Section 4.172. **Flood Plain Regulations.**

(.01) **Purpose:**

A. To minimize public and private losses due to flood conditions in flood-prone areas.

B. To regulate uses and alteration of land which would otherwise cause erosion, decreased storm water storage capability, increased flood heights or velocities.

C. To require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction, alteration or remodeling.

D. To restrict filling, grading, dredging, and other development which would increase flood damage.

E. To prevent construction of flood barriers which would unnaturally divert flood waters or increase flood hazards in other areas.

F. To properly regulate the 100-year flood plain identified by the Federal Insurance Administration (FIA) in the "Flood Insurance Study for Clackamas County and Incorporated Areas dated effective June 17, 2008," and displayed on FIA Floodway and Flood Insurance Rate Maps dated effective June 17, 2008, which are on file with the City’s Community Development Department.

G. To implement the policies of the Comprehensive Plan and to provide standards consistent with Wilsonville’s adopted Storm Drainage Master Plan.

H. To insure the City and its residents and businesses, continued eligibility in the National Flood Insurance Program by complying with the requirements of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

(.02) **General Provisions Affecting Flood Plains:**

A. This section shall apply to all flood plain areas in the City of Wilsonville identified by the Flood Insurance Rate Map. No Building Permits, Construction Permits, or Development Permits for development within the flood plain shall be issued except in compliance with the provisions of the Section. [Amended by Ord 686, 11/1/10]

B. Basis for Establishing the Areas of Special Flood Hazard. The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “Flood Insurance Study – Clackamas County, Oregon and Incorporated Areas, effective June 17, 2008,” with accompanying Flood Insurance Rate Maps (effective date June 17, 2008) is hereby adopted by reference and declared part of this ordinance. The Flood Insurance Study is on file at the City of Wilsonville Community Development Department.
C. The City of Wilsonville Community Development Director shall review all Building and Grading Permit applications for new construction or substantial improvement to determine whether proposed building or grading sites will be located in a flood plain. If a proposed building or grading site is located within a flood plain, any proposed new construction, grading, or substantial improvement (including prefabricated and manufactured housing) must:

1. Be designed (or modified) and anchored to prevent flotation, collapse or lateral movement of the structure.
2. Use construction materials and utility equipment that are resistant to flood damage,
3. Use construction methods and practices that will minimize flood damage, and
4. Limit the addition of any fill material such that the total volume of fill within the flood plain does not exceed the volume of material removed from the flood plain in the same area.

D. That the City of Wilsonville Planning Director shall review subdivision proposals and other proposed new developments within the flood plain to assure that:

1. all such proposals are consistent with the need to minimize flood damage,
2. all public utilities and facilities, such as sewer, gas, electrical and water systems are located, elevated and constructed to minimize or eliminate flood damage,
3. adequate drainage is provided so as to reduce exposure to flood hazards, and
4. No new lots or parcels shall be created for the purpose of increasing the development of buildings for human occupancy within the flood plain.

E. That the City of Wilsonville Community Development Director shall require new or replacement water supply systems and/or sanitary sewage systems to be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters and require on-site waste disposal systems to be located so as to avoid impairment of them or contamination from them during flooding.

(.03) Development Permit Required:

A. A Development Permit shall be obtained before construction or development, including grading, begins within any area of special flood hazard. The Permit shall be for all structures including manufactured homes and for all development including fill and other activities.

B. Outright Permitted Uses in the 100-year Flood Plain:

1. Agricultural use that is conducted without a structure other than a boundary fence.
2. Recreational uses which would require only minor structures such as picnic tables and barbecues.
3. Residential uses that do not contain buildings.
4. Underground utility facilities.
5. Repair, reconstruction or improvement of an existing structure, the cost of which is less than 50 percent of the market value of the structure, as determined by the City's Building Official, prior to the improvement or the damage requiring reconstruction, provided no development occurs in the floodway.

(.04) **Uses within the 100-year Flood Plain requiring a Flood Plain Permit:**
A. Any development except as specified in subsection (.03), above, that is otherwise permitted within the Zoning District provided such development is consistent with the Flood Plain Standards.
B. All subdivisions and land partitions.
C. Installation of dikes to provide buildable or usable property, provided that said dikes do not conflict with the policies of the Comprehensive Plan and this Section.

(.05) **Prohibited Uses in the 100-year Flood Plain:**
A. Any use or building which stores or otherwise maintains hazardous materials, chemicals, explosives or any other similar materials.
B. Storage of any materials that are not properly anchored, enclosed or protected to prevent movement or flotation beyond the property lines.
C. 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 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. Flood-proofing 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.

(.06) **Flood Plain Permit Review Process:**
A. The Community Development Director the local flood plain administrator and is hereby appointed to administer and implement this Section by granting or denying Development Permit applications in accordance with its provisions.
B. Duties and Responsibilities of the Community Development Director:
   I. Duties of the Community Development Director shall include, but not be limited to:
a. Review all Development Permits to determine that the permit requirements of this ordinance have been satisfied.
b. Review all Development Permits to determine that all necessary permits have been obtained from those Federal, State or local government agencies from which prior approval is required. Notify the State Department of Land Conservation and Development and FEMA of final permit decision.
c. Review all Development Permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment limitations of subsection (.07)(H) are met.

C. The Permit process for developments not regulated by Section 4.140 shall be as follows:
   1. Pre-application conference with the Planning Department in accordance with the procedures set forth in Section 4.008.
   2. A complete application in accordance with this Section shall be submitted to the Community Development Director.
   3. Within 30 days of complete application, the Community Development Director shall approve or deny the application based on the following Findings:
      a. Reports from the City Engineer and Planning Director as to the applicant's submittal documents' compliance with this Section, including recommendations.
      b. The proposed development's compliance with other provisions of the Comprehensive Plan and Zoning Regulations.

D. The decision of the Community Development Director may be appealed to the Development Review Board, upon written notice to the City Recorder within ten (10) calendar days of the date of final decision. Upon appeal, the Board shall hear the matter in accordance with Section 4.022.

E. Any flood plain development proposed for property regulated under Section 4.140 shall be considered by the Development Review Board and the Community Development Director as part of the Planned Development Permit process.

F. Submittal requirements.
   1. A field survey in relation to mean sea level by a licensed surveyor or civil engineer of the actual location of the 100-year flood plain, fringe, floodway and the lowest habitable finished floor elevations, including basements, of all existing structures.
   2. A Site Plan map showing all existing and proposed contours and development and supplemented by a soils and hydrologic report sufficient to determine the net effect of the proposed development on the flood plain elevations on the subject site and adjacent properties. Proposed areas of cut or fill shall be clearly indicated.
3. A soils stabilization plan for all cuts, fills and graded areas.

G. Use and Interpretation of Base Flood Data and maps.
   I. When specific 100-year flood plain elevation data has not been provided in as required in this Section, the Community Development Director shall obtain, review and reasonably utilize any base flood elevation data available from Federal, State or other sources, in order to determine compliance with this Section.

   2. The Community Development Director shall make the final interpretation of the exact 100-year flood plain boundaries on the FIRM and the Floodway Map. Appeals shall be granted consistent with the Standards of the rules and regulations of the National Flood Insurance Program and pursuant to WC 4.172(.08) Appeal Board.

H. Monumentation and Recordation:
   1. Prior to issuance of a Flood Plain Permit, the Community Development Director shall cause the placement of an elevation marker, set at two (2) feet above the 100-year flood elevation, on the subject property. The marker shall be properly identified and permanently monumented in concrete.

   2. A Site Plan or map showing the location and elevation of the monument shall be submitted to and maintained on file by the Community Development Director.

   3. Prior to issuance of an Occupancy Permit, for any structure within the 100-year flood plain, the Community Development Director shall insure by signature of a licensed surveyor or civil engineer (elevation certificate) that the finished floor elevation of commercial, industrial and public buildings are one and one-half (1-1/2) feet above the 100-year flood elevation and that residential uses are two (2) feet above the 100-year flood elevation. The finished floor elevation shall be in relation to mean sea level, of the lowest floor (including basement) of all structures. A copy of the finished construction elevation certificate for all new and substantially improved structures shall be provided to and maintained on file by the Community Development Director.

   4. For all new or substantially improved flood proofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in Section 4.172(.06)(G):
      a. Verify and record the actual elevation (in relation to mean sea level) to which the structure was flood proofed, and

   5. Maintain for public inspection all records pertaining to the provisions of this ordinance.

   [Section 4.172(.06)(H.) amended by Ord 686, 11/1/10]
(.07) General Standards:

A. Anchoring requirements:
   1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.
   2. All manufactured homes must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top of frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
   3. All recreational vehicles must either be elevated two (2) feet or more above the 100-year flood elevation and anchored in accordance with paragraph 2, above, or be on the site for less than 180 consecutive days and be fully licensed and highway ready. A recreational vehicle is ready for highway use if its wheels are in place and it is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions.

B. Construction materials and methods:
   1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
   2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
   3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
   4. Below-grade crawl spaces:
      a. 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:
         i. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B below. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
         ii. 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.

iii. 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.

iv. 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.

v. The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.

vi. 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.

vii. 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.

viii. 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.
C. Utilities:
1. All new replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
2. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.
3. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

D. Alteration of Watercourses:
1. Provide description of the extent to which a watercourse will be altered or relocated as a result of proposed development.
3. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished. (Amended by Ord. #316, 7/6/87).

E. Residential Construction:
1. New construction and substantial improvement of any residential structure shall have the lowest finished floor, including basement, elevated two feet above the 100-year flood elevation.
2. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must 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.
3. Manufactured homes or mobile homes to be placed or substantially improved shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated two (2) feet or more above the base flood elevation and be securely anchored to an adequately designed
foundation system to resist flotation, collapse and lateral movement in accordance with the provisions of Section 4.172(.07)(A.(2.).

F. Nonresidential Construction:

1. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest finished floor, including basement, elevated one and one-half (1-1/2) feet above the 100-year flood elevation; or, together with attendant utility and sanitary facilities, shall:
   a. Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water.
   b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
   c. Be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Floodproofing certifications are required to be provided to the Community Development Director.
   d. Nonresidential structures that are elevated, not flood-proofed, must meet the same standards for space below the lowest floor as prescribed for residential construction, above.
   e. Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood-proofed level (e.g., a building constructed to the base flood level will be rated as one foot below that level).

2. Manufacture homes shall meet the requirements of Section 4.172(.07)(E)(3).

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

H. Floodways:

1. Located within the flood plain areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:
   a. Encroachments, including fill, new construction, or substantial improvements, and other development shall be prohibited unless certification by a registered professional civil engineer is provided, demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase flood levels during the occurrence of the base flood discharge.
b. All development shall comply with all applicable flood plain standards of Section 4.172.

c. All buildings designed for human habitation and/or occupancy shall be prohibited within the floodway.

I. Parking Lots and Storage Areas:

1. All parking lots and storage areas below the flood plain elevation shall be paved.

2. A minimum of twenty-five (25) percent of the required parking space must be provided above the 100-year flood plain elevation for all nonresidential uses.

3. Residential uses shall provide at least one parking space per unit above the 100-year flood plain elevation.

J. Subdivision Proposals:

1. All subdivision proposals shall be consistent with the need to minimize flood damage.

2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.

3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage, and

4. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).

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

[Section 4.172(.07) amended by Ord 686, 11/1/10]

(.08) Appeal Board.

A. The Development Review Board as established by the City of Wilsonville shall hear and decide appeals and requests for variances from the requirements of this ordinance.

B. The Development Review Board shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination made by the Community Development Director in the enforcement or administration of this ordinance.
C. Those aggrieved by the decision of the Development Review Board may appeal such decision to the City Council.

D. In acting upon such applications, the Development Review Board shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and

1. the danger that materials may be swept onto other lands to the injury of others;
2. the danger to life an property due to flooding or erosion damage;
3. the susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
4. the importance of the services provided by the proposed facility to the community;
5. the necessity to the facility of a waterfront location, where applicable;
6. the availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
7. the compatibility of the proposed use with existing and anticipated development;
8. the relationship of the proposed use to the Comprehensive Plan and flood plain management program for that area;
9. the safety of access to the property in times of flood for ordinary and emergency vehicles;
10. the expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and
11. the costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas electrical and water systems, and streets and bridges.

E. Upon consideration of the factors of Sections 4.035, 4.184, and 4.196 and the purposes of this ordinance, the Development Review Board may attach such conditions to the granting of - permits as it deems necessary to further the purposes of this ordinance and to protect lives or property.

F. The Community Development Director shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

(.09) Conflicts. If any provisions of Section 4.172 conflict with any other Sections of this Code, the most restrictive shall apply.

[Section 4.172 amended by Ord. 647, 4/21/08]