, prior to the final inspection the owner or authorized agent shall submit the following documentation to the Floodplain Manager or designee and the documentation shall be prepared and sealed by a registered surveyor or engineer:
 - i. For elevated buildings and structures in Special Flood Hazard Areas, the as-built elevation of the lowest floor, including basement, or where no base flood elevation is available the height above highest adjacent grade of the lowest floor;
 - ii. For buildings and structures that have been floodproofed, the elevation to which the building or structure was floodproofed.
- b. Failure to submit certification or failure to correct violations shall be cause for the Floodplain Manager or designee or the Building Official to withhold a Certificate of Occupancy until such deficiencies are corrected.

3. For applications for partitions and subdivisions, one of the following shall be required:

- a. Protection of Flood Management Areas with a conservation easement;
- b. Platting Flood Management Areas as common open space; or
- c. Offer of sale or donation of Flood Management Area property to public agencies or private non-profits for preservation where feasible.

14.040 Development Standards. The land use application shall establish through the use of narrative, site plans, and professional reports, the following:

- A. Type II or III approval for new development, including additions or alterations to existing structures, except for single family dwellings, in the Flood Management Area may be allowed, provided that:

1. The applicant shall demonstrate that there is no reasonable nor practical alternative design or method of development that would have a lesser impact on the Flood Management Area than the one proposed.
 2. If there is no reasonable nor practical alternative design or method of development the project shall be designed in compliance with applicable parts of Subsections (B) through (X) of this Section, so that the impacts on the Flood Management Area are limited and the plans shall include restoration, replacement, or rehabilitation of the vegetation within the Flood Management Area.
 3. The applicant shall provide mitigation to ensure that impacts to the functions and values of the vegetation corridor and integrity of the slope will be mitigated or restored to the extent practicable.
- B. A professional engineer registered in Oregon must certify that the development will not result in any increase in flood levels throughout the SFHA during the occurrence of the base flood discharge, and that water quality will not be adversely affected.
- C. As applicable, the development must be authorized by the Oregon Department of State Lands, U.S. Army Corps of Engineers, the Oregon Department of Fish and Wildlife, and the Sandy Drainage Improvement Company. The applicant shall obtain and submit a copy of all required state and federal permits for any proposed development in the Flood Management Area, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 USC 1334.
- D. Unless otherwise authorized under the provisions of this Chapter, the development shall comply with the underlying zoning district dimensional standards and the minimum vegetation corridor as established in Sections 4.316 and 4.317 of this Code. The applicant shall submit an exhibit that shows the location and provides a description of all actions to be provided to mitigate the impacts of permitted development as established in Section 4.314 of this Code.
- E. Protect the water quality resource, and Flood Management Area functions and values from uncontained areas of hazardous materials as defined by the State of Oregon Department of Environmental Quality water quality standards.
- F. Limit impervious surface areas in the Flood Management Area.
1. The impervious surface of the development may not exceed thirty percent (30%) of the flood plain area, provided the standards of this Code are met. Exception: Public roads necessary to serve the transportation needs of the City may exceed thirty percent (30%) of the Flood Management Area provided all other applicable standards of this Chapter have been met.
 2. Clustering of houses and multiple-family units, zero lot line developments, and/or modifications to setbacks may be approved under the Type II procedure in order

to accommodate the density permitted within the underlying zoning district and not exceed the impervious surface limitation of thirty percent (30%) of the Flood Management Area on the site.

3. The Director, or their designee, may grant an administrative variance of up to fifty percent (50%) of any dimensional standard in the underlying zoning district where necessary to avoid development within the Flood Management Area.
- G. Maintain flood storage capacity. The developer is required to offset new fill placed in the floodplain by excavating an additional flood-able area to replace the lost flood storage area, preferably at hydrologically equivalent sites. All development proposals in the SFHA shall provide compensatory mitigation for impacts to flood storage, water infiltration, and riparian vegetation to ensure that new development does not increase flood hazards on other properties. A mitigation plan shall be submitted with the land use application. All required actions derived from that plan shall be completed prior to issuance of a Certificate of Occupancy, a Certificate of Completion for a subdivision, or the final building inspection, as applicable. Balanced cut and fill is required for permitted development in the Flood Management Area. Excavation and fill shall be performed in a manner to maintain or increase flood storage and conveyance capacity and not increase design flood elevations. A professional engineer registered in Oregon must certify that the development will not result in any increase in flood levels throughout the SFHA during the occurrence of the base flood discharge.
1. All fill placed at or below the design flood elevation in the Flood Management Area shall be balanced with at least an equal volume or amount of soil material removal. The development shall be designed to minimize development within the Flood Management Area and amount of fill necessary. Balanced cut and fill may be used to elevate structures but shall not be used for density transfer. Residential density must be calculated prior to changes to the floodplain as a result of balanced cut and fill.
 2. Excavation shall not be counted as compensating for fill if such areas will be filled with water in non-storm winter conditions.
 3. The cumulative effect of any proposed development shall not increase the water surface elevation of the base flood. Onsite flood storage capacity shall not decrease as a result of development, vegetation removal, or excavation.
 4. A “No-Rise” certification is required for any fill or permitted development within the floodway pursuant to Section 60.3(d)(3) of the National Flood Insurance Program.
 - a. The “No-Rise” supporting data and a copy of the engineering certification must be submitted to, and reviewed by, the City prior to approval of development, and the data shall be submitted with the Floodplain Development Permit.

- b. The “No-Rise” certification and supporting technical data must stipulate no impact on the 100-year flood elevations, floodway elevations, or floodway widths at the new cross-sections and at all existing cross-sections anywhere in the model.
 - c. A sample “No-Rise” certification is available in the Community Development Department.
- 5. All new buildings built on fill in the regulatory floodplain shall be constructed on fill:
 - a. Certified by a professional engineer registered in Oregon as suitably designed and compacted for the development (e.g. fill that meets the criteria of 1803.5.8 and Section 1804.4 of the International Building Code, Section 2.4 of ASCE 24, or their equivalent); and
 - b. Providing protection from erosion and scour.
- 6. When a project proposes development that will alter a watercourse, modify floodplain boundaries, or modify Base Flood Elevations, the application shall obtain a Conditional Letter of Map Change from FEMA prior to grading and filling the site and then obtain and submit the final Letter of Map Change prior to final inspections, or issuance of a certificate of completion, or issuance of the certificate of occupancy as required under this Section. When a project applicant has demonstrated through the Floodplain Development Permit that, in addition to the standards listed for Section 14.040.G, the following standards have been achieved, a Conditional Letter of Map Change/Letter of Map Change may not be required:
 - a. Fill is not proposed in the floodway for the site to be impacted through development;
 - b. The project site is not being elevated to or above the base flood elevation (BFE);
 - c. The project is proposing to remove unsuitable existing material (topsoil) and backfilling with select structural material, not altering the existing (natural grade) elevation of the site;
 - d. The site to be impacted does not have US Fish and Wildlife Service (USFWS) designations for critical habitat for Threatened or Endangered; and
 - e. In areas where a regulatory floodway has not been designated, the new construction, substantial improvements, or other development (including

fill) within A or AE Zones on the community's FIRM, has demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood at any point within the community.

7. All proposals that include engineering analysis for maintenance of flood storage capacity are subject to review by a qualified engineer licensed in the State of Oregon. The applicant shall be responsible for the cost of this independent review and will be advised at the time of application of this expectation.
- H. Residential Development, including accessory structures as referenced in Section 5.010 of this Code and not constructed in accordance with Section 14.040.V. Note: if more than fifty percent (50%) of the lot being developed is affected by the floodplain, then the minimum density standard of this Code does not apply.
 1. Elevate structures. The minimum finished floor elevation, including basement floor, for all new or substantially improved residential structures in the Flood Management Area shall be at least two (2) feet above the base flood elevation, as established by Section 14.010.B in this Chapter, and as demonstrated through the Elevation Certificate submittals as established in this Section. Elevation Certificates shall be required for all residential development as required by the Community Rating System.
 - a. An Elevation Certificate shall be submitted with the construction plans. The Elevation Certificate shall include the elevation of the lowest floor (including basement). The Elevation Certificate shall be certified by a land surveyor, engineer, or architect who is authorized by state or local law to certify elevation information for construction within specific flood hazard areas.
 - b. A second certified Elevation Certificate shall be submitted to the City of Troutdale prior to pouring the foundation.
 - c. A third certified Elevation Certificate shall be submitted after the structure is completed based upon finished construction.
 - d. The City shall maintain the Elevation Certificates for public inspection.
 2. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, or must meet or exceed the following minimum criteria:
 - a. A minimum of two (2) openings having a total net area of not less than

- one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.
- b. The bottom of all openings shall be no higher than one (1) foot above grade.
 - c. Openings may be equipped with screens, louvers, or other devices provided that they permit the automatic entry and exit of floodwaters.
 - d. Where possible, openings will be installed on at least two opposing sides of the enclosed area.
3. Below-grade crawlspaces are allowed only when in compliance with the design requirements of FEMA Technical Bulletin 11-01, “Crawlspace Construction for Buildings Located in Special Flood Hazard Areas.” Buildings that have below-grade crawlspaces will have higher flood insurance premiums than buildings that have the preferred crawlspace construction with an interior elevation at or above the lowest adjacent exterior grade.
- a. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings:
 - i. Openings that equalize hydrostatic pressures by allowing for the automatic entry and existence of floodwaters is required. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade. See FEMA Technical Bulletin 1-93, Opening in Foundation Walls, for guidance.
 - ii. All portions of the building below the base flood elevation 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. Ductwork or other utility systems located below the insulation may pull away from their supports. See page 8 of Technical Bulletin 1-93 and FEMA Technical Bulletin 2-93 Flood Resistant Materials Requirements.
 - iii. Any building utility systems within the crawlspace must be elevated above the base flood elevation or designed so that floodwaters cannot enter or accumulate within the system

components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters. For further guidance, see FEMA 348, Protecting Building Utilities from Flood Damage.

- b. The interior grade of a crawlspace below the base flood elevation must not be more than two (2) feet below the lowest adjacent exterior grade.
 - c. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building Code requirements for flood hazard areas. Crawlspaces may not be converted to basements.
 - d. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel, or crushed stone drainage by gravity or mechanical means.
 - e. Crawlspace construction is not permitted in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. For velocities in excess of five (5) feet per second, other foundation types should be used.
 - f. The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest immediate interior or exterior grade.
4. Substantial improvements will require elevation of any non-elevated structure to two (2) feet above the base flood elevation in compliance with this Section and in accordance with Section 1.040. Substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. Substantial improvements include:
- a. Any repair, reconstruction, or improvement of a structure, the cost of which exceeds forty-nine percent (49%) of the market value of the

structure as established by the County appraiser or a licensed professional appraiser.

- b. Reconstruction or repair of a structure that exceeds forty-nine percent (49%) of the market value of the building before it was damaged.
- c. Additions to an existing structure when the addition increases the market value of the structure by more than forty-nine percent (49%) or the floor area by more than twenty percent (20%).

5. Comply with other standards of this Section, as applicable.

I. Manufactured dwellings within the Special Flood Hazard Area.

- 1. All manufactured dwellings to be placed or substantially improved on sites outside of or within a new, existing, or expansion to an existing manufactured dwelling park or subdivision shall be elevated so that the bottom of the longitudinal chassis frame beam is at or above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.
- 2. Anchoring shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
- 3. Manufactured dwellings shall have all electrical crossover connections installed at a minimum of twelve (12) inches above BFE.
- 4. Manufactured dwellings supported on solid foundation walls shall be constructed with flood openings that comply with Section 14.040.H(2).
- 5. Comply with the other standards of this Section as applicable.

J. Recreational Vehicles (RV) within the Special Flood Hazard Area, whether in a park or on private property outside of a park, are required to:

- 1. Be on the site for fewer than one hundred eighty (180) consecutive days, and
- 2. Be fully licensed and ready for highway use. Highway use means on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
- 3. Meet the permit requirements of Section 14.040.I and the requirements for manufactured dwellings.

4. The RV “pads” shall be paved with asphaltic concrete or comparable, and have a special water quality facility for the collection of the stormwater from the site.
 5. The RV “pads” shall be wide enough to accommodate a trailer parked next to the towing vehicle or be long enough to accommodate both towing vehicle and trailer.
- K. Nonresidential Construction. New construction, development, and substantial improvement of any commercial, industrial, or other nonresidential structure shall have the lowest floor, including basement, elevated to no less than two (2) feet above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:
1. Be dry floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water. A dry floodproofing certificate shall be filed with the City following the form and procedure established by the Federal Emergency Management Agency.
 2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy, in accordance with standards established by the Federal Emergency Management Agency and the National Flood Insurance Program.
 3. Be certified by a registered professional engineer or architect that the design and methods of development are in accordance with accepted standards of practice for meeting provisions of National Flood Insurance Program regulations (CFR 60.3(c)(4) and (5)) based on their development and/or review of the structural design, specifications, and plans. Such certifications shall be provided to the City.
 4. Nonresidential structures that are elevated, not dry floodproofed, must meet the same standards for space below the lowest floor as described in Section 14.040.H. If elevated, an Elevation Certificate shall be submitted with the construction plans, prior to pouring the foundation, and after construction.
 5. Applicants dry floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one (1) foot below the floodproofed level (e.g., a building floodproofed to the base flood elevation will be rated as one (1) foot below the base flood elevation).
 6. Applicants that elect to utilize floodproofing instead of elevation shall supply a comprehensive Maintenance Plan at the time of building plan review for the entire structure to include but not limited to: exterior envelope of structure; all penetrations to the exterior of the structure; all shields, gates, barriers, or components designed to provide floodproofing protection to the structure; all seals or gaskets for shields, gates, barriers, or components; and, the location of all shields, gates, barriers, and components as well as all associated hardware, and any materials or specialized tools necessary to seal the structure.

7. Applicants may be required by the Floodplain Manager to supply an Emergency Action Plan (EAP) for the installation and sealing of the structure prior to a flooding event that clearly identifies what triggers the EAP and who is responsible for enacting the EAP.
 8. Comply with other standards of this Section as applicable.
- L. Remove temporary fills. Temporary fills permitted during construction or emergency bank stabilization shall be removed if not in compliance with the balanced cut and fill standard of this Code or prior to issuance of a Certificate of Occupancy or release of any bond issued for the development.
- M. Preserve and/or restore the vegetation corridor within the disturbed areas, and retain the existing tree canopy as established in Sections 4.316, Width of Vegetation Corridor, and 4.317, Methods for Determining Vegetation Corridors Next to Primary Protected Water Features, of this Chapter. An enhancement plan for disturbed areas shall be prepared and implemented to stabilize slopes to prevent landslides on slopes and sedimentation of water features. This plan shall provide for the replanting and maintenance of approved plant species designed to achieve pre-disturbance conditions.
- N. Maintain or reduce stream temperatures.
- O. Minimize erosive velocities, nutrient, and pollutant loading into water. Use filtering, infiltration, and natural water purification for stormwater runoff in compliance with the Erosion Control and Water Quality Standards of Section 5.600 of this Code. The applicant's engineering plans shall certify that runoff and sedimentation from the site will comply with the standards of Section 5.600 of this Code.
- P. Anchoring. All new construction, development, and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- Q. Construction Materials and Methods. All new construction, development, and substantial improvements shall use flood-resistant materials in accordance with the requirements of FEMA Technical Bulletin 2-93 "Flood Resistant Materials Requirements" and utilities shall be designed and installed in accordance with FEMA Publication 348 "Protecting Building Utilities from Flood Damage." The following standards are only a summary of those requirements:
1. All new construction, development, and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
 2. All new construction, development, and substantial improvements shall be constructed using methods and practices that minimize flood damage and minimize impacts to natural floodplain functions, including flood storage, water infiltration, and riparian vegetation.

3. Electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 4. No construction materials or methods may be used within the floodplain that would impair or damage water quality or native vegetation.
 5. All development shall have adequate drainage provided to reduce exposure to flood damage and maintain water quality.
- R. Utilities and Roads.
1. Stream crossings shall be as close to perpendicular to the stream as practicable. Bridges shall be used instead of culverts wherever practicable, and comply with the Oregon Department of Fish and Wildlife construction standards.
 2. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
 3. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters.
 4. Onsite waste disposal systems shall be located to avoid impairment to them, or contamination from them, during flooding consistent with the State of Oregon Department of Environmental Quality.
 5. Utility and road placement shall occur outside the floodway unless the utility or road is necessary to serve permitted development, and there is no reasonable alternative. Roads built in the floodplain shall be built at or above the base flood elevation to provide access to emergency vehicles during a flood.
 6. Stormwater management and water quality facilities shall comply with the siting and construction standards of Section 5.700 of this Code.
- S. For any alterations or relocations of a watercourse the developer shall be required to notify the Oregon Department of State Lands, the Oregon Department of Land Conservation and Development, and adjacent communities that will be impacted by the alteration or relocation. The developer shall be responsible for obtaining and submitting copies of any required project permits required by the Oregon Department of State Lands, U.S. Army Corps of Engineers, Oregon Department of Fish and Wildlife Service, Federal Emergency Management Agency, and other affected agencies, as applicable. The flood carrying capacity of the altered or relocated watercourse shall not be diminished and shall be maintained. Alterations will require a “No-Rise” certification for changes to the

floodway, and changes that relocate the floodplain will require a Letter of Map Change (LOMC) from FEMA or may require a revised Flood Insurance Study and Flood Insurance Rate Map for the City. The burden for all engineering studies required to process these forms is the applicant's, not the City's.

- T. Subdivision Proposals. In addition to compliance with the underlying zoning district standards of this Code and this Chapter, the development of the subdivision shall be subject to the following additional criteria:
1. All subdivision proposals shall be consistent with the need to minimize flood damage.
 2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
 3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.
 4. Where the base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least fifty (50) lots or five (5) acres, whichever is less.
 5. If more than fifty percent (50%) of the lot being partitioned or subdivided is affected by the floodplain, then the minimum density standard of this Code does not apply.
- U. Critical Facilities.
1. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area.
 2. Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available.
 3. Critical facilities constructed within the SFHA shall have the lowest floor elevated one foot above the height of the 500-year flood level. Submit Elevation Certificates with the construction plans, prior to pouring the foundation, and upon completion of the structure in accordance with Subsections H(1)(a - c) of this Section.
 4. Access to and from the critical facility shall also be protected to the height utilized above.
 5. Access routes elevated to or above the level of the base flood elevation shall be

provided to all critical facilities to the extent possible.

6. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.
 7. Comply with the other standards of this Section as applicable.
- V. Small Accessory Structure. Relief from elevation or floodproofing as required in this Section may be granted for small accessory structures that meet the following standards. The applicant shall be advised that this type of allowance will result in higher insurance rates for these structures, as applicable.
1. Less than two hundred (200) square feet, less than \$5,000 in valuation, and do not exceed one story;
 2. Not temperature controlled;
 3. Not used for human habitation and are used solely for parking of vehicles or storage of items having low damage potential when submerged;
 4. Not used to store toxic material, oil or gasoline, or any priority persistent pollutant identified by the State of Oregon Department of Environmental Quality unless confined in a tank installed in compliance with this ordinance or stored at least two feet above base flood elevation;
 5. Located and constructed to have low damage potential;
 6. Constructed with materials resistant to flood damage as described in this Section;
 7. Anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood;
 8. Constructed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater. Designs for complying with this requirement must be certified by a licensed professional engineer or architect or designed in compliance with Section 14.040.H(2):
 9. Constructed with electrical, and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.

14.045 Floodways. Located within areas of special flood hazard established in Section 14.010.B of this Chapter are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- A. Except as provided in Section 14.045.C, encroachments, including fill, new construction, development, substantial improvements, and other development are prohibited unless certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
 - B. If Section 14.040.A is satisfied, all new construction, development, and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 14.040 of this Code.
 - C. Floodways and other high hazard zones are extremely hazardous areas due to exceptionally high flood and erosion potential. In these areas, the development actions permitted in high hazard zones shall be limited to water-dependent uses; bridges and other location-dependent uses; habitat restoration activities consistent with Sections 14.035.C(2); low-intensity recreation; and bioengineered banks.
- 14.050 Before Regulatory Floodway. In areas where a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.
- 14.055 Flood Management Area Variance Procedures. Variances from dimensional standards of the underlying zoning district or other provisions of this Code not part of this Chapter shall be processed in accordance with Section 6.800 of this Code.
- A. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction, development, and substantial improvements to be erected on a lot of one-half (1/2) acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing that the considerations of Section 14.055.A(1 - 11) have been fully reviewed. As the lot size increases the technical justification required for issuing the variance increases.
 - 1. The danger that materials may be swept onto other lands to the injury of others;
 - 2. The danger to life and property due to flooding or erosion damage;
 - 3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - 4. The importance of the services provided by the proposed facility to the community;

5. The necessity to the facility of a waterfront location, where applicable;
 6. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 7. The compatibility of the proposed use with existing and anticipated development;
 8. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
 9. The safety of access to the property in times of flood for ordinary and emergency vehicles;
 10. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
 11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
- B. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the Statewide Inventory of Historic Properties, without regard to the procedures set forth in this Section.
1. Is the minimum necessary to preserve the historic character and design of the site, building or structure;
 2. Will not result in the site, building or structure losing its historic designation; and
 3. Demonstrates consistency with all other local, state, or federal laws or ordinances, including documentation of any necessary consultations with state or federal agencies.
- C. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- D. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- E. The Director, or their designee, may grant a Type II variance of up to fifty percent (50%) of any dimensional standard in the underlying zoning district where necessary to avoid construction or development within the Flood Management Area. The Director or designee shall make a determination in accordance with the criteria established in Section 14.055.J of this Chapter.

- F. Applications for variances to dimensional standards in excess of that provided in Section 14.055.E shall be a Type III application.
- G. The Planning Commission or Director, or their designee, may attach conditions to the granting of variances as it deems necessary to further the purpose of this Chapter.
- H. As a participant in the National Flood Insurance Program, the City is not authorized to grant a variance from the requirement to elevate or floodproof structures in accordance with state and federal regulations, whichever is most restrictive. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except Section 14.055.A and otherwise complies with Sections 14.040.P - R of this Chapter.
- I. The City cannot grant a variance from the special flood hazard designation assigned by the Federal Insurance Administrator to a site. However, a property owner may request a Letter of Map Change (LOMC) from the Federal Emergency Management Agency.
- J. In reviewing a Type III Variance, the Planning Commission shall consider all technical evaluations, relevant factors, and standards specified in other Sections of this Chapter and other Chapters of this Code, and make affirmative findings, with or without conditions, for each of the following criteria:
 - 1. A showing of good and sufficient cause that the need for the variance is not of the applicant's making and will not result in a use of the site that is not otherwise permitted in the underlying zoning district.
 - 2. A determination that failure to grant the variance would result in exceptional hardship to the applicant and is the minimum necessary to grant relief.
 - 3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in Section 14.055.A(1) – (11) or conflict with existing local, state, or federal regulations.
 - 4. The safety of access to the property in times of flood for ordinary and emergency vehicles.
 - 5. A determination that the development project cannot be located outside the Special Flood Hazard Area and/or high hazard area and that impacts to flood storage, water infiltration, and riparian vegetation have been minimized to the extent practicable.
 - 6. A demonstration of consistency with all other local, state, or federal laws or ordinances, including documentation of any necessary consultations with state or federal agencies.

- 14.060 Prescribed Conditions for the Rehabilitation or Replacement of Pre-Existing Structures. The replacement of pre-existing structures or development damaged or destroyed accidentally is subject to following standards:
- A. The structure or development was in existence within the Flood Management Area prior to February 1, 2019.
 - B. The use is allowed in the underlying zoning district at the time the application is made to rehabilitate or replace the structure.
 - C. A Type I Floodplain Development Permit is approved prior to applying for building permits.
 - D. The rehabilitation or replacement is rebuilt on the same footprint of the original structure and does not increase the impervious area within the Special Flood Hazard Area.
 - E. The rehabilitated or replaced structure is elevated, if residential, or floodproofed or elevated, if non-residential, in accordance with the applicable standards of this Chapter, the definition found Section 1.040, and all additional relevant standards in this Code.