

## TITLE 18 FLOOD HAZARD REGULATIONS

### 18.04 PURPOSE AND METHODS

#### 18.04.010 Statement of Purpose

**Note:** The strikeout/underline format presented in this draft is intended to represent only substantive changes and is not a complete markup of the existing regulations, since the degree of reorganization and renumbering presented in these amendments would make an exact markup much more difficult to read.

The flood hazard areas within the City of Milwaukie are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base; all of which adversely affect the public health, safety, and general welfare. These flood losses may be caused by the cumulative effect of obstructions in regulatory floodplains, which increase flood heights and velocities and, when inadequately anchored, cause damage in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to flood loss.

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

- A. Protect human life and health;
- B. Minimize expenditure of public money for costly flood control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. Minimize prolonged business interruptions;
- E. Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in the regulatory floodplain;
- F. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas to minimize blight areas caused by flooding;
- G. Notify potential buyers that property is in a regulatory floodplain;
- H. Notify those who occupy regulatory floodplains that they assume responsibility for their actions;
- I. Maintain the functions and values of floodplains, such as allowing for storage and conveyance of stream flows through existing and natural flood conveyance systems; and
- J. Participate in, promote, and maintain eligibility for flood insurance and disaster relief.

#### 18.04.020 Methods of Reducing Flood Losses

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

- A. Restricting or prohibiting development which is dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- B. Requiring that development vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;

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- D. Controlling filling, grading, dredging, and other development which may increase flood damage;
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.

### 18.08 DEFINITIONS

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

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

“Area of February 1996 inundation” means the areas along the Willamette River and its backwaters of Johnson and Kellogg Creeks that were flooded to elevation 34.5 (NGVD) in February of 1996.

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

“Area of special flood hazard” means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. ~~Designation on maps always includes the letter A. It is shown on the Flood Insurance Rate Map as Zone A, AO, AH, A1-30, AE, A99, or AR.~~ Also referred to as “special flood hazard area.”

“Base flood” means the flood having a one percent chance of being equaled or exceeded in any given year. ~~Also referred to as the one hundred (100) year flood. Designation on maps always includes the letter A.~~

“Base flood elevation (BFE)” means the elevation to which floodwater is anticipated to rise during the base flood.

“Basement” means any area of the building having its floor subgrade (below ground level) on all sides, including any sunken room or sunken portion of a room.

“Building” means a structure with two or more outside rigid walls and a fully secured roof, that is affixed to a permanent site.

~~“City” means the City of Milwaukie, Oregon.~~

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

~~“Critical feature” means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.~~

“Development” means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

“Design flood height elevation (DFE)” means the higher elevation of the following:

1. ~~The elevation of the one hundred (100)-year storm as defined in FEMA Flood Insurance Studies and shown as Zone A on Flood Insurance Rate Maps~~ The base flood elevation (BFE); or
2. ~~The water surface elevation of 34.5, the elevation of the February 1996 flood event measured for the Willamette River, interpolated as 2.4 feet above the nearest adjacent BFE.~~

“Elevated building” means, for insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

~~“Existing manufactured home park or subdivision” means a manufactured home park subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.~~

~~“Expansion to an existing manufactured home park or subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).~~

~~“FEMA” means the Federal Emergency Management Agency.~~

“Flood or Flooding” means:

1. A general and temporary condition of partial or complete inundation of normally dry land areas from:
  - a. The overflow of inland or tidal waters.
  - b. The unusual and rapid accumulation or runoff of surface waters from any source.
  - c. Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph 1-b of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.
2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1-a of this definition.

“Flood elevation study” means an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation, and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards. Also referred to as “Flood Insurance Study.”

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

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“Flood Insurance Study (FIS)”: means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary Floodway Map, and the water surface elevation of the base flood. See “Flood elevation study.”

“Flood management areas” means all lands contained within the one hundred (100)-year floodplain, and floodway as shown on the Federal Emergency Management Agency Flood Insurance Rate Maps and Floodway Maps, and the areas of inundation for the February 1996 flood as shown on the Metro Water Quality and Flood Management Area Maps.

“Flood Protection Elevation (FPE)” means the elevation 1 foot above the Design Flood Elevation.

“Flood storage area” means that area below the design flood height but above bankful stage, which is capable of storing flood waters during a flood event.

“Floodplain or flood-prone area” means land area susceptible to being inundated by water from any source.

“Floodplain administrator” means the community official designated by title to administer and enforce the floodplain management regulations.

“Floodplain management” means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works, and floodplain management regulations.

“Floodplain management regulations” means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance, and erosion control ordinance) and other application of police power. The term describes such state or local regulations, in any combination thereof, that provide standards for the purpose of flood damage prevention and reduction.

“Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot a designated height. Also referred to as “Regulatory floodway.”

“Functionally dependent use” means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long term storage or related manufacturing facilities.

“Habitable floor” means any floor usable for living purposes, which includes working, sleeping, eating, cooking, or recreation, or a combination thereof. A floor used only for storage purposes is not a “habitable floor.”

“Hazardous material” means hazardous materials as defined by the Oregon Department of Environmental Quality, including any of the following:

1. Hazardous waste as defined in Oregon Revised Statutes (ORS) 466.005;
2. Radioactive waste as defined in ORS 469.300, radioactive material identified by the Energy Facility Siting Council under ORS 469.605 and radioactive substances defined in ORS 453.005
3. Communicable disease agents as regulated by the Health Division under ORS Chapter 431 and 433.010 to 433.045 and 433.106 to 433.990;

4. Hazardous substances designated by the United States Environmental Protection Agency (EPA) under section 311 of the Federal Water Pollution Control Act, P.L. 92-500, as amended;
5. Substances listed by the United States EPA in section 40 of the Code of Federal Regulations, Part 302 – Table 302.4 (list of Hazardous Substances and Reportable Quantities) and amendments;
6. Material regulated as a Chemical Agent under ORS 465.550;
7. Material used as a weapon of mass destruction, or biological weapon;
8. Pesticide residue;
9. Dry cleaning solvent as defined by ORS 465.200(9).

“Highest adjacent grade” means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

“Historic structure” means any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
  - a. By an approved state program as determined by the Secretary of the Interior; or
  - b. Directly by the Secretary of the Interior in states without approved programs.

~~“Levee” means a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.~~

~~“Levee system” means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.~~

~~“Lowest floor” means the lowest floor of the lowest enclosed area (including basements and any crawlspace that is below grade). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building’s lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this title.~~

~~“Manufactured home dwelling” means a structure, transportable in one or more sections, which is intended for use as a dwelling, built on a permanent chassis, and designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home dwelling” does not include recreational vehicles, park trailers, travel trailers, and other similar vehicles and is synonymous with “manufactured home” and “mobile home.”~~

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~~“Manufactured home dwelling park or subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home dwelling lots for rent or sale.~~

~~“Mean sea level” means, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community’s Flood Insurance Rate Map are referenced.~~

~~“New construction” means, for floodplain management purposes, structures for which the start of construction commenced on or after the effective date of the ordinance codified in this chapter—a floodplain management regulation adopted by City of Milwaukie and includes any subsequent improvements to such structures.~~

~~“New manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.~~

~~“Recreational vehicle” means a vehicle which is:~~

- ~~1. Built on a single chassis;~~
- ~~2. 400 square feet or less 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.~~

~~“Regulatory floodplain” is also referred to as “regulatory flood hazard area” and means floodplain mapped as either:~~

- ~~1. The land area inundated by the base flood on the Flood Insurance Rate Map (FIRM), or~~
- ~~2. The land area inundated by the February 1996 flood on the Metro Water Quality and Flood Management Area maps.~~

~~“Regulatory flood hazard area”: See “Regulatory floodplain.”~~

~~“Regulatory floodway”: See “floodway.”~~

~~“Remedy a violation” means to bring a structure or other development into compliance with State or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this chapter, or otherwise deterring future similar violations, or reducing federal financial exposure with regard to the structure or other development.~~

~~“Special flood hazard area”: See “Area of special flood hazard.”~~

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

forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

~~“Structure” means that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner principally above ground, for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured dwelling.~~

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

~~“Substantial improvement” means any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure either:~~

~~a. Before the improvement or repair is started; or~~

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

~~any reconstruction, rehabilitation, addition, or other improvements of a structure within the last ten years, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvements. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed. The term does not, however, include either:~~

- ~~1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or~~
- ~~2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places an historic structure, provided that the alteration will not preclude the structure's continued designation as an historic structure.~~

~~“Variance” means a grant of relief by the City from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter terms of a floodplain management regulation.~~

~~“Violation” means the failure of a structure or other development to be fully compliant with the City’s floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in the FEMA standards this title is presumed to be in violation until such time as that documentation is provided.~~

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

~~“Water surface elevation” means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.~~

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“Watercourse” means an artificial or natural stream, swale, creek, river, ditch, canal, or other open channel that serves to convey water, whether intermittently, perennially, or continuously.

### 18.12 GENERAL PROVISIONS

#### 18.12.010 Applicability

This title applies to all regulatory floodplains and floodways within the jurisdiction of the City of Milwaukie. 2.

Provisions of this title are to be administered concurrently with those of Title 19, the Zoning Ordinance of the City.

~~In the event that a claim for just compensation is made against the City pursuant to Article I, Section 18 of the Oregon Constitution based on the application or enforcement of this title, the City Council may waive, suspend, or modify application or enforcement of this title if the City Council determines that application or enforcement would result in an unconstitutional taking. In the event that the waiver, suspension or modification results in a state statute or regulation becoming directly applicable, the City will enforce the state law as required.~~

#### 18.12.020 Basis for Establishing the Regulatory Floodplain

- A. The special flood hazard areas identified by the Federal Insurance Administrator in a scientific and engineering report entitled “The FIS for Clackamas County, Oregon and Incorporated Areas,” dated January 18, 2019, with accompanying FIRMs 4100C0009D, 4100C0017D, 4100C0028D, and 4100C0036D and other FEMA maps and studies for ~~those areas annexed or restudied~~ are hereby incorporated by reference and declared to be a part of this title. The FIS and FIRM panels are on file at the Community Development Department, located at 6101 SE Johnson Creek Boulevard in Milwaukie, Oregon.
- B. The February 1996 flood inundation area identified by the Metro Water Quality and Flood Management Area maps are hereby incorporated by reference and declared to be a part of this title. The Metro Water Quality and Flood Management Area maps are on file at Community Development, located at 6101 SE Johnson Creek Boulevard in Milwaukie, Oregon.

#### 18.12.030 Coordination with State of Oregon Specialty Codes

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

#### 18.12.040 Compliance and Penalties for Noncompliance

##### A. Compliance

All development within a regulatory floodplain is subject to the terms of this title and required to comply with its provisions and all other applicable regulations.

##### B. Penalties for Noncompliance

No structure or land will hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this title and other applicable



regulations. Violations of the provisions of this title by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) will constitute a violation. Violations will be punishable by a fine of not more than one thousand dollars per violation per day. Nothing contained herein will prevent the City from taking such other lawful action as is necessary to prevent or remedy any violation.

**18.12.050 Abrogation and ~~Greater Restrictions~~ Severability**

A. Abrogation

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

B. Severability

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

**18.12.060 Interpretation**

In the interpretation and application of this title, all provisions will be:

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

**18.12.070 Warning and Disclaimer of Liability**

A. Warning

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

B. Disclaimer of Liability

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

**18.16 ADMINISTRATION**

**18.16.010 ~~Engineering Director—Designated Administrator~~ Designation of The Floodplain Administrator**

The ~~Engineering Director~~ City Engineer or their designee is hereby appointed as the Floodplain Administrator to administer, implement, and enforce this title by granting or denying

development permits in accordance with its provisions. The Floodplain Administrator may delegate authority to implement these provisions.

### **18.16.020 ~~Engineering Director~~—Duties and Responsibilities of the Floodplain Administrator**

Duties of the ~~Engineering Director~~ Floodplain Administrator, or their designee, include, but are not limited to:

#### A. Permit Review

The Floodplain Administrator will review all development permits for the following purposes:

1. To determine that the permit requirements of this title have been satisfied;
2. To determine that all other required local, state, and federal permits have been obtained and approved;
3. ~~To determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a flood prone area, all new construction and substantial improvements shall:~~
  - a. ~~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. ~~Be constructed with materials resistant to flood damage;~~
  - c. ~~Be constructed by methods and practices that minimize flood damages; and~~
  - d. ~~Be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.~~
4. To determine whether the proposed development is located in a floodway. If located in the floodway, assure that the floodway provisions of this title in Subsection 18.20.010.B (Floodways) are met;
5. To determine whether the proposed development is located in the regulatory floodplain where DFE or BFE data is available either through the FIS or from another authoritative source. If regulatory flood elevation data is not available, then ensure compliance with the provisions of Section 18.20.060 (Use of Other Design Flood Data);
6. To provide to building officials the FPE applicable to any building requiring a development permit;
7. To determine whether the proposed development qualifies as a substantial improvement as defined in Chapter 18.08 (Definitions);
8. To determine whether the proposed development activity is a watercourse alteration. If a watercourse alteration is proposed, ensure compliance with the provisions in Section 18.20.010 (Alteration of Watercourses); and
9. To determine whether the proposed development activity includes the placement of fill or excavation. If fill or excavation is proposed, ensure compliance with the provisions in Section 18.20.020 (Compensatory Storage).

B. Information to Be Obtained and Maintained

The following information will be obtained and maintained and will be made available for public inspection as needed, utilizing forms developed by FEMA where applicable:

1. Obtain, record, and maintain the actual elevation (in relation to mean sea level) of the lowest floor (including basements) and all attendant utilities of all new or substantially improved structures and whether or not the structure contains a basement located in the regulatory floodplain where DFE or BFE data is provided through the FIS, FIRM, or obtained in accordance with Subsection 18.20.060 (Use of Other Design Flood Data);
2. Obtain and record the elevation (in relation to mean sea level) of the natural grade of the building site for a structure prior to the start of construction and the placement of any fill and ensure that the requirements of Subsections 18.20.010.B (Floodways) and 18.16.020.A (Permit Review) are adhered to;
3. Upon placement of the lowest floor of a structure (including basement) but prior to further vertical construction, obtain documentation, prepared and sealed by a professional licensed surveyor or engineer, certifying the elevation (in relation to mean sea level) of the lowest floor (including basement);
4. Where DFE or BFE data are utilized, obtain as-built certification of the elevation (in relation to mean sea level) of the lowest floor (including basement) prepared and sealed by a professional licensed surveyor or engineer, prior to the final inspection;
5. Maintain all Elevation Certificates (ECs) submitted to the City;
6. Obtain, record, and maintain the elevation (in relation to mean sea level) to which the structure and all attendant utilities were floodproofed for all new or substantially improved floodproofed structures where allowed under this title and where DFE or BFE data is provided through the FIS, FIRM, or obtained in accordance with Section 18.20.060 (Use of Other Design Flood Data);
7. Maintain all floodproofing certificates required under this title;
8. Record and maintain all variance actions, including justification for their issuance;
9. Obtain and maintain all hydrologic and hydraulic analyses performed as required under Subsection 18.20.010.B (Floodways);
10. Record and maintain all Substantial Improvement and Substantial Damage calculations and determinations as required under Subsection 18.16.020.D (SI/SD);
11. Maintain for public inspection all records pertaining to the provisions of this title; and
12. Obtain, record, and maintain a non-conversion agreement for any areas constructed below flood protection elevation subject to inspection at least once a year.

C. Requirement to Notify Other Entities and Submit New Technical Data

1. Community Boundary Alterations

The Floodplain Administrator will notify the Federal Insurance Administrator (FIA) in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed authority or no longer has authority to adopt and enforce floodplain management regulations for a particular area, to ensure that all Flood Hazard Boundary Maps (FHBMs) and FIRMs accurately represent the community's boundaries. Include within such notification a

copy of a map of the community suitable for reproduction, clearly delineating the new corporate limits or new area for which the community has assumed or relinquished floodplain management regulatory authority.

### 2. Watercourse Alterations

Notify adjacent communities, the Department of Land Conservation and Development, and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration. This notification will be provided by the applicant to the Federal Insurance Administration as a Letter of Map Revision (LOMR) along with either:

- a. A proposed maintenance plan to assure the flood carrying capacity within the altered or relocated portion of the watercourse is maintained; or
- b. Certification by a registered professional engineer that the project has been designed to retain its flood carrying capacity without periodic maintenance.

The applicant will be required to submit a Conditional Letter of Map Revision (CLOMR) when required under section (Requirement to Notify Other Entities and Submit New Technical Data) 4.2.3.3. Ensure compliance with all applicable requirements in Subsection 18.16.020.C (Requirement to Notify Other Entities and Submit New Technical Data) and Subsection 18.20.010 (Alteration of Watercourses).

### 3. Requirement to Submit New Technical Data

A community's flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, the City must notify the FIA of the changes by submitting technical or scientific data in accordance with Section 44 of the Code of Federal Regulations (CFR), Sub-Section 65.3. The City may require the applicant to submit such data and review fees required for compliance with this section through the applicable FEMA Letter of Map Change (LOMC) process.

The Floodplain Administrator will require a CLOMR prior to the issuance of a floodplain development permit for proposed floodway encroachments that increase the DFE.

An applicant must notify FEMA within six (6) months of project completion when an applicant has obtained a CLOMR from FEMA. This notification to FEMA must be provided as a LOMR.

The applicant will be responsible for preparing all technical data to support CLOMR/LOMR applications and paying any processing or application fees associated with the CLOMR/LOMR.

The Floodplain Administrator will be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application, until the applicant demonstrates that the project will or has met the requirements of this code and all applicable state and federal laws.

### D. Substantial Improvement and Substantial Damage Assessments and Determinations

Conduct Substantial Improvement (SI) (as defined in Chapter 18.08) reviews for all structural development proposal applications and maintain a record of SI calculations

within permit files in accordance with Section 18.16.020.B (Information to be Obtained and Maintained). Conduct Substantial Damage (SD) (as defined in Chapter 18.08) assessments when structures are damaged due to a natural hazard event or other causes. Make SD determinations whenever structures within the special flood hazard area (as established in Subsection 18.12.020.A) are damaged to the extent that the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

~~E. Interpretation of FIRM and Flood Management Area Boundaries~~

~~Make interpretations, where needed, as to exact location of the boundaries of the special flood hazard and/or flood management areas (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 18.04.130.~~

**18.16.030 Establishment of Floodplain Development Permit**

A. Floodplain Development Permit Required

A Floodplain Development Permit must be obtained through application on forms furnished by the City Engineer before construction or development begins within any area horizontally within the regulatory floodplain established in Subsection 18.12.020.A. The Floodplain Development Permit is required for all structures, including manufactured dwellings, and for all other development, as defined in Chapter 18.08, including fill and other development activities.

B. Application for Floodplain Development Permit

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

1. The proposed elevation (in relation to mean sea level), of the lowest floor (including basement) and all attendant utilities of all new and substantially improved structures; in accordance with the requirements of Subsection 18.16.020.B (Information to be Obtained and Maintained).
2. Proposed elevation in relation to mean sea level to which any non-residential structure will be floodproofed.
3. Certification by a registered professional engineer or architect licensed in the State of Oregon that the floodproofing methods proposed for any non-residential structure meet the floodproofing criteria for non-residential structures in Section 18.20.120 (Nonresidential Construction).
4. Description of the extent to which any watercourse will be altered or relocated.
5. Substantial improvement calculation for any improvement, addition, reconstruction, renovation, or rehabilitation of an existing structure.
6. The amount and location of any fill or excavation activities proposed.

**18.16.040 Variance Procedure—~~Appeal Board~~**

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

- ~~A. The Planning Commission as established by the City shall hear and decide appeals and requests for variances from the requirements of this chapter.~~
- ~~B. The Planning Commission shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Engineering Director in the enforcement or administration of this chapter.~~
- ~~C. Those aggrieved by the decision of the Planning Commission or any taxpayer, may have the determination reviewed by the City Council and then under ORS 34.010 to 34.100.~~
- ~~D. In passing upon such applications, the Planning Commission shall consider all technical evaluations, all relevant factors and standards specified in other section of this chapter, and:
  - ~~1. The danger that materials may be swept onto lands to the injury of others;~~
  - ~~2. The danger of 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 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 floodwaters and the effects of wave action, if applicable, expected at the site;~~
  - ~~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; and~~
  - ~~12. The balancing of potentially adverse environmental impacts that may result from meeting the requirements of this chapter against the need to minimize impacts of new development on flood heights.~~~~
- ~~F. Upon consideration of the factors of subsection D of this section and the purposes of this chapter, the Planning Commission may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter.~~
- ~~G. The Engineering Director shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.~~

A. Conditions for Variances

1. Generally, variances will be heard by the Planning Commission. Variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base design flood level, in conformance with the provisions of Subsections 18.04.040.D.1.c and D.1.e and 18.04.040.D.2. As the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases.
2. Variances will not be issued within any floodway ~~if any increase in flood levels during the base flood discharge would result~~, unless the project is for the sole purpose of stream, fish, habitat, or other ecological enhancement, or for dam removal.
3. Variances may be issued by the City for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of Subsection 18.16.040.A.4 are met, and the structure or other development is protected by methods that minimize flood damages during the design flood and create no additional threats to public safety.
4. Approval criteria

Variances will only be issued upon:

- a. A showing of good and sufficient cause;
- b. A determination that failure to grant the variance would result in exceptional hardship to the applicant due to the physical characteristics of the land that render the lot undevelopable;
- c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, additional public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing laws or ordinances; and
- d. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- e. ~~That there are no practicable alternatives to the variance.~~

B. Variance Notification

Any applicant to whom a variance is granted will be given written notice that the issuance of a variance to construct a structure below the flood protection elevation may result in increased premium rates for flood insurance and that such construction below the design flood elevation increases risks to life and property. Such notification and a record of all variance actions, including justification for their issuance, will be maintained in accordance with Subsection 18.16.020.B (Information to be Obtained and Maintained).

- ~~E. The Planning Commission may impose such conditions as are necessary to limit any adverse flooding or environmental impacts that may result from granting relief.~~
- ~~F. Variances, as interpreted in the National Flood Insurance Program (NFIP), are based on the general zoning law principal that they pertain to a physical piece of property; are not personal in nature; and do not pertain to the structure, its inhabitants, or economic or financial circumstances. They primarily address small lots in densely populated neighborhoods. As such, variances from the flood elevations should be quite rare.~~

- ~~G. Variances may be issued for nonresidential buildings in very limited circumstances, to allow for a lesser degree of floodproofing than watertight or dry floodproofing, where it can be determined that such action will have a low damage potential, complies with all other variance criteria except subsection A, and otherwise complies with Section 18.04.150, General Standards.~~
- ~~H. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below one (1) foot above base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.~~

### 18.20 PROVISIONS FOR FLOOD HAZARD REDUCTION

In all regulatory floodplains, the following standards shall be adhered to:

#### 18.20.010 Alteration of Watercourses

- A. The flood carrying capacity within the altered or relocated portion of said watercourse must be maintained. Maintenance must be provided within the altered or relocated portion of said watercourse to ensure that the flood carrying capacity is not diminished. Compliance with Subsection 18.20.010 (Alteration of Watercourses) and Subsection 18.16.020.C.3 (Requirement to Submit New Technical Data) is required.

B. Floodways

Located within the regulatory floodplains established in Subsection 18.12.020.A are watercourses and other areas designated as floodways. ~~Since~~The floodway is an extremely hazardous area due to the velocity of the floodwaters which carry debris, potential projectiles, and erosion potential, ~~the following provisions apply:~~

Encroachments within floodways, including fill, new construction, substantial improvements, and other development within a setback of the adopted regulatory floodway, are prohibited unless:

1. The proposal is a dock, boat ramp, or other water dependent structures AND a certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the base flood discharge; OR
2. The encroachment proposal meets the following criteria:
  - a. Is for the primary purpose of fish enhancement;
  - b. Does not involve the placement of any structures (as defined in Chapter 18.08) within the floodway;
  - c. Has a feasibility analysis completed documenting that fish enhancement will be achieved through the proposed project;
  - d. Has a maintenance plan in place to ensure that the stream carrying capacity is not impacted by the fish enhancement project;
  - e. Has approval by the National Marine Fisheries Service, the State of Oregon Department of Fish and Wildlife, or the equivalent federal or state agency; AND



- f. Has evidence to support that no existing structures will be negatively impacted by the proposed activity.

Then an approved CLOMR or may be required prior to approval of a floodplain permit.

~~The placement of any manufactured home within a floodway is prohibited, except in an existing manufactured home park or existing manufactured home subdivision. Subsections A and B of this section must be satisfied.~~

- C. If the requirements of Subsection 18.20.010.B (Floodways) are satisfied, all new construction, substantial improvements, and other development must comply with all other applicable flood hazard reduction provisions of Chapter 18.20.

#### **18.20.020 Compensatory Storage (Balanced Cut and Fill)**

~~The displacement of flood storage area by the placement of fill or structures (including building foundations) shall conform to the following standards for balanced cut and fill:~~

The placement of fill or structures that displaces ten cubic yards or less of flood storage area is exempt from the requirements of this section (18.20.020).

The placement of fill or structures that displaces more than ten (10) cubic yards of flood storage area must comply with the following standards:

~~A. No net fill in any floodplain is allowed.~~

B.

C. Development, excavation, and fill must be performed in a manner to maintain or increase flood storage and conveyance capacity and not increase design flood elevations.

D. Excavation and fill must not be performed in a manner as to adversely impact other functions of a floodplain, including but not limited to, erosion control, promoting biodiversity, and ground water recharge.

E. All fill placed in a floodplain at or below the design flood elevation in the regulatory floodplain must be balanced with at least an equal amount volume of soil-material removal in a hydraulically equivalent location.

F. Excavation below bankful stage will not be counted as compensating for fill if such areas will be filled with water in two-year rainstorm conditions or are designated for HCA mitigation.

G. Temporary fills permitted during construction must be removed ~~at the end of construction.~~

H. Uncontained areas of hazardous materials in the regulatory floodplain are prohibited.

I. Excavation to balance a fill must be located on the same parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation may be located in the same drainage basin and as close as possible to the fill site subject to the following:

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1. The proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis;
  2. The proposed excavation is authorized under applicable municipal code provisions including Section 19.402 Natural Resources; and
  3. Measures to ensure the continued protection and preservation of the excavated area for providing balanced cut and fill must be approved by the City.
- J. New culverts, stream crossings, and transportation projects must be designed as balanced cut and fill projects or designed not to significantly raise the design flood elevation. Such projects must be designed to minimize the area of fill in flood management areas and to minimize erosive velocities. Stream crossings must be as close to perpendicular to the stream as practicable. Bridges must be used instead of culverts wherever practicable.
- K. Excavation and fill required for the construction of detention facilities or structures, and other facilities, must be designed to reduce or mitigate flood impacts and improve water quality. Levees must not be used to create vacant buildable lands.

### **18.20.030 Utilities and Equipment**

#### **A. Water Supply, Sanitary Sewer, and Onsite Waste Disposal Systems**

1. All new and replacement water supply systems must be designed to minimize or eliminate infiltration of flood waters into the system.
2. New and replacement sanitary sewage systems must be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.
3. Onsite waste disposal systems must be located to avoid impairment to them or contamination from them during flooding, consistent with the Oregon Department of Environmental Quality.

#### **B. Electrical, Mechanical, Plumbing, and Other Equipment**

All new electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities must be elevated at or above the flood protection elevation or must be designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding. In addition, electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities in Substantially Improved structures must be elevated at or above the flood protection elevation.

### **18.20.040 ~~Anchoring [and] Construction Materials and Methods Structures~~**

- A. All new construction and substantial improvements must be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
- ~~B. All new construction and substantial improvements shall be constructed with materials and utilize equipment resistant to flood damage.~~
- C. All new construction and substantial improvements must be constructed using methods and practices that minimize flood damage with flood resistant materials below the flood protection elevation.

**18.20.050 Tanks**

- A. Underground tanks must be anchored to prevent flotation, collapse and lateral movement under conditions of the design flood.
- B. Above-ground tanks must be installed at or above the flood protection elevation.

**18.20.060 Use of Other Design Flood Data**

When ~~base flood and floodway elevation~~ DFE data has not been provided for flood zones in accordance with Section 18.12.020 (Basis for Establishing the Regulatory Floodplain), the ~~Engineering Director~~ Floodplain Administrator will obtain, review, and reasonably utilize any ~~base flood and floodway~~ flood elevation data available from a federal, state, or other source, in order to administer Section 18.20.

**18.20.070 Structures Located in Multiple or Partial Flood Zones**

In coordination with the State of Oregon Specialty Codes:

- A. When a structure is located in multiple flood zones on the community's regulatory floodplain maps the provisions for the more restrictive flood zone will apply.
- B. When a structure is partially located in a regulatory floodplain, the entire structure must meet the requirements for new construction and substantial improvements.

**18.20.080 Critical Facilities**

Construction of new critical facilities must be, ~~to the extent possible,~~ located outside the limits of the regulatory floodplain. ~~Construction of new critical facilities shall be permissible within the special flood hazard area (SFHA) if no feasible alternative site is available.~~

If allowed by variance in accordance with the provisions of this title, new critical facilities constructed within the regulatory floodplain must have the lowest floor elevated at least three feet above the ~~design~~ base flood height (BFE) or to the height of the 500-year flood, whichever is higher. Access to and from any new critical facility must also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. ~~Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.~~

Existing critical facilities, including future improvements and maintenance to critical facilities, within the limits of the regulatory floodplain are exempt from this requirement.

**18.20.090 Miscellaneous Provisions Flood Openings**

All new construction and substantial improvements with fully enclosed areas below the lowest floor (excluding basements) are subject to the following requirements.

Enclosed areas below the flood protection elevation, including crawl spaces, must:

- A. Be designed to automatically equalize hydrostatic flood forces on ~~exterior~~ walls by allowing for the entry and exit of floodwaters;
- B. Be used solely for parking, storage, or building access;
- C. Be certified by a registered professional engineer or architect or meet or exceed all of the following minimum criteria:

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1. A minimum of two openings.
2. The total net area of non-engineered openings must be not less than one (1) square inch for each square foot of enclosed area subject to flooding, where the enclosed area is measured on the exterior of the enclosure walls.
3. The bottom of all openings must be no higher than one foot above grade.
4. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they must allow the automatic flow of floodwater into and out of the enclosed areas and must be accounted for in the determination of the net open area.
5. All additional higher standards for flood openings in the State of Oregon Residential Specialty Codes Section R322.2.2 must be complied with when applicable.

### **18.20.100 Garages**

- A. Attached garages may be constructed with the garage floor slab below the flood protection elevation, if the following requirements are met:
  1. Not located within a floodway.
  2. The floors are at or above grade on not less than one side;
  3. The garage is used solely for parking, building access, and/or storage;
  4. The garage is constructed with flood openings in compliance with Subsection 18.04.050.1 (Flood Openings) to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater.
  5. The portions of the garage constructed below the flood protection elevation are constructed with materials resistant to flood damage;
  6. The garage is constructed in compliance with the standards in Chapter 18.20; and
  7. The garage is constructed with electrical, and other service facilities located at or above the design flood elevation plus 1 foot.
  8. A Non-Conversion Agreement is recorded with title and deed which prohibits alteration of the accessory structure at a later date as to violate the building code and floodplain damage prevention ordinance requirements and the owner(s) and subsequent owner(s) agree to allow a representative of the City of Milwaukie onto the Property and into the building(s) to verify compliance with this Agreement.
- B. Detached garages must be constructed in compliance with the standards for accessory structures in Subsection 18.20.150 (Accessory Structures) or nonresidential structures in Section 18.20.120 (Nonresidential Construction) depending on the square footage of the garage.

### **18.20.110 Residential Construction**

- A. New construction and substantial improvement of any residential structure must have the lowest floor, including basement, elevated ~~one (1) foot~~ at or above the base-flood protection elevation (FPE).
- B. Enclosed areas below the lowest floor must comply with the flood opening requirements in Section 18.20.090 (Flood Openings).
- C. Enclosed areas below the lowest floor must be constructed with flood resistant materials.

- D. No enclosed areas below flood protection elevation are permitted at locations sharing a cross section with average floodway velocities that are expected to meet or exceed 5 ft/s.

**18.20.120 Nonresidential Construction**

- A. New construction and substantial improvement of any commercial, industrial, or other nonresidential structure must have the lowest floor, including basement, elevated ~~one (1) foot at or above the design flood height~~ protection elevation; or, together with attendant utility and sanitary facilities, must:
1. Be floodproofed so that below ~~one (1) foot above the design flood height~~ the flood protection elevation the structure is watertight, with walls substantially impermeable to the passage of water.
  2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
  3. Be certified by a registered professional engineer or architect that the design and methods of construction ~~satisfy the standards of this subsection~~ are in accordance with accepted standards of practice for meeting provisions of this section based on their development and/or review of the structural design, specifications and plans. Such certifications must be provided to the Floodplain Administrator as set forth in Subsection 18.16.020.B (Information to be Obtained and Maintained).
- B. Non-residential structures that are elevated, not floodproofed, must comply with the standards for enclosed areas below the lowest floor in Section 18.20.090 (Flood Openings).
- C. Applicants floodproofing non-residential buildings must be notified that flood insurance premiums will be based on rates that are one (1) foot below the floodproofed level; ~~e.g., a building floodproofed to the base flood level will be rated as one (1) foot below.~~
- D. Applicants must supply a maintenance plan for the entire structure to include but not limited to: exterior envelop 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.
- E. Applicants must 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.

**18.20.130 Manufactured Homes Dwellings**

- ~~1. All manufactured homes to be placed or substantially improved on sites:~~
- ~~a. Outside of a manufactured home park or subdivision;~~
  - ~~b. In a new manufactured home park or subdivision;~~
  - ~~c. In an expansion to an existing manufactured home park or subdivision; or~~
  - ~~d. In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood;~~

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~~shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one (1) foot above the design flood height and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.~~

2. ~~Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision within Zones A130, AH, and AE on the community's FIRM that are not subject to the above manufactured home provisions shall be elevated so that either:~~
- ~~a. The lowest floor of the manufactured home is elevated one (1) foot above the base flood elevation; or~~
  - ~~b. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and are securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.~~
- A. New or substantially improved manufactured dwellings supported on solid foundation walls must be constructed with flood openings that comply with Section 18.20.090 (Flood Openings).
  - B. The bottom of the longitudinal chassis frame beam must be at or above flood protection elevation.
  - C. New or substantially improved manufactured dwellings must be anchored to prevent flotation, collapse, and lateral movement during the design flood. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (see FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
  - D. Electrical crossover connections must be at or above design flood elevation plus 1 foot.

### **18.20.140 Recreational Vehicles**

A recreational vehicle placed on sites is required to:

- A. Be on the site for fewer than 180 consecutive days; and
- B. Be fully licensed and ready for highway use, on its wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or

Meet the requirements of Section 18.20.130 (Manufactured Dwellings), including the anchoring and elevation requirements for manufactured dwellings.

### **18.20.150 Accessory Structures**

Relief from elevation or floodproofing requirements for residential and nonresidential structures may be granted for accessory structures that meet the following requirements:

- A. Accessory structures located partially or entirely within the floodway must comply with requirements for development within a floodway found in Subsection 18.20.010.B (Floodways).
- B. Accessory structures must only be used for parking, access, and/or storage and must not be used for human habitation.
- C. In compliance with State of Oregon Specialty Codes, accessory structures on properties that are zoned residential are limited to one-story structures less than 200 square feet,

or 400 square feet if the property is greater than two (2) acres in area and the proposed accessory structure will be located a minimum of 20 feet from all property lines. Accessory structures on properties that are zoned as nonresidential are limited in size to 120 square feet.

- D. The portions of the accessory structure located below the flood protection elevation must be built using flood resistant materials.
- E. The accessory structure must be adequately anchored to prevent flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood.
- F. The accessory structure must be designed and constructed to equalize hydrostatic flood forces on exterior walls and comply with the requirements for flood openings in Section 18.20.090 (Flood Openings).
- G. Accessory structures must be located and constructed to have low damage potential including no enclosed areas at locations sharing a cross section with floodway velocities that are expected to meet or exceed 5 ft/s.
- H. Accessory structures must not be used to store toxic material, oil, or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality unless confined in a tank installed in compliance with Section 18.20.030 (Utilities and Equipment).
- I. Accessory structures must be constructed with electrical, mechanical, and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the design flood.
- J. A Non-Conversion Agreement is recorded with title and deed which prohibits alteration of the accessory structure at a later date as to violate the building code and floodplain damage prevention ordinance requirements and the owner(s) and subsequent owner(s) agree to allow a representative of the City of Milwaukie onto the Property and into the building(s) at least once a year to verify compliance with this Agreement.

#### **18.04.150.D ~~Subdivision Proposals~~**

- ~~1. All subdivision proposals shall be consistent with the need to minimize flood damage.~~
- ~~2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.~~
- ~~3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.~~
- ~~4. Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least fifty (50) lots or five (5) acres (whichever is less).~~

#### **18.04.150.E ~~Review of Building Permits~~**

~~Where elevation data are not available, applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two (2) feet above grade in these zones may result in higher insurance rates.~~

### **18.04.150.G Crawlspaces Construction**

Below-grade crawlspaces are allowed subject to the following standards as found in FEMA Technical Bulletin 1101, Crawlspaces Construction for Buildings Located in Special Flood Hazard Areas:

1. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B of FEMA Technical Bulletin 1101. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
2. The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.
3. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
4. Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.
5. The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.
6. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall, must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.
7. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel or crushed stone drainage by gravity, or mechanical means.
8. The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.