

ORDINANCE NO. 1983

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MILWAUKIE, OREGON, AMENDING TITLE 18 FLOOD HAZARD REGULATIONS AND TITLE 19 ZONING, TO COMPLY WITH FEDERAL EMERGENCY MANAGEMENT REQUIREMENTS (FILE #ZA-08-01) AND DECLARING AN EMERGENCY.

WHEREAS, the proposed amendments to Title 18 adopt the updated FEMA Flood Insurance Rate Maps by reference; and

WHEREAS, the proposed amendments to Titles 18 and 19 bring the Milwaukie Municipal Code in compliance with federal requirements for floodplain protection; and

WHEREAS, adoption of the proposed amendments is required for the City to continue to participate in the National Flood Insurance Program; and

WHEREAS, the City's floodplain protection regulations must comply with federal standards and be effective on June 17, 2008; and

WHEREAS, legal and public notices have been provided as required by law; and

WHEREAS, on May 13, 2008, the Milwaukie Planning Commission conducted a public hearing, as required by Zoning Ordinance Section 19.1011.5, and adopted a motion in support of the amendment; and

WHEREAS, the Milwaukie City Council finds that the proposed amendments are in the public interest of the City of Milwaukie;

NOW, THEREFORE, THE CITY OF MILWAUKIE DOES ORDAIN AS FOLLOWS:

Section 1. Findings. Findings of fact in support of the proposed amendment(s) are attached as Exhibit A.

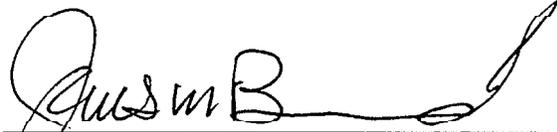
Section 2. Title 18- Flood Hazard Regulations and Title 19 – Zoning. The text is amended as described in Exhibits B (strikeout version) and C (clean version).

Section 3. Emergency Clause. Inasmuch as it is necessary for the immediate preservation of the peace, health, and safety of the citizens of the City of Milwaukie that this Ordinance and the regulations related to flood hazard areas shall have immediate effect, an emergency is hereby declared to exist and this Ordinance shall be in full force following its adoption by the City Council and approval by the Mayor.

Read the first time on _____, and moved to second reading by _____ vote of the City Council.

Read the second time and adopted by the City Council on _____.

Signed by the Mayor on 6/3/08



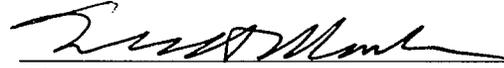
Jim Bernard, Mayor

ATTEST:



Pat DuVal, City Recorder

APPROVED AS TO FORM:
Jordan Schrader Ramis, LLP



City Attorney

Exhibit A
Findings in Support of Approval

1. The City of Milwaukie proposes changes to the text of Titles 18 and 19 of the Milwaukie Municipal Code (MMC) to make the City's flood hazard regulations consistent with federal regulations.
2. The proposal is subject to the following provisions of the Zoning Ordinance, Title 19, of the Milwaukie Municipal Code (MMC), as follows:

Chapter 19.900	Amendments
Subsection 19.1011.5	Legislative Review
3. Public notice has been provided in accordance with MMC Subsection 19.1011.5 – Legislative Review. The Planning Commission held a public hearing on May 13, 2008, as required by law. The City Council held a public hearing on June 3, 2008, as required by law.
4. MMC Section 19.901 requires that an amendment to the Milwaukie zoning text be initiated by the city council, planning commission, or by a property owner.

This text amendment is proposed by the City of Milwaukie and was initiated by the Planning Commission prior to the public hearing on May 13, 2008. This criterion is met.

5. MMC Section 19.902 – Amendment procedure.
 - A. MMC Subsection 19.902.1(A) requires that proposed amendment applications be heard at a public hearing and follow the procedures outlined in MMC Subsection 19.1011.5, Legislative actions.
 - B. MMC Subsection 19.902.1(B) establishes standards for providing notice to Metro of any proposed amendment to the comprehensive plan or zoning ordinance.

The Planning Commission held a public hearing on May 13, 2008, the earliest practicable meeting after the application was determined to be complete. The City Council is holding a public hearing within 40 days of the Commission's recommendation to approve.

Staff provided notice to Metro on May 2, 2008.

These criteria are met.

6. MMC Subsection 19.904.1 requires that proposals for zoning text amendments provide written evidence that the following requirements are satisfied:
 - A. Applicable requirements of MMC Section 19.1003, which specify the form of petitions, applications, and appeals.

The City submitted an application on the prescribed form on April 18, 2008. Because the application is for a zoning code text amendment and no development is proposed, the other portions of MMC Section 19.1003 are not applicable.
 - B. Reasons for requesting the proposed text amendments.

The proposed code amendments focus on revisions to Title 18 (Flood Hazard Regulations) and Title 19 (Zoning). The proposed revisions are designed to bring the City's flood hazard regulations into conformance with current federal regulations, without

changing basic policy or intent. If the proposed amendments had not been approved and in effect by June 17, 2008, the City would have been suspended from eligibility for the National Flood Insurance Program.

- C. Explanation of how the proposed text amendments are consistent with other provisions of this title.

The proposed text amendments have been created to ensure that the provisions of MMC Title 19 are consistent with those of MMC Title 18 and that both titles are consistent with applicable federal regulations.

- D. The approval criteria of MMC Section 19.905.

The applicable approval criteria of MMC Section 19.905 have been addressed in the City's application and are evaluated in Finding 7, below.

As proposed, the application complies with MMC Section 19.904. This criterion is met.

7. MMC Section 19.905 establishes the approval criteria for zoning text amendments. The applicable criteria are evaluated as follows:

- A. The proposed amendments must conform to applicable comprehensive plan goals, policies and objectives and be consistent with the provisions of city ordinances, Metro urban growth management functional plan, and applicable regional policies.

Compliance with City Policy:

The proposed code revisions to Title 18 and Title 19 will not change current City land use policy. The amendments are consistent with applicable comprehensive plan goals, policies and objectives. Specifically, the following comprehensive plan goals apply:

i. Chapter 2 – Plan Review and Amendment Process, Objective 2 – Implementing the Plan

Implement this Plan through appropriate ordinances and action.

- Policy 1. Amend existing ordinances and adopt new ordinances to carry out the policies of this Plan as necessary.

The City is adopting text amendments to ensure that the City's flood hazard regulations and zoning code are consistent with applicable federal regulations. The proposed revisions for inclusion in this amendment will accomplish the following:

- *Establish new definitions related to flood hazard regulation.*
- *Update existing definitions to be consistent with those found in federal regulations.*
- *Update references to the latest FIS report, FEMA maps, and other FEMA resources.*
- *Reorganize information for greater clarification.*
- *Clarify the variance process.*
- *Ensure that MMC Title 18 and MMC Title 19 operate seamlessly and consistently with respect to development issues within identified flood hazard areas.*

ii. Chapter 3 – Environmental and Natural Resources, Objective 1 - Floodplain

To manage identified 100-year floodplains in order to protect their natural function as waterways, and to protect the lives and property of those individuals and concerns currently located within and along the floodplain boundary.

- Policy 3. The finished elevations of the lowest floor of buildings and streets will be a minimum of 1.0 foot above the 100-year flood elevation.

The City's existing flood hazard regulations require that residential and nonresidential construction have the lowest floor at least 1.0 foot above the base flood elevation. The proposed amendments include a change in the regulation of manufactured homes, requiring that the lowest floor be elevated at least 1.0 foot above the base flood elevation instead of at or above the design flood height.

- Policy 5. The City will continue to participate in the FEMA Flood Insurance Program and will update its current flood hazard ordinance as necessary to comply with future revisions to that program.

As noted above, the primary purpose of the proposed amendments is to make the City's flood hazard regulations consistent with newly revised federal regulations. The proposed amendments are required to ensure the City's eligibility for participation in FEMA's National Flood Insurance Program.

Compliance with Metro Policy:

The amendments are consistent with applicable sections of Metro's Urban Growth Management Functional Plan. Cities are required to comply with policies in the Functional Plan, as required by Section 5(e) (2) of the Metro Charter. The City's Zoning Ordinance is currently in compliance with each of the following Titles in the Framework Plan. Specifically, the following Metro titles apply:

i. Title 3 – Water Quality and Flood Management

MMC Title 18 (Flood Hazard Regulations) and Title 19 (Zoning) both incorporate Metro's Title 3 regulations and Model Ordinance to ensure that the City's regulations for flood management are consistent with those of Metro. Furthermore, as noted above, the proposed amendments are designed to ensure that City regulations continue to be consistent with applicable federal regulations for flood management.

ii. Title 8 – Compliance Procedures

The City's comprehensive plan and land use regulations are in compliance with the Functional Plan. The proposed amendments shall be deemed to comply with the Functional Plan if no appeal to the Land Use Board of Appeals is made within the 21-day period set forth in ORS 197.830(9). As required by Metro Code Section 3.07.820.A, the City of Milwaukie is providing notice of the proposed amendments to Metro's Chief Operating Officer as much in advance of the City Council hearing on the proposed amendments as possible.

In processing the proposed amendments, the City of Milwaukie has followed its own requirements for Citizen Involvement. The proposed amendments have been reviewed at a public City Council work session and will be made available to the City's Neighborhood District Associations for review. The City has conducted public hearings on the proposed amendments before the Planning Commission and City Council and has published public notice prior to each hearing.

- B. The proposed amendments will meet or can be determined to reasonably meet applicable regional, state, or federal regulations.

The City has complied with all applicable procedural and substantive standards imposed by Metro, as discussed above. The primary purpose of the proposed amendments is to revise applicable code sections related to flood hazard management so that they are consistent with the latest federal regulations.

The Oregon Statewide Planning Goals apply to the proposed amendments as follows:

i. Goal 1 – Citizen Involvement

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

The City has an adopted and acknowledged amendment process and is following that process in making these amendments. The proposed amendments do not change the City's citizen involvement program. Public hearings on the proposed amendments have been held and public notice was published twice prior to each hearing as required by the Milwaukie Comprehensive Plan (Chapter 2, policy 1). In addition, all owners of property within designated flood hazard areas were sent notice of the public hearings. The Planning Commission members are appointed by an elected City Council, following an open and public selection process.

ii. Goal 2 – Land Use Planning

To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.

The proposed amendments do not change the City's land use planning process. The City will continue to have a comprehensive land use plan and implementing regulations that are consistent with the plan. The proposed amendments will update MMC Title 18 and Title 19 of the City's code and make it consistent with applicable federal flood management regulations. Specifically, the proposed amendments establish new definitions related to flood hazard regulation; update existing definitions to be consistent with those found in federal regulations; update references to the latest FIS report, FEMA maps, and other FEMA resources; reorganize information for greater clarification; clarify the variance process; and generally ensure that MMC Title 18 and MMC Title 19 operate seamlessly and consistently with respect to development issues within identified flood hazard areas. These changes strengthen the City's existing policies that implement Goal 2.

iii. Goal 7 – Areas Subject to Natural Hazards

To protect people and property from natural hazards.

The proposed amendments improve the City's implementation of Statewide Planning Goal 7. The new maps provide a more accurate and user-friendly format for identifying floodplains so they can be more readily and precisely recognized as areas where protection is necessary and where high water presents natural hazards (in the form of flooding) threaten life and property. The proposed amendments are specifically designed to ensure that City ordinances relating to development in designated flood hazard areas continue to be consistent with applicable federal regulations for flood management.

As proposed, the application complies with MMC Section 19.905. This criterion is met.

8. MMC Subsection 19.1011.5 outlines the procedures for processing legislative land use policies and plans. Specifically, it requires the City to do the following:

- A. Public Notification. Publish a notice of a hearing once each week for two consecutive weeks in a newspaper of general circulation in the city. The second publication shall not be less than five days prior to the date of the hearing.

The City has provided the required published notice. The amendments are posted on the City website. Property owner notifications required when zoning amendments may affect the use of property have been mailed to properties in federally designated Special Flood Hazard Areas, in compliance with ORS 215.503 and 227.186.

- B. Decision. The Planning Commission shall conduct a public hearing and shall make a decision based on compliance with the applicable goals and policies of the comprehensive plan. The Planning Commission shall prepare a recommendation to the City Council. If the Commission approves the proposal, a report and recommendation, including findings and conclusions, shall be forwarded to Council. The City Council shall conduct a public hearing.

The Planning Commission conducted a public hearing on May 13, 2008, and made a recommendation to the City Council. The City Council held a public hearing on June 3, 2008.

As proposed, the application complies with MMC Subsection 19.1011.5. This criterion is met.

Exhibit B
Proposed Amendments to MMC Titles 18 and 19 (Strikeout Version)

TITLE 18 FLOOD HAZARD REGULATIONS

CHAPTER 18.04 FLOOD HAZARD AREAS

18.04.010 Purpose.

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

- A. To protect human life and health;
- B. To minimize expenditure of public money and costly flood control projects;
- C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. To minimize prolonged business interruptions;
- E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- G. To ensure that potential buyers are notified that property is in an area of special flood hazard;
- H. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions; and
- I. To maintain the functions and values of floodplains such as allowing for storage and conveyance of stream flows through existing and natural flood conveyance systems.

18.04.020 Methods of reducing flood losses.

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

- A. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- D. Controlling filling, grading, dredging, and other development which may increase flood damage; and
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

18.04.030 Definitions.

Unless specifically defined in this section, the words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

- A. "Appeal" means to request review of the city's interpretation of any provision of this chapter or a request for a variance.
- B. "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.
- C. "Area of shallow flooding" means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.
- ED. "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.
- DE. "Base flood" means the flood having a one-percent chance of being equaled or exceeded in any given year. Also referred to as the 100-year flood. Designation on maps always includes the letter A.
- F. "Basement" means any area of the building having its floor subgrade (below ground level) on all sides.
- EG. "City" means the city of Milwaukie, Oregon.
- H. "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 that produce, use, or store hazardous materials or hazardous waste.
- FI. "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.
- GJ. "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 the storage of equipment or materials located within the area of special flood hazard.
- HK. "Design flood height" means the higher elevation of the following:
1. The elevation of the one hundred-year storm as defined in FEMA Flood Insurance Studies and shown as Zone A on Flood Insurance Rate Maps; or
 2. Water surface elevation of 34.5, the elevation of the February 1996 flood event measured for the Willamette River.
- L. "Elevated building" means, for insurance purposes, a nonbasement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.
- M. "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.
- N. "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).

- IQ. “FEMA” means the Federal Emergency Management Agency.
- JP. “Flood” or “flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from:
1. The overflow of inland or tidal waters; or
 2. The unusual and rapid accumulation of runoff of surface waters from any source.
- KQ. “Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
- LR. “Flood Insurance Study” means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.
- MS. “Flood management areas” means all lands contained within the one hundred-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.
- NT. “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.
- OU. “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
- PV. “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.”
- QW. “Levee” means a man-made 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.
- RX. “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.
- SY. “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 nonelevation design requirements of this chapter.
- FZ. “Manufactured home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designated for use with or without a permanent foundation when connected to the required utilities. ~~For floodplain management purposes, the term “manufactured homes” also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than one hundred eighty consecutive days. For insurance purposes, the term~~ “manufactured homes” does not include recreational vehicles, park trailers, travel trailers, and other similar vehicles.

- ~~UAA.~~ “Manufactured home park or subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
- ~~VBB.~~ “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.
- ~~WCC.~~ “New construction” means structures for which the “start of construction” commenced on or after the effective date of the ordinance codified in this chapter.
- ~~DD.~~ “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.
- ~~EE.~~ “Recreational vehicle” means a vehicle that 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.
- ~~XFF.~~ “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.
- ~~YGG.~~ “Start of construction” means and includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty days of the permit date. The “actual start” means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation, or the placement of a manufactured home on a foundation. “Permanent construction” does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footing, 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.
- ~~ZHH.~~ “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.
- ~~II.~~ “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.
- ~~AAJJ.~~ Substantial Improvement.

1. "Substantial improvement" means any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds fifty percent 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.
2. "Substantial improvement" does not include either:
 - a. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
 - b. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

~~BBKK~~. "Variance" means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

~~CELL~~. "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 is presumed to be in violation until such time as that documentation is provided.

~~MM~~. "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.

~~DDNN~~. "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.

18.04.040 Applicability.

- A. This chapter shall apply to all special flood hazard areas and all flood management areas within the jurisdiction of the city.
- B. 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.

18.04.050 Basis for establishing special flood hazard and flood management areas.

- A. The areas of special flood hazard identified by the Federal Insurance Administration in the scientific and engineering report entitled "The Flood Insurance Study for ~~the city of Milwaukie~~ Clackamas County and Incorporated Areas," dated ~~December 1979~~ June 17, 2008, with accompanying flood insurance rate maps and floodway maps, dated June 18, 1990, and other FEMA maps and studies for those areas annexed or restudied, are adopted by reference and declared to be a part of this chapter. The Flood Insurance Study is on file at 6101 SE Johnson Creek Boulevard, Milwaukie, Oregon.

- B. Those areas designated as flood management areas on the water quality and flood management areas maps prepared by Metro are adopted by reference and declared to be a part of this chapter. Copies of the Metro Water Quality and Flood Management Areas Maps for the City of Milwaukie are on file at 6101 Johnson Creek Boulevard, Milwaukie, Oregon.

18.04.060 Compliance required—Violation—Penalty.

No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this chapter and other applicable regulations. Violation of the provisions of this chapter shall be punishable by a fine of not more than one thousand dollars. Nothing contained in this subsection shall prevent the city from taking such other lawful action as is necessary to remedy any violation.

18.04.070 Abrogation and greater restrictions.

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

18.04.080 Interpretation.

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

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

18.04.090 Warning—Liability disclaimer.

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 man-made or natural cases. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the city, any officer or employee there-of, or the Federal Insurance Administration, for flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

18.04.100 Development permit required.

A development permit shall be obtained before construction or development begins within any special flood hazard or flood management area established in Section 18.04.050. The permit shall be for all structures, including manufactured homes, as set forth in Section 18.04.030 and for all other development including fill and other activities, also as set forth in Section 18.04.030. Application for a development permit shall be made on forms furnished by the engineering director and may include, but not be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

- A. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- B. Elevation in relation to mean sea level to which any structure has been floodproofed;
- C. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 18.04.16013; and
- D. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

18.04.110 Engineering Director—Designated administrator.

The engineering director is appointed to administer and implement this chapter by granting or denying development permit applications in accordance with its provisions.

18.04.120 Engineering Director—Duties and responsibilities.

The engineering director or designee shall act as the Local Floodplain Administrator. Duties of the engineering director shall include, but not be limited to:

- A. Permit Review.
 - 1. Review all development permits to determine that the permit requirements of this chapter have been satisfied;
 - 2. Review all development permits to determine that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required;
 - 3. Review all permit applications 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.
- B. Use of Available Base Flood Data. When base flood and floodway elevation data has not been provided for flood zones in accordance with Section 18.04.050, the engineering director shall obtain, review and reasonably utilize any base flood and floodway elevation data available from a federal, state or other source, in order to administer Section 18.04.160(A) and Section 18.04.160(B).
- C. Information to be Obtained and Maintained.
 - 1. Obtain and record the actual elevation (in relation to mean sea level) of the lowest habitable floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
 - 2. For all new or substantially improved floodproofed structures:
 - a. Verify and record the actual elevation (in relation to mean sea level), and
 - b. Maintain the floodproofing certifications required in Section 18.04.100(C) of this Chapter.
 - 3. Maintain for public inspection all records pertaining to the provisions of this chapter.
- D. Alteration of Watercourses.
 - 1. Notify adjacent communities, the Oregon Department of Land Conservation and Development (DLCDD), and the Federal Emergency Management Agency (FEMA);

Insurance and Mitigation Division, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;

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

18.04.130 Variance—Appeal board.

- 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.

- E. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing subdivisions 1 through 12 of Subsection (D) of this section have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.
- 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.

18.04.140 Variance—Conditions.

- A. Variances may be issued for the reconstruction, rehabilitation or ~~restoration~~ restoration of structures listed on the National Register of Historic Places or the state Inventory of Historic Places, without regard to the procedures set forth in the remainder of this section.
- B. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- C. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- D. Variances shall only be issued upon findings of the following:
 1. A showing of good and sufficient cause;
 2. A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense or create nuisances, cause fraud on or victimization of the public as identified in Section 18.04.010 or conflict with existing local laws or ordinances; and
 4. That there are no practicable alternatives to the variance.
- 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 Section 18.04.140(A), and otherwise complies with Section 18.04.150 General standards.
- FH. 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 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.

18.04.150 General standards.

In all special flood hazard and all flood management areas the following standards are required:

A. Anchoring.

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.
2. All manufactured homes shall be anchored to resist flotation, collapse or lateral movement to the structure, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, by providing over-the-top and frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques). Specific requirements shall be that:
 - a. ~~Over the top ties be provided at each of the four corners of the manufactured home, with two additional ties per side at intermediate locations, with manufactured homes less than fifty feet long requiring one additional tie per side;~~
 - b. ~~Frame ties be provided at each corner of the home with five additional ties per side at intermediate points, with manufactured homes less than fifty feet long requiring four additional ties per side;~~
 - c. ~~All components of the anchoring system be capable of carrying a force of four thousand eight hundred pounds; and~~
 - d. ~~Any addition to the manufactured home be similarly anchored.~~
3. ~~An alternative method of anchoring may involve a system designed to withstand a wind force of ninety miles per hour or greater. Certification must be provided to the engineering director that this standard has been met.~~

B. Construction Materials and Methods.

1. All new construction and substantial improvements shall be constructed with materials and utilize equipment resistant to flood damage.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

C. Utilities.

1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
2. 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; and
3. Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

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 lots or five acres (whichever is less).
- 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 feet above grade in these zones may result in higher insurance rates.
- F. 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:
1. The placement of fill or structures that displaces ten cubic yards or less of flood storage area is exempt from the requirements of Section 18.04.150(F)(2);
 2. The placement of fill or structures that displaces more than ten cubic yards of flood storage area shall comply with the following standards:
 - a. No net fill in any floodplain is allowed.
 - b. All fill placed in a floodplain shall be balanced with at least an equal amount of soil material removal.
 - c. Any excavation below bankful stage shall not count toward compensating for fill.
 - d. Excavation to balance a fill shall 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:
 - ~~1~~i. The proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis;
 - 2ii. The proposed excavation is authorized under applicable municipal code provisions including Section 19.322 Natural Resource Overlay Zone; and
 - ~~3~~iii. Measures to ensure the continued protection and preservation of the excavated area for providing balanced cut and fill shall be approved by the city.
 - e. Temporary fills permitted during construction shall be removed at the end of construction.
 - f. New culverts, stream crossings, and transportation projects shall be designed as balanced cut and fill projects or designed not to significantly raise the design flood elevation. 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.

- g. Excavation and fill required for the construction of detention facilities or structures, and other facilities, shall be designed to reduce or mitigate flood impacts and improve water quality. Levees shall not be used to create vacant buildable lands.

G. Crawlspace Construction.

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

1. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B of FEMA Technical Bulletin 11-01. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
2. The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.
3. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
4. Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.
5. The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.
6. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall, must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.
7. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel or crushed stone drainage by gravity or mechanical means.
8. The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.

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

18.04.160 Specific standards.

In all special flood hazard and flood management areas where base flood elevation data has been provided as set forth in Sections 18.04.050 and 18.04.120(B), the following provisions are required:

- A. Residential Construction. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot above base flood elevation.
- B. Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot above design flood height, or, together with attendant utility and sanitary facilities, shall:
 - 1. Be floodproofed so that below one foot above the design flood height 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; and
 - 3. Be certified by a registered professional engineer or architect that the design and methods of construction satisfy the standards of this subsection. Such certificates shall be provided to this official as set forth in Section 18.04.120(C).
 - 4. Nonresidential structures that are elevated, but not floodproofed, must meet the same standards for space below the lowest floor as described in subsection 18.04.160(E);
 - 5. Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level; e.g., a building floodproofed to the base flood level will be rated as one foot below.
- C. Manufactured Homes.
 - 1. ~~All manufactured homes to be placed or substantially improved within zones AI-30, AH, and AE (as identified on flood insurance rate maps) shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the design flood height and be securely anchored to an adequately anchored foundation system in accordance with the provisions of Section 18.04.150(A).~~
 - 2. ~~For new manufactured home parks and manufactured home subdivisions; for expansions to existing manufactured home parks and manufactured home subdivisions; for existing manufactured home parks and manufactured home subdivisions where the repair, reconstruction or improvement of the streets, utilities and pads equals or exceeds fifty percent of value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced; and for manufactured homes not placed in a manufactured home park or manufactured home subdivision, it is required that:~~
 - a. ~~Stands or lots are elevated on compacted fill or on pilings so that the lowest floor of the manufactured home will be elevated one foot above design flood height;~~
 - b. ~~Adequate surface drainage and access for a hauler are provided; and~~
 - e. ~~In the instance of elevation on pilings, that:~~
 - i. ~~Lots are large enough to permit steps;~~
 - ii. ~~Piling foundations are placed in stable soil no more than ten feet apart, and~~

~~iii. Reinforcement is provided for pilings more than six feet above the ground level.~~

~~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;~~

~~shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one 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 A1-30, 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 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 36 inches in height above grade and are securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.~~

~~3. No manufactured home shall be placed in a floodway, except in an existing manufactured home park or existing manufactured home subdivision.~~

D. Recreational Vehicles.

~~1. Recreational vehicles placed on sites are required to either:~~

~~a. Be on the site for fewer than 180 consecutive days;~~

~~b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or~~

~~c. Meet the requirements of subsection 18.04.160(C) above and the elevation and anchoring requirements for manufactured homes.~~

~~2. Nothing in this section shall be deemed to allow the placement, parking, or storage of recreational vehicles as otherwise prohibited by City zoning ordinances.~~

DE. Miscellaneous Provisions.

1. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding are prohibited or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 - b. The bottom of all openings shall be no higher than one foot above grade.
 - c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
2. Provisions of this chapter are to be administered concurrently with those of Title 19, the zoning ordinance of the city.

18.04.170 Floodways.

Located within areas of special flood hazard established in Section 18.04.050 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. Prohibit encroachments, including fill, new construction, substantial improvements, and other development, are prohibited unless certification by a registered professional engineer or architect 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 subsection A of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 18.04.150 through this section.
- C. 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.

18.04.180 Critical Facility.

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above the design flood height or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

TITLE 19 ZONING

CHAPTER 19.100 INTRODUCTORY PROVISIONS

19.103 Definitions.

Refer to Title 18 for definitions related to flood hazard areas.

As used in this title:

[All definitions follow here]

Exhibit C
Proposed Amendments to MMC Titles 18 and 19 (Clean Version)

TITLE 18 FLOOD HAZARD REGULATIONS

CHAPTER 18.04 FLOOD HAZARD AREAS

18.04.010 Purpose.

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

- A. To protect human life and health;
- B. To minimize expenditure of public money and costly flood control projects;
- C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. To minimize prolonged business interruptions;
- E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- G. To ensure that potential buyers are notified that property is in an area of special flood hazard;
- H. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions; and
- I. To maintain the functions and values of floodplains such as allowing for storage and conveyance of stream flows through existing and natural flood conveyance systems.

18.04.020 Methods of reducing flood losses.

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

- A. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- D. Controlling filling, grading, dredging, and other development which may increase flood damage; and
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

18.04.030 Definitions.

Unless specifically defined in this section, the words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

- A. "Appeal" means to request review of the city's interpretation of any provision of this chapter or a request for a variance.
- B. "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.
- C. "Area of shallow flooding" means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.
- D. "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.
- E. "Base flood" means the flood having a one-percent chance of being equaled or exceeded in any given year. Also referred to as the 100-year flood. Designation on maps always includes the letter A.
- F. "Basement" means any area of the building having its floor subgrade (below ground level) on all sides.
- G. "City" means the city of Milwaukie, Oregon.
- H. "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 that produce, use, or store hazardous materials or hazardous waste.
- I. "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.
- J. "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, drilling operations, or the storage of equipment or materials located within the area of special flood hazard.
- K. "Design flood height" means the higher elevation of the following:
 - 1. The elevation of the one hundred-year storm as defined in FEMA Flood Insurance Studies and shown as Zone A on Flood Insurance Rate Maps; or
 - 2. Water surface elevation of 34.5, the elevation of the February 1996 flood event measured for the Willamette River.
- L. "Elevated building" means, for insurance purposes, a nonbasement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.
- M. "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.
- N. "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).

- O. "FEMA" means the Federal Emergency Management Agency.
- P. "Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:
 - 1. The overflow of inland or tidal waters; or
 - 2. The unusual and rapid accumulation of runoff of surface waters from any source.
- Q. "Flood Insurance Rate Map (FIRM)" means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
- R. "Flood Insurance Study" means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.
- S. "Flood management areas" means all lands contained within the one hundred-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.
- T. "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.
- U. "Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
- V. "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."
- W. "Levee" means a man-made 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.
- X. "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.
- Y. "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 nonelevation design requirements of this chapter.
- Z. "Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designated for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include recreational vehicles, park trailers, travel trailers, and other similar vehicles.
- AA. "Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

- BB. "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.
- CC. "New construction" means structures for which the "start of construction" commenced on or after the effective date of the ordinance codified in this chapter.
- DD. "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.
- EE. "Recreational vehicle" means a vehicle that 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.
- FF. "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.
- GG. "Start of construction" means and includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty days of the permit date. The "actual start" means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation, or the placement of a manufactured home on a foundation. "Permanent construction" does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footing, 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.
- HH. "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.
- II. "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.
- JJ. Substantial Improvement.
1. "Substantial improvement" means any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds fifty percent 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.
- 2. “Substantial improvement” does not include either:
 - a. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
 - b. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.
- KK. “Variance” means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.
- LL. “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 is presumed to be in violation until such time as that documentation is provided.
- MM. "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.
- NN. “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.

18.04.040 Applicability.

- A. This chapter shall apply to all special flood hazard areas and all flood management areas within the jurisdiction of the city.
- B. 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.

18.04.050 Basis for establishing special flood hazard and flood management areas.

- A. The areas of special flood hazard identified by the Federal Insurance Administration in the scientific and engineering report entitled “The Flood Insurance Study for Clackamas County and Incorporated Areas,” dated June 17, 2008, with accompanying flood insurance rate maps and floodway maps, and other FEMA maps and studies for those areas annexed or restudied, are adopted by reference and declared to be a part of this chapter. The Flood Insurance Study is on file at 6101 SE Johnson Creek Boulevard, Milwaukie, Oregon.
- B. Those areas designated as flood management areas on the water quality and flood management areas maps prepared by Metro are adopted by reference and declared to be a part of this chapter. Copies of the Metro Water Quality and Flood Management Areas Maps for the City of Milwaukie are on file at 6101 Johnson Creek Boulevard, Milwaukie, Oregon.

18.04.060 Compliance required—Violation—Penalty.

No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this chapter and other applicable regulations. Violation of the provisions of this chapter shall be punishable by a fine of not more than one thousand dollars. Nothing contained in this subsection shall prevent the city from taking such other lawful action as is necessary to remedy any violation.

18.04.070 Abrogation and greater restrictions.

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

18.04.080 Interpretation.

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

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

18.04.090 Warning—Liability disclaimer.

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 man-made or natural cases. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the city, any officer or employee there-of, or the Federal Insurance Administration, for flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

18.04.100 Development permit required.

A development permit shall be obtained before construction or development begins within any special flood hazard or flood management area established in Section 18.04.050. The permit shall be for all structures, including manufactured homes, as set forth in Section 18.04.030 and for all other development including fill and other activities, also as set forth in Section 18.04.030. Application for a development permit shall be made on forms furnished by the engineering director and may include, but not be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

- A. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- B. Elevation in relation to mean sea level to which any structure has been floodproofed;
- C. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 18.04.16013; and
- D. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

18.04.110 Engineering Director—Designated administrator.

The engineering director is appointed to administer and implement this chapter by granting or denying development permit applications in accordance with its provisions.

18.04.120 Engineering Director—Duties and responsibilities.

The engineering director or designee shall act as the Local Floodplain Administrator. Duties of the engineering director shall include, but not be limited to:

- A. Permit Review.
 - 1. Review all development permits to determine that the permit requirements of this chapter have been satisfied;
 - 2. Review all development permits to determine that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required;
 - 3. Review all permit applications 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.
- B. Use of Available Base Flood Data. When base flood and floodway elevation data has not been provided for flood zones in accordance with Section 18.04.050, the engineering director shall obtain, review and reasonably utilize any base flood and floodway elevation data available from a federal, state or other source, in order to administer Section 18.04.160(A) and Section 18.04.160(B).
- C. Information to be Obtained and Maintained.
 - 1. Obtain and record the actual elevation (in relation to mean sea level) of the lowest habitable floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
 - 2. For all new or substantially improved floodproofed structures:
 - a. Verify and record the actual elevation (in relation to mean sea level), and
 - b. Maintain the floodproofing certifications required in Section 18.04.100(C) of this Chapter.
 - 3. Maintain for public inspection all records pertaining to the provisions of this chapter.
- D. Alteration of Watercourses.
 - 1. Notify adjacent communities, the Oregon Department of Land Conservation and Development (DLCD), and the Federal Emergency Management Agency (FEMA) Insurance and Mitigation Division prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;
 - 2. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

- 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.

18.04.130 Variance—Appeal board.

- 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.
- E. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing subdivisions 1 through 12 of Subsection (D) of this section have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

- 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.

18.04.140 Variance—Conditions.

- A. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the state Inventory of Historic Places, without regard to the procedures set forth in the remainder of this section.
- B. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- C. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- D. Variances shall only be issued upon findings of the following:
 - 1. A showing of good and sufficient cause;
 - 2. A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 - 3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense or create nuisances, cause fraud on or victimization of the public as identified in Section 18.04.010 or conflict with existing local laws or ordinances; and
 - 4. That there are no practicable alternatives to the variance.
- 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 Section 18.04.140(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 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.

18.04.150 General standards.

In all special flood hazard and all flood management areas the following standards are required:

- A. Anchoring.
 - 1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

2. All manufactured homes shall be anchored to resist flotation, collapse or lateral movement to the structure, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, over-the-top and frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
- B. Construction Materials and Methods.
1. All new construction and substantial improvements shall be constructed with materials and utilize equipment resistant to flood damage.
 2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
 3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- C. Utilities.
1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
 2. 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; and
 3. Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- 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 lots or five acres (whichever is less).
- 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 feet above grade in these zones may result in higher insurance rates.
- F. 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:
1. The placement of fill or structures that displaces ten cubic yards or less of flood storage area is exempt from the requirements of Section 18.04.150(F)(2);
 2. The placement of fill or structures that displaces more than ten cubic yards of flood storage area shall comply with the following standards:

- a. No net fill in any floodplain is allowed.
- b. All fill placed in a floodplain shall be balanced with at least an equal amount of soil material removal.
- c. Any excavation below bankful stage shall not count toward compensating for fill.
- d. Excavation to balance a fill shall 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:
 - i. The proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis;
 - ii. The proposed excavation is authorized under applicable municipal code provisions including Section 19.322 Natural Resource Overlay Zone; and
 - iii. Measures to ensure the continued protection and preservation of the excavated area for providing balanced cut and fill shall be approved by the city.
- e. Temporary fills permitted during construction shall be removed at the end of construction.
- f. New culverts, stream crossings, and transportation projects shall be designed as balanced cut and fill projects or designed not to significantly raise the design flood elevation. 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.
- g. Excavation and fill required for the construction of detention facilities or structures, and other facilities, shall be designed to reduce or mitigate flood impacts and improve water quality. Levees shall not be used to create vacant buildable lands.

G. Crawlspace Construction.

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

1. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B of FEMA Technical Bulletin 11-01. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
2. The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.

3. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
4. Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.
5. The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.
6. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall, must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.
7. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel or crushed stone drainage by gravity or mechanical means.
8. The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.

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

18.04.160 Specific standards.

In all special flood hazard and flood management areas where base flood elevation data has been provided as set forth in Sections 18.04.050 and 18.04.120(B), the following provisions are required:

- A. Residential Construction. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot above base flood elevation.
- B. Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot above design flood height, or, together with attendant utility and sanitary facilities, shall:
 1. Be floodproofed so that below one foot above the design flood height 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; and
 3. Be certified by a registered professional engineer or architect that the design and methods of construction satisfy the standards of this subsection. Such certificates shall be provided to this official as set forth in Section 18.04.120(C).

4. Nonresidential structures that are elevated, but not floodproofed, must meet the same standards for space below the lowest floor as described in subsection 18.04.160(E);
5. Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level; e.g., a building floodproofed to the base flood level will be rated as one foot below.

C. Manufactured Homes.

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;

shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one 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 A1-30, 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 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 36 inches in height above grade and are securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

D. Recreational Vehicles.

1. Recreational vehicles placed on sites are required to either:
 - a. Be on the site for fewer than 180 consecutive days;
 - b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
 - c. Meet the requirements of subsection 18.04.160(C) above and the elevation and anchoring requirements for manufactured homes.
2. Nothing in this section shall be deemed to allow the placement, parking, or storage of recreational vehicles as otherwise prohibited by City zoning ordinances.

E. Miscellaneous Provisions.

1. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding are prohibited or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by

a registered professional engineer or architect or must meet or exceed the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 - b. The bottom of all openings shall be no higher than one foot above grade.
 - c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
2. Provisions of this chapter are to be administered concurrently with those of Title 19, the zoning ordinance of the city.

18.04.170 Floodways.

Located within areas of special flood hazard established in Section 18.04.050 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. Prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless certification by a registered professional 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 subsection A of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 18.04.150 through this section.
- C. 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.

18.04.180 Critical Facility.

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above the design flood height or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

TITLE 19 ZONING

CHAPTER 19.100 INTRODUCTORY PROVISIONS

19.103 Definitions.

Refer to Title 18 for definitions related to flood hazard areas.

As used in this title:

[All definitions follow here]