City of West Linn

Memorandum

Date: October 14, 2021

To: West Linn Planning Commission

From: Darren Wyss, Planning Manager

Subject: CDC Chapter 27 Amendments (FEMA Floodplain Regulations)

The City of West Linn floodplain regulations, Community Development Code (CDC) Chapter 27, contain the code provisions that must be met to allow development to happen within flood hazard zones in the community. Periodically, the Federal Emergency Management Agency (FEMA) will perform an audit of a community's floodplain regulations to ensure they are meeting the minimum required FEMA standards. The City's floodplain regulations were recently audited by the Oregon Department of Land Conservation and Development (DLCD) on behalf of the FEMA.

The DLCD audit found CDC Chapter 27 is deficient in meeting the minimum FEMA standards and recommended adopting the Oregon Model Flood Hazard Ordinance language into the CDC. The West Linn City Council directed staff to work with the Planning Commission (PC) to review proposed code changes and then start the legislative process. The City must adopt updated floodplain regulations by February 14, 2022.

The existing language in CDC Chapter 27 is attached. Staff will bring the model code language, formatted to be consistent with the CDC, to the PC for review and a public hearing over the next couple of months. The tentative schedule for review:

November 3, 2021 – Initial review of proposed amendments
November 17, 2021 – Final review of proposed amendments
December 15, 2021 – Public Hearing on proposed amendments (recommendation to City Council)

The October 20th PC meeting will focus on answering any questions the PC may have on the process or the current CDC code language/model flood hazard code language.

If you have questions about the work session or materials, please feel free to email or call me at dwyss@westlinnoregon.gov or 503-742-6064. As always, please submit questions before the meeting to increase the efficiency and effectiveness of the discussion as it allows staff to prepare materials and distribute them for your consideration. Thank you and hope to see everyone on the 20th.

Chapter 27
FLOOD MANAGEMENT AREAS

Sections:

27.010 PURPOSE

The purpose of this chapter is to create a Flood Management Area Overlay Zone in order to protect flood management areas that are identified on the flood management area map incorporated by reference as a part of this chapter. Flood management areas contain land identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Clackamas County, Oregon, and incorporated areas," dated June 17, 2008, with accompanying Flood Insurance Maps; the area of inundation for the February 1996 flood based on data provided by Metro; and lands that have physical or documented evidence of flooding within recorded history. Flood management areas provide the following functions: protect life and property from dangers associated with flooding; flood storage, reduction of flood velocities, reduction of flood peak flows and reduction of wind and wave impacts; maintain water quality by reducing and sorting sediment loads, process chemical and

organic wastes and reduce nutrients; recharge, store, and discharge groundwater; provide plant and animal habitat; and support riparian ecosystems. (Ord. 1522, 2005; Ord. 1565, 2008)

27.020 APPLICABILITY

A flood management area permit is required for all development in the Flood Management Area Overlay Zone. The standards that apply to flood management areas apply in addition to State or federal restrictions governing floodplains or flood hazard areas.

27.030 EXEMPTIONS

This chapter does not apply to work necessary to protect, repair, or maintain existing public or private structures, utility facilities, roadways, driveways, accessory uses, and exterior improvements, or replace small public structures, utility facilities, or roadways in response to emergencies. Within 30 days after the work has been completed, the party responsible for the work shall initiate a flood management permit designed to analyze any changes effectuated during the emergency and mitigate adverse impacts. (Ord. 1522, 2005)

27.040 PROHIBITED USES

Prohibited uses in flood management areas include the following:

A. Any use prohibited in the base zone.

B. Uncontained areas of hazardous materials as defined by the Oregon Department of Environmental Quality.

27.045 CRITICAL FACILITIES

Construction of new critical facilities shall be, to the greatest extent possible, located outside the limits of the SFHA. Construction of new critical facilities shall only 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.

27.050 APPLICATION

Applications for a flood management area permit must include the following:

A. A pre-application conference as a prerequisite to the filing of the application.

B. An application initiated by the property owner, or the owner's authorized agent, and accompanied by the appropriate fee.

C. An application submittal that includes the completed application form, one copy of written responses addressing CDC 27.060, 27.070, 27.080 (if applicable), and 27.090 (if applicable), one copy of all maps and plans at the original scale, one copy of all maps and plans reduced to a paper size not greater than 11 inches by 17 inches, and a copy in a digital format acceptable to the City.

D. A map of the property indicating the nature of the proposed alteration and its relationship to property zones, structures, trees, and any other pertinent features.

E. Information regarding the elevation of the site prior to development, the base flood elevation data for subdivisions (if applicable), and a description of water course alterations, if proposed.

F. A topographic map of the site at contour intervals of five feet or less showing a delineation of the flood management area, which includes, but is not limited to, areas shown on the Flood Management Area map. The City Engineer or Building Official, as applicable, may, at their discretion, require the map to be prepared by a registered land surveyor to ensure accuracy. A written narrative explaining the reason why the owner wishes to alter the floodplain shall accompany the site plan map.

G. The elevation in relation to mean sea level, of the lowest floor (including basement) of all structures.

H. The elevation in relation to mean sea level to which any structure has been flood-proofed (non-residential only). (Ord. 1622 § 10, 2014; Ord. 1636 § 24, 2014)

27.060 APPROVAL CRITERIA

The Planning Director shall make written findings with respect to the following criteria when approving, approving with conditions, or denying an application for development in flood management areas:

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

B. No net fill increase in any floodplain is allowed. All fill placed in a floodplain shall be balanced with an equal amount of soil material removal. Excavation areas shall not exceed fill areas by more than 50 percent of the square footage. Any excavation below the ordinary high water line shall not count toward compensating for fill.

C. Excavation to balance a fill shall be located on the same lot or parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation shall be located in the

same drainage basin and as close as possible to the fill site, so long as the proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis.

D. Minimum finished floor elevations must be at least one foot above the design flood height or highest flood of record, whichever is higher, for new habitable structures in the flood area.

E. Temporary fills permitted during construction shall be removed.

F. Prohibit encroachments, including fill, new construction, substantial improvements, and other development in floodways unless certification by a professional civil engineer licensed to practice in the State of Oregon is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

G. All proposed improvements to the floodplain or floodway which might impact the flood-carrying capacity of the river shall be designed by a professional civil engineer licensed to practice in the State of Oregon.

H. 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.

I. Excavation and fill required for the construction of detention facilities or structures, and other facilities, such as levees, specifically shall be designed to reduce or mitigate flood impacts and improve water quality. Levees shall not be used to create vacant buildable land.

J. The applicant shall provide evidence that all necessary permits have been obtained from those federal, State, or local governmental agencies from which prior approval is required. (Ord. 1522, 2005; Ord. 1635 § 15, 2014; Ord. 1636 § 25, 2014)

27.065 INTERPRETATION OF FLOOD BOUNDARIES

The Planning Director shall make interpretations, where needed, as to exact location of the boundaries of the flood hazard area (for example, where there appears to be a conflict between mapped boundaries and the actual filed condition). Any person contesting the location of the boundary may appeal the Planning Director’s interpretation pursuant to CDC 01.060. (Ord. 1522, 2005)

27.070 CONSTRUCTION MATERIALS AND METHODS

A. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage using methods and practices that minimize flood damage.

B. 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. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

D. 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.

E. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

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

27.080 RESIDENTIAL CONSTRUCTION

A. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to at least one foot above the base flood elevation.

B. 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 be certified by either a professional civil engineer or an architect licensed to practice in the State of Oregon, and must meet or exceed the following minimum criteria:

1. 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.

2. The bottom of all openings shall be no higher than one foot above grade.

3. Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry or exit of floodwaters.

4. Fully enclosed areas below the base flood elevation shall only be used for parking, access, and limited storage.

5. Service equipment (e.g., furnaces, water heaters, washer/dryers, etc.) is not permitted below the base flood elevation.

6. All walls, floors, and ceiling materials located below the base flood elevation must be unfinished and constructed of materials resistant to flood damage.

C. Crawlspaces. Crawlspaces are a commonly used method of elevating buildings in special flood hazard areas (SFHAs) to or above the base flood elevation (BFE), and are allowed subject to the following requirements:

1. The building is subject to the Flood-Resistant Construction provisions of the Oregon Residential Specialty Code.

2. They shall be designed by a professional engineer or architect licensed to practice in the State of Oregon to meet the standards contained in the most current Federal Emergency Management Agency's (FEMA) Technical Bulletin.

3. 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.

4. Flood vent openings shall be provided on at least two sides that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. The total area of the flood vent openings must be no less than one square inch for each square foot of enclosed area. The bottom of each flood vent opening can be no more than one foot above the lowest adjacent exterior grade. For guidance on flood openings, see FEMA Technical Bulletin 1-93, Openings in Foundation Walls.

5. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls (studs and sheathing), but also any joists, insulation, or other materials that extend below the BFE. For more detailed guidance on flood-resistant materials see FEMA Technical Bulletin 2-93, Flood-Resistant Materials Requirements.

6. 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. For further guidance on the placement of building utility systems in crawlspaces, see FEMA 348, Protecting Building Utilities From Flood Damage. Flood-resistant materials and utilities, access, and ventilation openings in crawlspaces are further addressed in this bulletin.

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

8. 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 feet at any point. This limitation will also prevent these crawlspaces from being converted into habitable spaces.

9. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. Possible options include natural drainage through porous, well-drained soils and drainage systems such as low-point drains, perforated pipes, drainage tiles, or gravel or crushed stone drainage by gravity.

10. The velocity of floodwaters at the site should not exceed five feet per second for any crawlspace. For velocities in excess of five feet per second, other foundation types should be used.

11. For more detailed information refer to FEMA Technical Bulletin 11-01 or the most current edition.

12. The use of below-grade crawlspaces to elevate the building to one foot above the BFE may cause an increase in flood insurance premiums, which are beyond the control of the City.

D. A poured slab placed over fill can be used to elevate the lowest floor of a structure above the base flood elevation. However, when a building site is filled, it is still in the floodplain and no basements are permitted.

E. Placing a structure on piers, piles, and posts is allowed provided supporting members are designed to resist hydrostatic and hydrodynamic forces. (Ord. 1565, 2008)

27.090 NON-RESIDENTIAL CONSTRUCTION

New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall either have the lowest floor, including basement, elevated to at least one foot above the level of the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

A. Be flood-proofed so that below the base flood level the structure is watertight with walls 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 professional civil engineer licensed to practice in the State of Oregon that the design and methods of construction shall prevent seepage, collapse or cracking of basement walls, prevent buckling of basement floors, prevent backup of water from sewer lines, and have all openings located one foot above the base flood elevation. In addition, all protective features must operate automatically without human intervention;

D. Non-residential construction that is elevated, but not flood-proofed (i.e., the foundation is not at least one foot above the 100-year flood elevation) shall also comply with the standards set forth in CDC 27.080. (Ord. 1522, 2005)

27.100 SUBDIVISION PROPOSAL

A. All subdivision proposals shall be designed to minimize flood damage and not increase flood levels;

B. Lowest floor of all structures must be at least one foot above the base flood elevation;

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

D. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage and streets should drain rapidly; and

E. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for any land division proposal. (Ord. 1522, 2005)

27.110 MANUFACTURED HOMES

A. All manufactured homes must be anchored to prevent flotation, collapse or lateral movements, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

B. All manufactured homes placed or substantially improved within zones A1-30, AH, and AE shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at least one foot above the base flood elevation and is securely anchored to an adequately anchored foundation system.

C. Recreational vehicles shall be on site for less than 180 consecutive days, or be fully licensed and ready for highway use, or be elevated to at least one foot above the base flood elevation and meet manufactured home standards. (Ord. 1522, 2005)

27.120 ALTERATION OF WATERCOURSES

A. The applicant shall meet the requirements of Chapter 28 CDC, Willamette and Tualatin River Protection, or Chapter 32 CDC, Water Resource Area Protection, as applicable, in addition to this chapter's requirements.

B. A comparison by a professional civil engineer licensed to practice in the State of Oregon shall be made between the existing channel capacity and the proposed capacity and the changes assessed. The alteration or modification must maintain the carrying capacity of the watercourse and not increase the base flood elevation.

C. The Planning Director shall notify adjacent communities and the State of Oregon Department of Land Conservation and Development prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.

D. The Planning Director shall require that maintenance be provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

E. The Planning Director shall require that alterations of watercourses must allow fish passage and preserve fish habitat.

F. The applicant shall submit a copy of a permit from the Oregon Division of State Lands and U.S. Army Corps of Engineers that allows the alteration, or states that it is exempt.

27.130 VARIANCES

This section applies in addition to the standards governing variance proposals found in Chapter 75 CDC. The purpose of this section is to ensure that compliance with this chapter does not cause unreasonable hardship. To avoid such instances, the requirements of this chapter may be varied. Variances are also allowed when strict application of this chapter would deprive an owner of all economically viable use of land. The Planning Director may impose such conditions as are deemed necessary to limit any adverse impacts that may result from granting relief. Flood hazard applications that are submitted on or before the effective date of this chapter, and deemed complete within 180 days of submittal, are exempt from the requirements of this chapter. To vary from the requirements of this chapter, the applicant must demonstrate the following:

A. The variance does not increase danger to life and property due to flooding or erosion;

B. The impact of the increase in flood hazard, which will result from the variance, will not prevent the City from meeting the requirements of this chapter. The applicant shall have a professional civil engineer licensed to practice in the State of Oregon document the expected height, velocity, and duration of flood waters, and estimate the rate of increase in sediment transport of the flood waters expected both downstream and upstream as a result of the variance;

C. The variance will not increase the cost of providing and maintaining public services during and after flood conditions so as to unduly burden public agencies and taxpayers;

D. The proposed use complies with the standards of the base zone;

E. The proposed use shall not result in any increase of flood levels during the base flood ordinary high water mark discharge within a designated floodway;

F. If the variance allows a structure to be built with a lowest floor elevation below the base flood elevation, the applicant has been given written notice that the cost of flood insurance will be commensurate with the increased risk from the reduced lowest floor elevation. (Ord. 1522, 2005)

27.140 ABROGATION AND GREATER RESTRICTIONS

This chapter must be complied with in addition to any other applicable code provision, ordinance, statute, easement, covenant, or deed restriction. It is not intended to repeal any existing restriction. If any provision of this chapter and any other code provision, ordinance, easement, covenant, or deed restriction conflict or overlay, the provision containing the more stringent restriction shall prevail. All development within the Willamette River Greenway must comply with Chapter 28 CDC and all development within the Tualatin River Protection zone must comply with Chapter 28 CDC.

27.150 WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by human-made or natural causes. 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 of West Linn, any officer or employee thereof, or the Federal Insurance Administration for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

27.160 MAP ADMINISTRATION

The purpose of this section is to provide a process for amending the flood management area map.

A. Within 90 days of receiving information establishing a possible error in the existence or location of a flood management area, the Planning Director shall provide notice to interested parties of a public hearing at which the City Council will review the information as set forth in CDC 99.060(C).

B. The City Council shall amend the flood management area map if the information demonstrates that the boundaries of the flood management area have changed since adoption of the flood management area map.

C. Amendments to the flood management area map that would result in a reduction to the 100-year floodplain shown on the flood insurance area map shall not take effect until successful completion of the National Flood Insurance Program map amendment or map revision process. (Ord. 1522, 2005)

27.170 CONSISTENCY

Where the provisions of this chapter are less restrictive or conflict with comparable provisions of the zoning ordinance, regional, State, or federal law, the provisions that are more restrictive shall govern. Where this chapter imposes restrictions that are more stringent than regional, State and federal law, the provisions of this chapter shall govern.