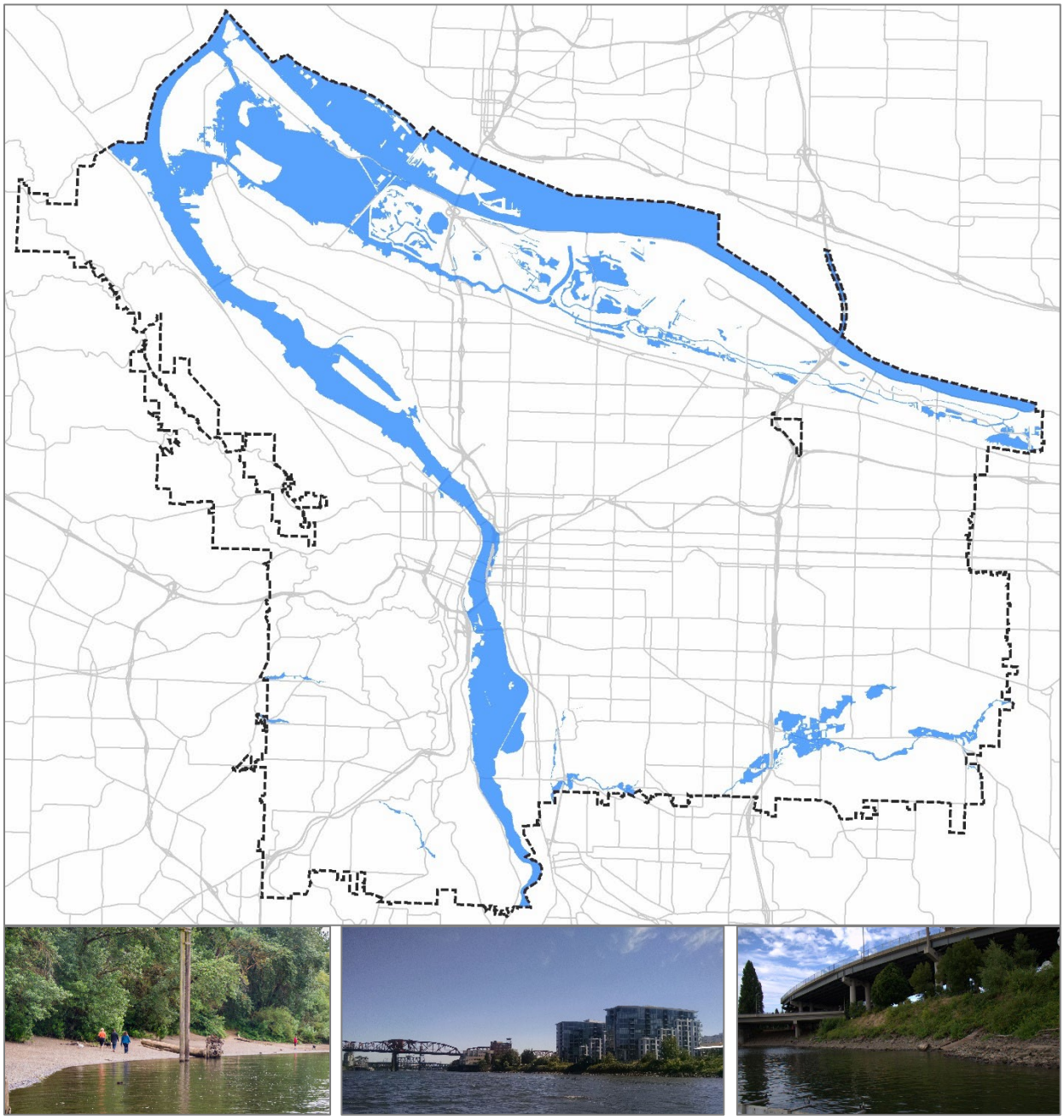

Floodplain Resilience Plan Proposed Draft

City of Portland

August 2022

THE BUREAU OF
PLANNING & SUSTAINABILITY

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Table of Contents

ACRONYMS

BiOp	Biological Opinion
BDS	City of Portland Bureau of Development Services
BES	City of Portland Bureau of Environmental Services
BIPOC	Black, Indigenous, and People of Color
BPS	City of Portland Bureau of Planning and Sustainability
DLCD	Oregon Department of Land Conservation and Development
DOGAMI	Oregon Department of Geology and Mineral Industries
EOA	Economic Opportunities Analysis
ESEE	Economic, Social, Environmental and Energy
ESU	Evolutionary Significant Unit
FEMA	Federal Emergency Management Agency
FIRM	Federal Insurance Rate Map
LiDAR	Light Detection and Ranging
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NRDA	Natural Resource Damages Assessment
OMSI	Oregon Museum of Science and Industry
PBEM	City of Portland Bureau of Emergency Management
PBOT	City of Portland Bureau of Transportation
RPA	Reasonable and Prudent Alternative
SFHA	Special Flood Hazard Area (also known as the FEMA 100-year floodplain)
USGS	U.S. Geological Survey

I. Overview

A. Introduction

The City of Portland (City) is undertaking the Floodplain Resilience Plan to reduce the impacts of future flooding and prevent the degradation of floodplain habitat for endangered and threatened fish species. The proposals described below respond to the recommendations of the 2016 Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) Biological Opinion (FEMA BiOp) that was issued by the National Marine Fisheries Service (NMFS) and the Draft Implementation Plan FEMA released in response to it in October of 2021. Per the FEMA BiOp, FEMA must update its NFIP floodplain regulations to bring them into compliance with the Endangered Species Act to protect threatened runs of salmon and steelhead. The Floodplain Resilience Plan will also bring floodplain regulations further into compliance with existing City goals, objectives and policies, including the *2035 Comprehensive Plan*, which contain directives to reduce hazards, address environmental equity, enhance the natural environment and to make Portland's urban environment more resilient.

The Floodplain Resilience Plan is part of the City's Flood Management Update Work Plan, established in 2019, that established a multi-phase process for updating the City's flood management regulations within FEMA's compliance deadline. Phase 1 was completed in December of 2020 with the adoption of the River Plan / South Reach, which applied floodplain management regulations in the southern portion of the Willamette River, including the City of Portland and areas of unincorporated Multnomah County where the City has jurisdiction.

The Floodplain Resilience Plan is Phase 2 of the implementation of the work plan and contains the additional recommendations for updates to the City's floodplain development regulations. These recommendations address floodplains throughout many parts of the city, though specific areas have not been included in this phase due to their unique characteristics that warrant area-specific plans. These areas, which include the North Reach of the Willamette River, the Columbia Slough and Columbia River floodplains and the Johnson Creek floodplain will be addressed in future phases.

B. What is the Floodplain Resilience Plan?

The Floodplain Resilience Plan will update sections of the Zoning Code that apply to Portland's floodplains (see Chapter VI, Section C, Zoning Code Amendments, for the full list of Zoning Code sections to be updated). The plan's proposals, summarized in Section D of this chapter (see page 9), aim to avoid or minimize the impacts of development on floodplain habitat and will require mitigation of any unavoidable impacts within and near rivers and streams.

These proposed changes are consistent with FEMA BiOp guidance and implement a variety of existing City floodplain- and natural resource-related goals, objectives and policies. Updates that go beyond the NFIP minimum requirements will improve the City's rating in FEMA's voluntary Community Rating System and reduce insurance rates for properties in the City of Portland's jurisdiction, which is also an objective of the plan and its proposed regulatory updates.

C. Updates Since the Discussion Draft

The Floodplain Resilience Plan Discussion Draft was released in November of 2021 and public comment was gathered on the Discussion Draft proposals through January of 2022. As described in Chapter IV, Section D (see page 37), in the spring and early summer of 2022 City staff continued to present the plan to stakeholders and gather additional input from advisory bodies and through a series of focus groups. Based on the input received, additional analysis and evaluation of proposals by the project team, and discussions with the City's FEMA BiOp Interbureau team, a number of updates were made as a part of the Proposed Draft, including:

- **Building Code (Title 24) Chapter 24.50, Flood Hazard Areas** – Proposed updates to the Building Code Chapter 24.50, Flood Hazard Areas, which were identified in the process of developing the current proposal, are part of the City's multi-phase Flood Management Update Work Plan and will be adopted through a separate future process. As Building Code updates are not a land use decision, they are not subject to review by the Planning and Sustainability Commission prior to going to City Council. Many comments received during the Floodplain Resilience plan Discussion Draft comment period pertained to the proposed Building Code changes. These comments will be taken into consideration as the project progresses. See Section E in this chapter for more information on this related effort.
- **Modeled Willamette River 1996 Flood Extent** – In collaboration with the U.S. Army Corps of Engineers, City staff completed a new model of a Willamette River flood event like that experienced in Portland in February of 1996, which is expected to be more common due to climate change. The model identifies areas with a high probability of flooding along the Willamette River, lower Columbia Slough and portions of the Columbia River near its confluence with the Willamette River. Upon adoption of the plan, the city's floodplain maps will be updated to include areas in the "combined flood hazard area," which will include a variety of data sources, including the FEMA 100-year floodplain, the new Modeled Willamette River 1996 Flood Extent, and, outside of the Modeled Willamette River 1996 Flood Extent area, Metro's 1996 Flood Inundation Area.
- **Developed Floodplains** – The Discussion Draft proposed the application of one of the City's environmental overlay zones to all floodplains along Fanno Creek, Tryon Creek and the Willamette River Central Reach. As a part of the River Plan/South Reach, the River

Environmental overlay zone was applied to all floodplains in the Willamette River South Reach. After further discussions with Bureau of Development Services staff, it was determined that the application of the environmental overlay zones to developed floodplains – the River Environmental overlay zone outside the Willamette River riparian buffer area and the Conservation overlay zone along Fanno and Tryon Creek – would not contribute to the protection or expansion of natural resources and would only result in additional development process and review costs. Therefore, this draft proposes to apply the River Environmental overlay zone to the riparian buffer area and undeveloped floodplain landward of the riparian buffer area in the Central and South reaches. Similarly, the Conservation overlay zone is proposed only for undeveloped floodplains, where one of the Environmental overlay zones is not already applied due to other established Environmental overlay zone criteria. These changes will enable the city to meet floodplain and natural resource protection goals without unnecessarily burdening development activity on developed parcels.

- **Updates to Requirements in the Willamette River South Reach** – The extents of the River Environmental and the riparian buffer area have been modified to apply to the updated combined flood hazard area that includes the new Modeled Willamette River 1996 Flood Extent. In some cases, this resulted in an expansion of the River Environmental overlay zone and/or riparian buffer area and, in others, the extent of these areas was reduced. As stated in the previous bullet, the River Environmental overlay zone was removed from developed floodplains that are more than 100 feet from top of bank (a minimum requirement adopted with the River Plan / South Reach) and not in the riparian buffer area.

D. Summary of Plan Recommendations

Below is a summary of the Floodplain Resilience Plan recommendations, described in more detail Chapter V, Overview of Recommendation.

1) Update the City's zoning maps to apply floodplain regulations as follows:

    - Replace the existing 1996 Flood Inundation Area (defined by Metro) in the City's combined flood hazard area map with the Modeled Willamette River 1996 Flood Extent along the Willamette River, Columbia Slough and a portion of the Columbia River.

    - Apply the River Environmental (e) overlay zone along the Willamette River Central Reach in areas identified below. The River Environmental overlay zone requires that development impacts are avoided to the extent possible and, when impacts can't be avoided, mitigation is required. Mitigation of development impacts can be achieved through meeting established standards or through River Review, a land use review process. Mitigation of actions must fully offset all development impacts, also known as achieving a "no-net-loss" standard.

- Undeveloped and developed portions of the combined flood hazard area within 170 feet of the ordinary high water mark (known as the riparian buffer area) that are not currently in the River Environmental overlay zone.
- Undeveloped floodplains more than 170 feet from the ordinary high water mark that are not in the River Environmental overlay zone.

- Update the application of the River Environmental overlay zone in the Willamette River South Reach to incorporate areas identified in the Modeled Willamette River 1996 Flood Extent. This update will modify the boundaries of the River Environmental overlay zone and the riparian buffer area. Additionally, the River Environmental overlay zone will be removed from developed portions of the combined flood hazard area that are more than 100 feet from top of bank and not in the riparian buffer area.

- Apply the Environmental Conservation (c) overlay zone to undeveloped floodplains along Fanno Creek and Tryon Creek that are not currently in the Environmental Conservation overlay zone.

2) Amend chapters of the Zoning Code to update floodplain regulations as follows:

- Add riparian buffer area requirements to floodplains within 170 feet of ordinary high water in the Willamette River Central Reach (33.475). Development in the riparian buffer area is required to mitigate all impacts on identified natural resources (i.e., meet the existing "no net-loss" standard) and demonstrate an improvement in one of two riparian functions: (1) Bank function, and control of sediments, nutrients and pollution; or (2) Large wood and channel dynamics.

- Update the requirements of the Environmental overlay zones chapter (33.430) to manage tree and vegetation removal and maintenance to achieve no net-loss in floodplain habitat functions, as defined by the FEMA BiOp. This includes limiting tree and vegetation removal that is allowed without City approval and increasing the minimum tree replacement required when a tree is removed in the Environmental overlay zone.

- Add new standards for tree and vegetation removal and maintenance and restructure the South Waterfront Greenway overlay zone (33.510.253) requirements to clarify that the exterior lighting standards apply to all development in the River General overlay zone. Also, update the code to allow South Waterfront greenway reviews to be processed through a Type II procedure, instead of always requiring a Type III procedure.

3) Expand and strengthen the Bureau of Environmental Services restoration program to support the long-term recovery of salmon and steelhead while also working to increase the number of private and (potentially) public mitigation banks to provide another option for mitigating floodplain development impacts in the floodplain.

E. Related and Future Projects

There are a number of actions not included in the Floodplain Resilience Plan that will continue the implementation of the City's Flood Management Update Work Plan over the next few years. These projects include an update to Chapter 24.50, Flood Hazard Areas, of the Building Code and Zoning Code and zoning map updates as a part of the Economic Opportunities Analysis (EOA) update. These two projects are summarized below.

Update to Chapter 24.50, Flood Hazard Areas, of the Building Code (Title 24)

The City's Building Code establishes minimum performance standards to safeguard the health, safety, welfare, comfort, and security of occupants and users of buildings and structures. Chapter 24.50, Flood Hazard Areas, restricts or prohibits uses that are dangerous to health, safety, or property in times of flood or which result in increased flood heights or velocities. Chapter 24.50 also requires that uses and structures vulnerable to floods are adequately protected from flood danger at the time of construction. For example, the lowest habitable floor of buildings must be built above the FEMA 100-year base flood and the estimated 1996 flood elevations. In identified flood areas, Chapter 24.50 also requires compensatory excavation (cut) that is equal to the volume of any fill proposed in the floodplain. These actions improve the City's performance in FEMA's Community Rating System and, as a result, reduce insurance rates for floodplain properties.

A key determination in the FEMA BiOp was that mitigation requirements that aim to achieve an equal, or "balanced", compensatory excavation when fill is place in the floodplain frequently do meet that threshold. NMFS also recognized that structures in the floodplain can displace flood waters (similar to fill) so the FEMA BiOp directed FEMA to require flood storage mitigation for the placement of that structures along with fill.

Based on a review of the scientific literature, the FEMA BiOp recommended higher compensatory excavation ratios for different portions of the floodplain to ensure that any reduction in flood water conveyance resulting from the placement of fill or structures in the floodplain are adequately mitigated. The NMFS-recommended compensatory excavation ratios are the following:

- 2:1 compensatory excavation ratio in the high hazard area. The high hazard area is the furthest landward extent of the floodway and the 10-year flood interval. The 10-year flood interval includes the floodplain area has a 10 percent chance of flooding in any given year.
- 1.5:1 compensatory excavation ratio in the riparian buffer area and undeveloped floodplain. The riparian buffer area includes all floodplains 170 feet landward of the ordinary high water mark.
- 1:1 (balanced) compensatory ratio can continue for developed floodplains

As described above, these proposed Building Code changes were included in the Floodplain Resilience Plan Discussion Draft. Moving forward, a separate project managed by Bureau of Development Services staff will continue this work in the coming months. Additional opportunities for public input on the proposed changes will be provided and then the proposal will go to City Council, according to the standard procedure for Building Code updates. At least one public hearing will be held on the proposed changes. It is expected that this process will start up again in the spring of 2023.

Economic Opportunities Analysis

As described in more detail in Chapter V, Overview of Recommendations, the proposed changes to the Environmental overlay zones will not apply to three industrial and employment zones: Heavy Industrial (IH), General Industrial 2 (IG2) and General Employment 2 (EG2). The City of Portland adopted its most recent Economic Opportunities Analysis (EOA) in 2016, as a part of the *2035 Comprehensive Plan*. Since then, the projected Columbia Corridor industrial land capacity has been absorbed at a faster rate than expected, resulting in an inability to accommodate these floodplain management and other important environmental protections.

The Bureau of Planning and Sustainability has started its update the Statewide Planning Goal 9-required EOA. As a part of the EOA update process, City staff will evaluate and apply protections, as deemed appropriate, to a variety of environmental resources in the Columbia Corridor, including floodplains, streams, wetlands, and others. The EOA is expected to be completed within the next two years.

II. Background

A. Floodplains and Their Functions

Floodplains are the low-lying areas around rivers and streams that are inundated with water during flood events, and which are typically dry during normal conditions. Prior to settlement by European Americans and the establishment of the City of Portland, the floodplains in the region were dynamic systems of marshes, wetlands and braided channels. Spring snowmelt in the Cascade Mountains brought seasonal inundation to areas around the Willamette and Columbia Rivers, and the Columbia Slough was a complex network of channels that shifted and changed over time. Presently, the majority of Portland's floodplain marshes and wetlands have been filled or are confined to static channels and flows in the Willamette and Columbia rivers are regulated by a system of dams and reservoirs. A substantial portion of the Columbia Slough is now regulated by a system of levees, which are used to control flow and reduce flooding.

City's Watersheds

As shown in Figure 1, there are six distinct watersheds in the City of Portland: the Columbia River, the Columbia Slough, the Willamette River, Johnson Creek, Fanno Creek and Tryon Creek. Each of these waterways and their associated floodplains are unique in character. Land uses in the floodplain vary significantly in the different watersheds, with some locations, such as the Columbia Slough and the North Reach of the Willamette, being dominated by industrial and commercial activities and others, such as Tryon and Fanno Creek, being primarily residential in character. Many of the areas in the floodplain that are most prone to flooding are designated as parks and are zoned for open space uses.

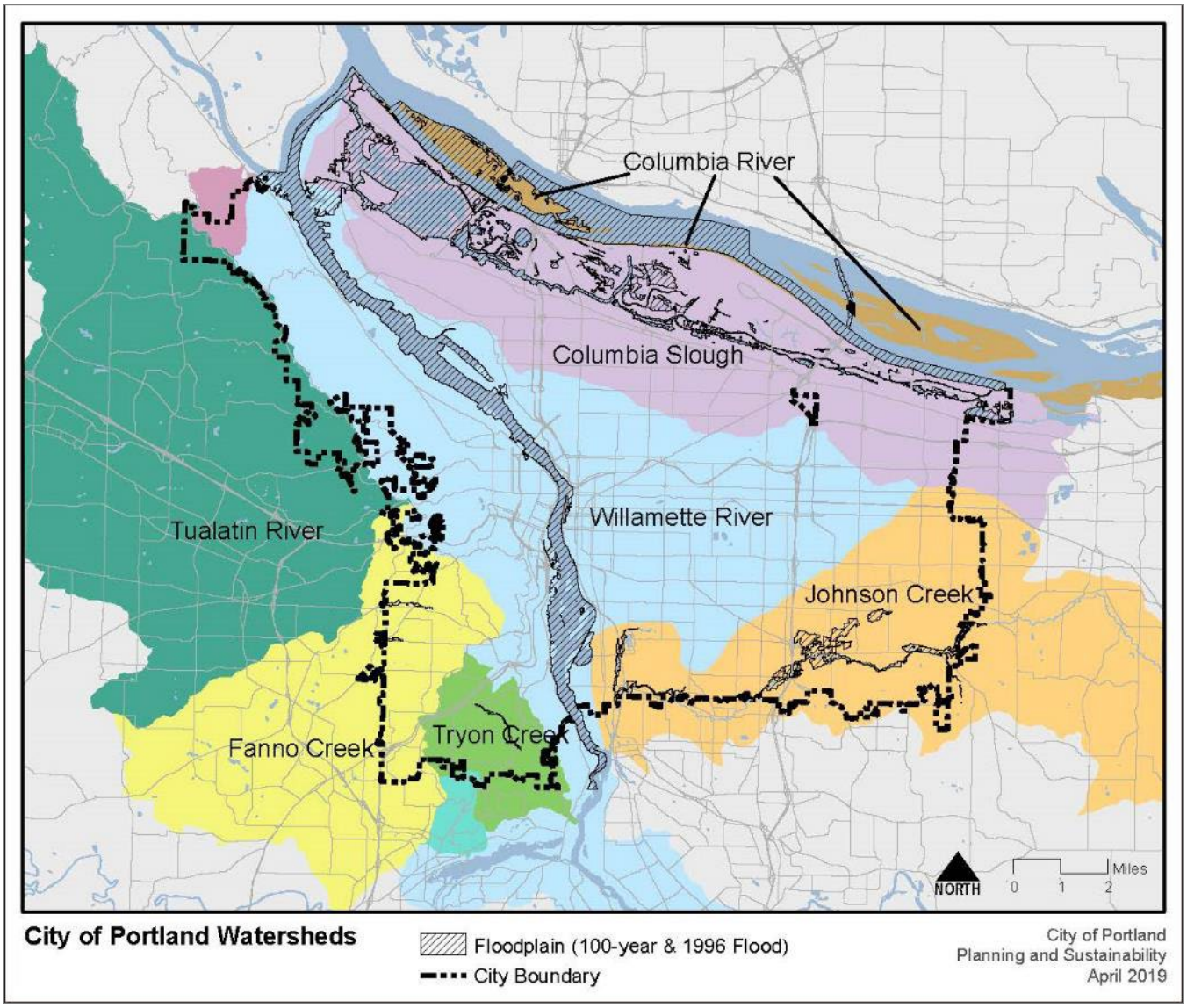


Figure 1. City of Portland Watersheds

The Floodplain Resilience Plan proposes changes to Zoning Code requirements for six of the City's seven watersheds. However, within the Willamette River watershed, there are no changes proposed for the North Reach. Proposed updates to the Environmental Overlay Zones chapter of the Zoning Code. will influence floodplain development along Fanno, Tryon and Johnson creeks, the Columbia River and Columbia Slough. Below is a brief summary of each of the six watersheds for which updates are proposed. More detailed descriptions of the characteristics of each watershed can be found in the Floodplain Resilience Project Existing Conditions Report.

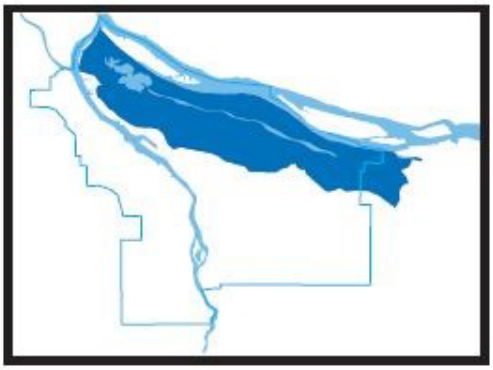
Willamette River

The Willamette River watershed drains roughly 11,478 square miles of Oregon (about 12 percent of the state's land area) and flows 187 miles from its headwaters to the confluence with the Columbia River in Portland. The lower Willamette River, which extends from Willamette Falls in Oregon City to the confluence with the Columbia River, is defined by its connection to the Columbia River. River flows, water levels, and flooding, among other characteristics, are strongly influenced by tides and flows in the Columbia River. In addition, the U.S. Army Corps of Engineers operates 13 dams on tributaries to the Willamette River upstream of Portland. The management of these dams results in less variable flows downstream and reduces peak flows but has had significant detrimental impact on salmon populations. The Willamette River has a mapped FEMA floodplain and is mapped within the 1996 Flood Inundation Area.

Columbia River

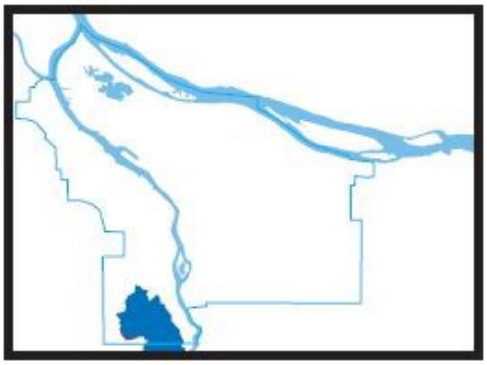
The Columbia River watershed encompasses more than 200,000 square miles of lands across seven states and British Columbia, Canada. The river itself flows over 1,200 miles from its source in the Canadian Rockies to the Pacific Ocean. The 130 square miles of the City of Portland, 1/16 of 1 percent of the Columbia River Basin, is a small, but ecologically and economically important part of the overall watershed. The mainstem of the Columbia River is blocked by 14 dams in the U.S. and Canada, while there are over 60 dams in the Columbia River Basin. These dams provide a range of benefits, including electricity, irrigation, and downstream flood protection, but have also had devastating and lasting impacts on salmonid species. The Columbia River has a mapped FEMA floodplain and is mapped in the 1996 Flood Inundation Area map.

Columbia Slough



The Columbia Slough watershed encompasses approximately 51 square miles (32,640 acres) and flows for 19 miles from Fairview Lake through portions of the cities of Troutdale, Fairview, Gresham, Maywood Park, Portland, and Wood Village to the Willamette River at Kelley Point Park. There are also roughly 30 miles of secondary waterways and water features in the slough. The Columbia Slough is often divided into three sections: Lower Slough, Middle Slough, and Upper Slough. The Lower Slough is the only section free of fish passage barriers and is tidally influenced. Although the entire slough has seen significant channelization and modification due to development and dike and levee systems, the Middle and Upper Sloughs are actively managed by a system of pumps to provide hydrologic management and flood control. The Columbia Slough has a mapped FEMA floodplain and is mapped within the 1996 Flood Inundation Area.

Tryon Creek



Tryon Creek is a free-flowing stream in Southwest Portland that drains a 4,237-acre watershed and extends seven miles from its source in the West Hills of Portland to the Willamette River near Lake Oswego. It is primarily a low gradient stream with steep hillslopes and limited floodplain habitat. A substantial portion of the creek is located in the Tryon Creek State Natural Area, which is managed by Oregon State Parks, and Marshall Park. Culvert and road crossings have resulted in degraded habitat and fish migration barriers. Tryon Creek has a mapped FEMA floodplain but it is not mapped within the 1996 Flood Inundation Area.

Fanno Creek

Fanno Creek is a tributary to the Tualatin River, which encompasses 20,500 acres and eventually flows into the Willamette River south of Oregon City. Unlike the other tributaries to the Willamette River in Portland, the mouth of the Tualatin River is upstream of Willamette Falls. Most of Fanno Creek within the City of Portland is inaccessible to anadromous fish because of impassable culverts downstream of City limits. However, anadromous salmon

and steelhead likely historically used upper Fanno Creek for spawning and rearing. Fanno Creek has a mapped FEMA floodplain but it is not mapped within the 1996 Flood Inundation Area.

Johnson Creek

The Johnson Creek watershed covers 54 square miles (34,560 acres) across Multnomah and Clackamas counties. From its source in the foothills of Mount Hood near Boring, Johnson Creek passes through the jurisdictions of Gresham, Happy Valley, Portland, and Milwaukie before entering the Willamette River in the City of Milwaukie, 18.5 miles upstream from the mouth of the Willamette River. Although restoration projects have resulted in significant improvements to the biological conditions in the watershed, a history of development, including extensive alterations performed in the 1930s by the Works Progress Administration, has negatively impacted habitat and increased flood risks along the creek. Crystal Springs Creek and Kelley Creek are the most significant tributaries to Johnson Creek and both have mapped floodplain. While Crystal Springs Creek is entirely within the City of Portland, Kelley Creek has only a small segment within the city. Johnson Creek has a mapped FEMA floodplain and is mapped within the 1996 Flood Inundation Area.

City's Flood Areas

The City of Portland currently regulates two identified floodplain areas: the FEMA 100-year floodplain (also known as the Special Flood Hazard Area), and 1996 Flood Inundation Area (also known as the Metro Title 3 map). Though most of the area that flooded in 1996 is captured in the 1996 Flood Inundation Area, it did not capture the full extent of the 1996 flood. In the spring of 2022 the U.S. Army Corps of Engineers completed a model of the Lower Willamette River that provides an up-to-date estimate of the Willamette River floodplain, based on the most recent river bathymetry, upland topography and development patterns. Each of these flood areas is described below.

FEMA 100-Year Floodplain/Special Flood Hazard Area

The FEMA 100-year floodplain is defined in the Flood Insurance Study for the City of Portland, Oregon: Multnomah, Clackamas and Washington Counties (2010). This area, which is also called the Special Flood Hazard Area (SFHA), has a one percent (or one in one hundred) chance of flooding each year, based on FEMA's models. Since the 100-year floodplain map represents the mandated geographic scope of the NFIP, the 100-year floodplain defines the area where compliance with the Endangered Species Act is required in order to maintain access to FEMA's NFIP for Portland residents and businesses (property owners outside the 100-year floodplain can voluntarily obtain flood insurance from FEMA). Within the FEMA 100-year floodplain, flood insurance is required to obtain a federally-backed

mortgage or loan. Access to federal financial assistance for flood recovery is also contingent having flood insurance for the impacted property.

FEMA's 100-year floodplain map for the Willamette River is out of date because the floodplain extent and estimated flood elevation are primarily based on a model completed in 1979. A more accurate estimate of the floodplain that incorporates current river bathymetry, hydrology, topography and development patterns is needed.

Metro Title 3 Map/1996 Flood Inundation Area

The Metro Title 3 Map, also referred to as the 1996 Flood Inundation Area, is a regional water quality and flood management map. The map was created after the 1996 flood and includes most but not all the areas flooded in 1996. For example, the South Waterfront area of the Central City flooded in 1996 but was excluded from the Metro Title 3 map. The map was created using aerial photography from the day after the peak of the flood. The flood peaked at night so aerial photos of the actual peak were not available.

Flood insurance is not required in the Metro Title 3 area, but Title 24, Building Regulations, of the City's code does require buildings in the areas shown on the map to be built to floodplain development standards. In these areas, the City requires compensatory excavation (also known as "cut") to offset fill placed in the floodplain as a part of development. To comply with these requirements, the volume of cut must be equal to the volume of fill that is proposed. This requirement is often referred to as "balanced cut and fill."

1996 Full Flood Extent

As stated above, the Metro Title 3 map does not include all of the 1996 flooded area. Areas that were not in the map include the South Waterfront, the Rivergate industrial area near Smith and Bybee Lakes, and three blocks in the Central Eastside known as the ODOT blocks (the blocks bounded by SE Madison, SE Water, SE Taylor and the Eastbank Esplanade). In order to more fully understand the full extent of potential flooding and future flood risk, the full 1996 flood extent was referenced during the development of the Floodplain Resilience Plan proposals.

Modeled Willamette River 1996 Flood Extent

The hydrologic and hydraulic models that serve as the basis of the FEMA-mapped floodplains on the Willamette River in Portland were developed in the late 1970s. These models have not been significantly updated in the last four decades. In the intervening years, there has been significant development in Portland's floodplains as well as in the floodplains of communities upstream of Portland. There have also been changes to the Willamette riverbed as a result of dredging, siltation and other natural processes. The existing FEMA floodplain maps do not adequately reflect these changes.

Similarly, as described above, the Metro Title 3 map (known as the 1996 Flood Inundation Area) is based on an aerial photo the day after the peak of the 1996 flood and does not include robust data on the flood elevations of the event. Currently, the Bureau of Development Services estimates the 1996 flood elevation based on Willamette River and other stream gauge data from that time. As with the 100-year floodplain, the 1996 Flood Inundation map does not take into account current topography, bathymetry or development patterns.

In the spring of 2022, the United States Army Corps of Engineers, in collaboration with the Oregon Silver Jackets, completed a new hydraulic model to estimate current floodplain extents, taking into account existing river bathymetry, topography and development patterns. The Oregon Silver Jackets is an interagency team of state and federal agencies, including the U.S. Army Corps of Engineers, FEMA, U.S. Geological Survey (USGS), Oregon Department of Land Conservation and Development (DLCD), Oregon Department of Geology and Mineral Industries (DOGAMI), and others. Silver Jackets teams have been established in many states and, according to their website, the teams "bring together multiple state, federal, and sometimes tribal and local agencies to learn from one another and apply their knowledge to reduce the risk of flooding and other natural disasters in the United States and enhance response and recovery efforts when such events do occur."[1]

The U.S. Army Corps of Engineers hydraulic model allows for updated estimates of the flood extents and elevations of a 1996-like flood event and, eventually, the FEMA 100-year floodplain. The modeling effort leveraged available data sources, including updated Light Detection and Ranging (LiDAR), bathymetric surveys, and hydrologic and hydraulic investigations conducted by the Army Corps as a part of the ongoing basin-wide study of the Columbia River supporting the Columbia River Treaty water management negotiations with Canada and tribal nations. This new mapping better defines which areas of Portland (and communities in the rest of the Lower Willamette) are likely to be susceptible to future flooding.

Using the U.S Army Corps of Engineers model, City of Portland staff produced an update-to-date estimate of the 1996 flood extent and elevations – referred to as the Modeled Willamette River 1996 Flood Extent – to serve as a "best available science" replacement of the City's existing Metro Title 3 map. The Modeled Willamette River 1996 Flood Extent provides a more accurate estimation of the impact area of a future 1996 flood-like event. This new flood extent is proposed to be regulated as a part of the

[1] https://silverjackets.nfrmp.us/Home/About-The-Silver-Jackets-Program. Accessed October 29, 2021. The name "Silver Jackets" is used to represent that the individual team members wear different colors during emergency response but the "silver jackets" represent the "common mission of a single team of diverse agencies working together to reduce flood risk at the state level."

combined flood hazard area, along with the existing 100-year floodplain and, outside the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area.

Moving forward, the City will continue to coordinate with FEMA to advocate for the use of the Army Corps model to define a more accurate estimate of the 100-year floodplain. In the interim, the City may choose to use the new Army Corps model to adopt a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the official Flood Insurance Study has officially been completed and a new Special Flood Hazard Area has been adopted by FEMA. Regulation of the provisional Special Flood Hazard Area would increase the protection of people, property and habitat in high-risk floodplain areas that are not currently identified in the combined flood hazard area.

The City and Army Corps of Engineers are working with FEMA on a timeline for developing a new Flood Insurance Study so that a new FEMA Special Flood Hazard Area (100-year floodplain) can be adopted and used to implement the National Flood Insurance Program going forward. Development and finalization of the new FEMA floodplain maps is expected to take up to five years. Once FEMA completes its process to adopt a new 100-year floodplain map of the Lower Willamette River, the city will update the combined flood hazard area accordingly.

Floodplain Functions

Development has brought drastic changes to Portland's floodplains through the addition of fill, the removal of native vegetation and alterations to hydrologic functions. Nonetheless, the vegetated area in the floodplain still serves important ecological functions. Shrubs, herbaceous vegetation and, most importantly, trees absorb and filter water that falls as precipitation, reducing surface runoff, siltation and other forms of pollution that would otherwise end up in streams and rivers. Floodplain vegetation stores and slows the flow of floodwaters. When vegetation in the floodplain is removed and replaced with impervious surfaces, the capacity to store and slow floodwater is lost, and the impact of flooding is exacerbated.

The volume of open space that is in the floodplain below the base flood elevation is also important, as it is able to fill with water when floods occur. When new structures or new soil is added to the floodplain, the water that would otherwise fill this space is displaced, which may put other sites at risk by changing the areas that are subject to inundation during a flood.

In addition to the impacts on flood storage and flood water displacement, vegetation in the floodplain has a critical impact on the riverine habitat that is utilized by endangered runs of salmon and steelhead, especially juveniles. The FEMA BiOp identified a number of key characteristics that floodplains contribute to the success of anadromous fish, including:

- Providing a diversity of habitat types for different species of salmon at various life stages;
- Facilitating exchange of nutrients and organic material between land and water, thus increasing the complexity of floodplain habitat;
- Providing off-channel areas of respite and varied food sources for juvenile salmon;
- Creating shallow habitat with cover for small salmonids to hide from larger predators;
- Providing slow-water refuge for juvenile salmon to avoid high flow volume, allowing them to rear as long as necessary and conserve energy for their entry to the ocean;
- Providing water storage and recharge function which ensures a source of cooler water in summer months and warmer water during winter months; and
- Establishing an expanded area for the deposit and storage of excess sediment, particularly fine sediment. This reduces the negative effects of turbidity.

B. Floodplain Characteristics and Demographics

Portland's floodplains are important areas in Portland's human environment. They are home to a diverse population from different socioeconomic backgrounds who live in a variety of housing typologies. Four percent of Portland's population lives in the floodplain, but the people that live there are significantly more diverse than the city as a whole. The floodplain also plays a key role in Portland's economy. A large proportion of Portland's industrial employers are located in or near the floodplain. The jobs that are provided by these employers represent a significant percentage of the middle wage jobs that are available to non-college educated adults in the city.

Housing/development summary

The population living in the floodplain has been growing much faster than Portland's population overall. In fact, over the last 20 years, the majority of the growth in new housing units has occurred in the floodplain. Because there are still a number of vacant lots located in the floodplain with significant development capacity in key growth areas of Portland's Central City, such as the South Waterfront, the disproportionately large growth in housing in the floodplain is likely to continue into the future. While most of the growth in housing has occurred in high rise developments in the Central City, the floodplain also contains significant numbers of single-dwelling residential developments, particularly in the Johnson Creek watershed.

There is also significant variability in the affordability of the housing stock in the various watersheds. In 2019, the median price of a three-bedroom unit in the Columbia Slough floodplain was in a range that would be considered affordable for a household earning 80 percent of the median family income and was significantly lower than the citywide median price. But median prices for similar units in the South Waterfront floodplain, where new housing growth has been the greatest, and other parts of the Central City were more than double what they were in the Columbia Slough floodplain.

Demographics summary

When taken as a whole, the racial and ethnic diversity of the floodplains are roughly comparable to Portland overall. Thirty percent of Portlanders identify as people of color. But there is significant variability in the diversity of populations in the different watersheds. The Columbia Slough and Johnson Creek watersheds are made up of 36 and 39 percent, respectively, of people of color. Though the percentage of people of color in the Columbia River watershed is lower than the city as a whole (26 percent versus 29 percent), the Columbia River watershed contains the largest total number of people of color, when compared with all of the other watersheds. The remaining watersheds are comprised of a smaller percentage of people of color than the city as a whole.

In addition to being among the most diverse of the city's watersheds, the Columbia Slough and the Columbia River floodplains have some of the largest percentages of residents that earn less than 80 percent of the median household income (55% and 58%, respectively). Other watersheds have low-income population percentages that are lower than the Portland citywide average, which is 45 percent.

Diversity in language and ethnic origin of immigrant populations in the Floodplain Resilience Plan watersheds also varies widely. The Columbia Slough and Columbia River watersheds have significant populations of Spanish and Russian speaking immigrants, as well as immigrants of Laotian and Ethiopian origin. In the Fanno Creek watershed, there are significant Ukranian and Spanish-speaking immigrant communities. The Tryon Creek watershed is the least diverse but it does have a significant Japanese immigrant community.

C. Key Drivers of the City's Floodplain Management Updates

Development of the City's work plan was initiated in the wake of the 2016 FEMA BiOp that was issued by the National Marine Fisheries Service, which found that the FEMA NFIP was being administered in a way that conflicted with the Endangered Species Act and, therefore, jeopardized the continued existence of threatened and endangered runs of salmon and steelhead. As a result, the City of Portland is required to better manage floodplain development by adopting new regulations to comply with the recommendations of the FEMA BiOp. Preserving floodplain habitat and reducing future flood risk for residents and employees in the floodplain is also consistent with a large number of Portland's existing goals, objectives and policies.

Federal Requirements and Legal Action

All recipients of federally-backed mortgages and loans for the purchase of floodplain properties are required to obtain flood insurance. The NFIP is a federal government-backed program that provides flood insurance policies to property owners in floodplains. Property owners may only become eligible for NFIP loans if their governing jurisdiction voluntarily enrolls in the NFIP and adopts a set of policies and programs that meet or exceed minimum standards established by the National Flood Insurance Act. If jurisdictions adopt regulations that exceed minimum requirements, they may earn points in FEMA's Community Rating System program, which allows residents to become eligible for discounts on their NFIP policies. Portland has been a participant in the NFIP since 1980 and the Community Rating System since 2001. As a result of floodplain protection measures implemented by the City of Portland, Portlanders currently receive a 25 percent discount on their insurance rates.

The FEMA BiOp was issued in response to a lawsuit that was filed against FEMA by local and national plaintiff organizations that claimed that the NFIP was being administered in the State of Oregon in a way that negatively impacted the habitat of threatened and endangered runs of salmon and steelhead. The program was deemed likely to jeopardize the continued existence of those salmon and steelhead, in violation of section 7 of the Endangered Species Act. The FEMA BiOp included a Reasonable and Prudent Alternative (RPA) with six constituent "elements" that recommend actions for FEMA to take to bring local floodplain management into compliance with the Endangered Species Act. The overall aim of the RPA elements is to achieve no-net-loss in floodplain habitat and floodwater storage in the floodplain.

FEMA has developed a Draft Implementation Plan that includes proposed NFIP updates to ensure the long-term compliance of the program with the Endangered Species Act. FEMA's Implementation Plan is now undergoing a formal National Environmental Policy Act (NEPA) review to ensure it effectively addresses the impacts identified in the FEMA BiOp. Once the NEPA review is complete, communities will be required to implement the final guidance to maintain compliance with the NFIP and continue access to flood insurance and federally backed mortgages. The proposed framework includes four available compliance pathways that range from complete avoidance of new development in the floodplain to allowing new development but with robust mitigation requirements in place to address floodplain impacts. FEMA's Draft Implementation Plan can be found at https://oregonnfip.org.

The Floodplain Resilience Plan recommendations described below draw on the components of the four proposed pathways, as well as the original FEMA BiOp. The Floodplain Resilience Plan recommendations will contribute to the City's compliance with new NFIP regulations that will require achieving a no-net-loss standard for floodplain habitat and flood storage over time.

Endangered and Threatened Species Recovery

There are 13 threatened or endangered salmon and steelhead species that have been found in Portland's waterways. Runs of these anadromous fish species have been in serious decline throughout the Pacific Northwest for a century and a half, since the region came under the jurisdiction of the United States and the arrival of European American settlers, who displaced many indigenous peoples. Overfishing and the installation of dams had some of the biggest impacts on native fish populations, but declines have continued as ongoing development and resource extraction in riparian areas and floodplains has further degraded the habitat. Even though existing regulations in communities may require that impacts to vegetation and fill in the floodplain be mitigated, one of the key findings of the FEMA BiOp was that, in practice, the mitigation rarely succeeded in replacing the habitat functions that were removed to facilitate development. The recommended actions in the FEMA BiOp, which included habitat and flood storage capacity mitigation ratios, are expected to adequately avoid future impacts to threatened and endangered salmon and steelhead species.

City Goals

Portland's *2035 Comprehensive Plan* and other existing plans and policies direct City bureaus to achieve a number of goals that pertain to floodplain functions and habitat. Flood management is specifically highlighted, as is resilience, in regard to natural hazards, urban form and environmental function. Other goals that are applicable to floodplains and floodplain management are those that promote human health and the environment and healthy watersheds. *2035 Comprehensive Plan* goals also highlight the importance of natural areas and environmental equity. Regulatory updates that limit future impacts to riparian vegetation and prevent the loss of flood storage capacity will further implementation of *2035 Comprehensive Plan* goals and policies. More detailed information on key City goals, objectives and policies is contained in Chapter III. Planning and Policy Context.

III. Planning and Policy Context

As described in previous sections, the FEMA BiOp and Draft Implementation Plan provide recommendations on necessary updates to floodplain regulations that will protect threatened and endangered salmon and steelhead and their habitat. At the same time, Portland is obligated by other federal, state and regional requirements to manage and regulate floodplains and riparian areas to protect and promote human health, wellbeing and livelihood and environmental health and function. The recommendations in the FEMA BiOp are consistent with applicable state and regional planning requirements to protect natural resources and direct new development away from flood hazard areas. This chapter provides a brief summary of the key planning and policy documents at the three levels that guide the Floodplain Resilience Plan recommendations.

A. Federal

FEMA and Flood Management

The National Flood Insurance Act was passed in 1968 and amended with the passage of the Flood Disaster Protection Act in 1973, the National Flood Insurance Reform Act of 1994, the Flood Insurance Reform Act of 2004 and the Biggert- Waters Flood Insurance Reform Act of 2012. These laws established the requirement for the owners of properties that are located in floodplains to acquire flood insurance and led to the establishment of the NFIP. They authorize FEMA to map floodplains and to determine the extent to which individual properties are at risk of flooding. These acts set out the minimum floodplain management requirements that jurisdictions must implement for their residents to be eligible to participate in the NFIP. Additionally, FEMA's floodplain maps communicate the level of risk to property and residents in the floodplain and what can be done to minimize and mitigate those risks.

Endangered Species Act

The Endangered Species Act was passed in 1973 with the intention of preventing the extinction of threatened and endangered species of plants and animals. The Endangered Species Act is administered by the Fish and Wildlife Service and the National Marine Fisheries Service, who have the authority to identify species that are in danger of going extinct in specific areas. Once species are listed as threatened or endangered, these agencies are tasked with identifying and protecting habitat that is critical to species survival. Section 7 of the Endangered Species Act requires federal agencies to consider the impacts that rulemaking or programs have on threatened and endangered species, and to avoid taking actions that would impair critical habitat or jeopardize the continued existence of species that are listed as threatened or endangered. The City of Portland must adopt regulations that are consistent with the NFIP in order for Portland residents to continue to have access to the program, and the NFIP must comply with the Endangered Species Act.

B. State

State Planning Goals 5, 6, 7, 15

Local jurisdictions in the State of Oregon are required to comply with 19 Statewide Planning Goals, 4 of which are applicable to floodplain management and regulations. Goal 5 requires local governments to inventory natural resources and apply an Economic, Social, Environmental, and Energy (ESEE) analysis to natural resources to balance the need for development and natural resource protection. Goal 6 requires local governments to consider the impact that development has on air, land, and water resources, to buffer and separate uses, and to comply with state and federal water quality regulations. Goal 7 requires local governments to identify natural hazards, such as areas that are likely to flood, and to apply appropriate regulations to areas with a high risk of natural hazard impacts. Goal 15 applies to the Willamette River Greenway. It requires governments of municipalities that border the Willamette River to manage the waterfront to conserve and maintain habitat, and to provide for economic and recreational uses.

C. Regional

Metro Titles 3 and 13

Metro is the regional government that has been tasked with coordinating land use planning within the Portland Metropolitan Region. Metro created the Urban Growth Management Functional Plan, which consists of code that is divided into 14 titles, to ensure that local governments located within its jurisdiction are in compliance with State Land Use Planning Goals. Two chapters apply directly to floodplain management, Title 3 and Title 13.

Title 3 pertains to State Land Use Planning Goals 6 and 7. Title 3 stipulates that in addition to adopting floodplain regulations that apply within the FEMA 100-year floodplain, local governments are required to apply floodplain regulations to areas that were inundated by the 1996 flood, except for specific areas of Portland's Central City and the North Reach of the Willamette that were excluded from the Metro-adopted floodplain maps. Metro has determined that Portland is in substantial compliance with Title 3 and will remain in compliance with future updates to the Metro Title 3 Map based on the outputs of the Modeled Willamette River 1996 Flood Extent.

Title 13 pertains to State Land Use Planning Goals 5 and 6. It requires that protections be applied to riparian and wildlife habitat areas along the region's rivers and streams. Local governments within Metro's jurisdiction must adopt regulations that require mitigation for impacts to significant natural resources that have been inventoried by Metro. Metro has found that with the adopted Environmental Overlay Zone program and Natural Resource Inventory, Portland is in substantial compliance with Title 13.

D. City

Goals, objectives and policies

A variety of established City goals, objectives and policies serve as the foundation for the Floodplain Resilience Plan proposals. Of these, the *2035 Comprehensive Plan* (2016) and *Climate Action Plan* (2015) both provide important guidance for this work. The list below highlights a number of the important goals, objectives and policies contained in these documents.

2035 Comprehensive Plan

Goals

Goal 4.D: Urban resilience. Buildings, streets, and open spaces are designed to ensure long-term resilience and to adjust to changing demographics, climate, and economy, and withstand and recover from natural disasters.

Goal 7.B: Healthy watersheds and environment. Ecosystem services and ecosystem functions are maintained and watershed conditions have improved over time, supporting public health and safety, environmental quality, fish and wildlife, cultural values, economic prosperity, and the intrinsic value of nature.

Goal 7.C: Resilience. Portland's built and natural environments function in complementary ways and are resilient in the face of climate change and natural hazards.

Goal 8.F: Flood management. Flood management systems and facilities support watershed health and manage flooding to reduce adverse impacts on Portlanders' health, safety, and property.

Policies

Policy 3.73, Habitat. Enhance the roles of the Willamette and Columbia rivers and their confluence as an ecological hub that provides locally and regionally significant habitat for fish and wildlife and habitat restoration opportunities.

Policy 3.80, Willamette River Central Reach. Enhance the role of the Willamette River Central Reach as the Central City and region's primary riverfront destination for recreation, history and culture, emergency response, water transportation, and as habitat for fish and wildlife.

Policy 4.77, Hazards to wildlife. Encourage building, lighting, site, and infrastructure design and practices that provide safe fish and wildlife passage, and reduce or mitigate hazards to birds, bats, and other wildlife.

Policy 4.79, Natural hazards and climate change risks and impacts. Limit development in or near areas prone to natural hazards, using the most current hazard and climate change-related information and maps

Policy 4.81, Disaster-resilient development. Encourage development and site-management approaches that reduce the risks and impacts of natural disasters or other major disturbances and that improve the ability of people, wildlife, natural systems, and property to withstand and recover from such events.

Policy 7.2, Environmental equity. Prevent or reduce adverse environment-related disparities affecting under-served and under-represented communities through plans and investments. This includes addressing disparities relating to air and water quality, natural hazards, contamination, climate change, and access to nature.

Policy 7.4, **Climate change.** Update and implement strategies to reduce carbon emissions and impacts, and increase resilience through plans and investments and public education.

> **7.4.b, Climate adaptation and resilience.** Enhance the ability of rivers, streams, wetlands, floodplains, urban forest, habitats, and wildlife to limit and adapt to climate-exacerbated flooding, landslides, wildfire, and urban heat island effects.

Policy 7.6, Hydrology. Through plans and investments, improve or support efforts to improve watershed hydrology to achieve more natural flow and enhance conveyance and storage capacity in rivers, streams, floodplains, wetlands, and aquifers. Minimize impacts from development and associated impervious surfaces, especially in areas with poorly-infiltrating soils and limited public stormwater discharge points, and encourage restoration of degraded hydrologic functions.

Policy 7.9, Habitat and biological communities. Ensure that plans and investments are consistent with and advance efforts to improve, or support efforts to improve fish and wildlife habitat and biological communities. Use plans and investments to enhance the diversity, quantity, and quality of habitats habitat corridors, and especially habitats that:

- Are rare or declining.
- Support at-risk plant and animal species and communities.
- Support recovery of species under the Endangered Species Act, and prevent new listings.
- Provide culturally important food sources, including those associated with Native American fishing rights.

Policy 7.10, Habitat connectivity. Improve or support efforts to improve terrestrial and aquatic habitat connectivity for fish and wildlife by using plans and investments, to:

- Prevent and repair habitat fragmentation.

- Improve habitat quality.
- Weave habitat into sites as new development occurs.
- Enhance or create habitat corridors that allow fish and wildlife to safely access and move through and between habitat areas.
- Promote restoration and protection of floodplains.

Policy 7.14, Natural hazards. Prevent development-related degradation of natural systems and associated increases in landslide, wildfire, flooding, and earthquake risks.

Policy 7.19, Natural resource protection. Protect the quantity, quality, and function of significant natural resources identified in the City's natural resource inventory, including:

- Rivers, streams, sloughs, and drainageways.
- Floodplains.
- Riparian corridors.
- Wetlands.
- Groundwater.
- Native and other beneficial vegetation species and communities.
- Aquatic and terrestrial habitats, including special habitats or habitats of concern, large anchor habitats, habitat complexes and corridors, rare and declining habitats such as wetlands, native oak, bottomland hardwood forest, grassland habitat, shallow water habitat, and habitats that support special-status or at-risk plant and wildlife species.
- Other resources identified in natural resource inventories.

Policy 7.21, Environmental plans and regulations. Maintain up-to-date environmental protection plans and regulations that specify the significant natural resources to be protected and the types of protections to be applied, based on the best data and science available and on an evaluation of cumulative environmental, social, and economic impacts and tradeoffs. *See Figure 7-2 — Adopted Environmental Plans.*

Policy 7.24, Regulatory hierarchy: avoid, minimize, mitigate. Maintain regulations requiring that the potential adverse impacts of new development on significant natural resources and their functions first be avoided where practicable, then minimized, then lastly, mitigated.

Policy 7.31. Sensitive habitats. Enhance grassland, beach, riverbanks, wetlands, bottomland forests, shallow water habitats, and other key habitats for wildlife traveling along the Columbia River migratory corridor, while continuing to manage the levees and floodplain for flood control.

Policy 7.35, River bank conditions. Preserve existing river bank habitat and encourage the rehabilitation of river bank sections that have been significantly altered due to development with more fish and wildlife friendly riverbank conditions.

Policy 7.38, Sensitive habitats. Protect and enhance grasslands, beaches, floodplains, wetlands, remnant native oak, bottomland hardwood forest, and other key habitats for native wildlife including shorebirds, waterfowl, and species that migrate along the Pacific Flyway and the Willamette River corridor.

Policy 7.45. Riparian corridors. Increase the width, quality, and native plant diversity of vegetated riparian buffers along Columbia Slough channels and other drainageways within the watershed, while also managing the slough for flood control.

Policy 7.51 Riparian and habitat corridors. Protect and enhance riparian habitat quality and connectivity along Tryon and Fanno creeks and their tributaries. Enhance connections between riparian areas, parks, anchor habitats, and areas with significant tree canopy. Enhance in-stream and upland habitat connections between Tryon Creek State Natural Area and the Willamette River.

Policy 8.76, Flood management. Improve and maintain the functions of natural and managed drainageways, wetlands, and floodplains to protect health, safety, and property, provide water conveyance and storage, improve water quality, and maintain and enhance fish and wildlife habitat.

Policy 8.77, Floodplain management. Manage floodplains to protect and restore associated natural resources and functions and to minimize the risks to life and property from flooding.

Policy 8.97, Natural resources. Preserve, enhance, and manage City-owned natural areas and resources to protect and improve their ecological health, in accordance with both the natural area acquisition and restoration strategies, and to provide compatible public access.

Climate Action Plan

Objective 15. Climate Change Preparation Reduce risks and impacts from flooding and landslides by preparing for warmer winters with the potential for more intense rain events.

> **Action 15A Floodplains.** Increase community and ecological resilience by working with local, state and federal partners to update floodplain data, maps, policies and programs to reflect climate change projections and variability and improve floodplain function.
>
> **Action 15B Managing Stormwater Naturally.** Protect and restore streams, wetlands and floodplains, reduce paved surfaces, utilize green infrastructure, update stormwater plans, manuals and drainage rules and prepare to manage increased stormwater runoff.

2020 Climate Emergency Declaration

On June 30, 2020, Portland City Council adopted a Climate Emergency Declaration[2] that recognized the accelerating climate emergency and its impacts on frontline communities, including Black and Indigenous people, people of color, immigrants, refugees, children and youth, women, people living with disabilities, the elderly, people experiencing homelessness, and low-income people. The declaration acknowledged that "protecting, restoring, and managing our urban natural resources – including rivers, streams, wetlands, floodplains, trees, and unique habitats – mitigates risks, sequesters carbon, and builds resilience to the impacts of climate change, provides benefits to human physical and mental health, protects private property and public infrastructure, and supports the intrinsic value of natural ecosystems and biodiversity."

In response to the importance of protecting, restoring, and managing our urban natural resources, including rivers, streams, and floodplains, the declaration directed the Bureau of Planning and Sustainability (BPS) to do the following:

- Work collaboratively with Bureau of Environmental Services, Portland Parks & Recreation, as well as other City bureaus, Metro, and state and federal agencies to incorporate information from climate modelling related to hydrology and flooding for the metro area in the update of regulations that protect and restore flood areas to reduce the impacts of future flooding on property, public infrastructure, and public health, and support recovery of threatened and endangered species.

Climate Emergency Workplan (2022-2025)

BPS developed the Climate Emergency Workplan (2022-2025) (Workplan) in collaboration with the Portland Bureau of Transportation (PBOT) and a number of other partner bureaus with shared resilience priorities, including the Bureau of Development Services, Bureau of Environmental Services, Portland Fire & Rescue, Portland Parks & Recreation, Portland Bureau of Emergency Management, and the Water Bureau.

The Workplan includes strategies and actions to achieve goals and objectives in the Climate Emergency Declaration, the 2035 Comprehensive Plan, the 100 Percent Renewable Energy Resolution (Resolution No. 37289 (2017)) and portions of bureau strategic plans focused on climate change adaptation. The Workplan prioritizes actions that: (1) are grounded in a community of practice among cities that have net zero carbon goals; and (2) can deliver meaningful carbon emissions reductions within the next eight years, along with essential community co-benefits such as improved public health and air quality,

[2] https://www.portland.gov/sites/default/files/2021/climate-emergency-declaration-resolution-37494-june-30-2020.pdf

livability, affordability, and inclusive economic opportunity. The Workplan prioritizes actions that build Portlanders' resilience to climate change impacts, centering the needs of frontline communities and people who are most vulnerable to the risks of climate change because of low income, social isolation, or houselessness.

Resolution No. 35715 (Policy ENN-4.01)

In response to the listing of the Lower Columbia Evolutionary Significant Unit (ESU) of steelhead in March 1998, Portland developed a comprehensive, citywide approach to respond to the listing. City Council adopted Resolution No. 35715 on July 22, 1998. This resolution defined the following four-pronged approach to salmon recovery:

- Involve all City of Portland bureaus, to maximize effectiveness and efficiency.
- Collaborate with NOAA fisheries to prepare a program that not only complies with the requirements of the Endangered Species Act but also assists in salmonid recovery.
- Because listed fish species use watersheds that cross political boundaries, integrate the City of Portland's response with regional and state responses, to the extent possible.
- Enlist the help of the citizenry at a number of levels in developing the response to the listing.

The City's Endangered Species Act Program, housed in the Bureau of Environmental Services, coordinates the City's response to listings under the ESA by both avoiding "take "of listed species, as well as by assisting with recovery of listed salmonids with critical habitat in the city.

Resolution No. 35894 (Policy ENN-4.02)

In July 2000, Portland City Council adopted and committed to the Portland Recovery Plan for Salmon and Trout. In this resolution, the City pledged all City bureaus to proactively collaborate with the City's Endangered Species Act Program to develop a recovery plan based on a comprehensive framework. The recovery plan incorporated existing City natural resource management, protection, restoration and enhancement programs and projects, and aimed to establish a close partnership with NMFS, as well as partnerships with other jurisdictions and stakeholders.

IV. Planning Process

A. Overview

Prior to and since the release of the NFIP Biological Opinion in 2016, the City of Portland has been preparing for the floodplain regulatory updates that are necessary to ensure protections for threatened and endangered species in Portland's waterways. Around the time of the release of the FEMA BiOp, an inter-bureau team was established to evaluate its recommendations and begin the process of developing the City's response. The inter-bureau team is comprised of representatives from nine City bureaus:

- City Attorney (CAO)
- Development Services (BDS)
- Environmental Services (BES)
- Government Relations (OGR)
- Emergency Management (PBEM)
- Office of Management and Finance (OMF)
- Parks & Recreation (PP&R)
- Planning and Sustainability (BPS)
- Prosper Portland (Prosper)

Additionally, outreach to and coordination with other bureaus not on the inter-bureau team was conducted at various points in this effort. These bureaus include the bureaus of Housing and Water, among others.

From the beginning, the inter-bureau team recognized the importance of a multi-faceted strategy for meeting the intent of the BiOp, including regulatory updates, allowing the use of mitigation bank credits to offset floodplain development impacts, and an expanded floodplain restoration program. This approach was built upon existing policies and programs, such as the BPS River and Environmental Planning Program and the BES stormwater management and watershed services programs. Generally, the overall strategy is governed by the adopted *2035 Comprehensive Plan*'s guiding principles, goals, and policies, with an emphasis on equity and inclusion (see Figure 1).

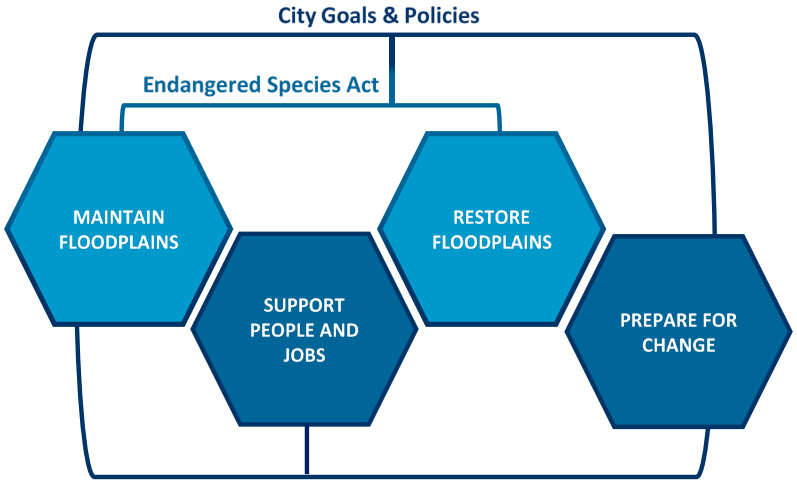


Figure 2. Conceptual framework of the City's FEMA BiOp compliance strategy

B. Floodplain Management Work Plan

In September of 2019, the directors of the eight City bureaus that were part of the inter-bureau team at the time approved a work plan that established the overall approach to updating floodplain regulations and meeting the intent of the FEMA BiOp. There were two general categories of directives in the work plan. To meet federal requirements, while also promoting adopted City goals and policies and supporting existing bureau work plans, the work plan aims to achieve the following in Portland's floodplains:

- Maintain existing floodplain habitat and flood storage through updates to development regulations to support no-net-loss of floodplain habitat function and flood water storage.
- Restore and increase floodplain habitat and improve resilience through continued and ensured protection of natural areas and improvement of degraded areas.

Additionally, to support City goals and policies, including minimizing and offsetting impacts to people, housing, and job development, and preparing to manage the effects of and adapting to climate change, implementation of the work plan will apply an equity lens and include equity analyses of all major tasks, complete thorough conditions analyses, seek to create cross-bureau program connections, explore new program needs and prepare technical analyses to better understand and communicate flood risk.

The work plan includes two key task areas: Task Area 1 is focused on updating the City's regulations to be consistent with the FEMA BiOp and Task Area 2 aims to improve floodplain function and flood water storage to support species recovery over time.

Regulations (Task Area 1) is focused on improving the array of regulations that govern how and to what extent floodplains are developed in Portland. To maintain flood storage and floodplain function, regulatory updates should:

- Preserve floodplains as naturally functioning floodplains and allow them to flood periodically to support biodiversity and the emergence of off-channel habitat, which can help reduce river velocity and provide safe places for wildlife.
- Provide natural river and stream banks with vegetation and natural debris that provide spawning and rearing grounds for fish and help keep the water cool.
- Keep pollutants such as mercury, copper, cadmium and zinc; and pesticides, herbicides, fertilizers and gasoline from entering rivers and streams.

To that end, it was recognized that amendments to Title 33 (Planning and Zoning), Title 24 (Building), and Title 17.38 (Drainage and Water Quality) would be needed. Through these updates, flood storage and floodplain function will be protected by:

- Limiting the addition of impervious area created with development.
- Requiring the planting of appropriate trees and shrubs.
- Requiring all fill (whether dirt fill or the addition of buildings) to be mitigated.
- Carefully designing reconstructed river and stream banks to avoid fish stranding and by limiting floodplain development, particularly near river and stream banks.

During the implementation of the work plan, the updates identified in Task Area 1 will be made in the Zoning Code and associated maps; Chapter 24.50, Flood Hazard Areas, in Title 24, Building Regulations; and the Stormwater Management Manual (SWMM) and, potentially, other portions of Title 17. Additionally, a tracking system is expected to be needed to better-monitor floodplain development so that the City can provide required data to FEMA.

The updates identified in this plan include modifications to Zoning Code requirements and maps in support of implementation of Task Area 1. The Floodplain Resilience Plan proposed changes will apply to properties throughout the City's jurisdiction, though the scope of applicable changes varies based on site-specific characteristics.

Restoration (Task Area 2) focused on identifying and restoring important floodplain sites throughout the city. In the FEMA BiOp, the National Marine Fisheries Service found that maintaining the current level of floodplain habitat and flood storage is not enough to keep salmon and steelhead populations viable. To help salmon and steelhead recover, it is necessary to improve conditions, which is described as providing a net benefit for the species over time. The work plan determined that the following steps are needed:

- Increase the amount and quality of floodplain area and habitat that supports salmon and steelhead.
- Quantify the anticipated improvements to habitat based on research, analysis, monitoring, and the best available science.
- Ensure that appropriate restoration projects are likely to occur.

The Floodplain Resilience Plan supports strengthening and expanding the City's restoration program through the updates and future actions identified in Chapter V and VI below.

C. Intergovernmental Coordination

Since the release of the FEMA BiOp in 2016, City staff have been actively engaged in discussions with FEMA and the State of Oregon Department of Land Conservation and Development (DLCD) to understand and provide feedback on drafts of implementation guidance along the way. Starting in the summer of 2016, City staff met with FEMA and DLCD staff to review the components of the FEMA BiOp and understand its implications for the City of Portland. Since then, the City inter-bureau team has met with FEMA staff every six months or so to discuss the City's direction and gather feedback from FEMA staff.

Early on, FEMA collaborated with DLCD to establish a number of work groups to address different concerns and considerations with the implementation of the FEMA BiOp. The work groups focused on a number of topics, including process (permitting), assessment and mitigation of habitat impacts, legal considerations (including Endangered Species Act compliance and state law) and mapping. Additionally, a separate working group focused on business concerns, including ports and other waterfront developments, was established. City staff participated and contributed to all of these working groups. A number of memos highlighting implementation concerns and challenges were generated from these work groups.

After the conclusion of these work groups, FEMA determined that additional input was needed to best-tailor their recommendations to the unique requirements and characteristics of Oregon communities. To that end, a separate engagement process was initiated in early 2020 to build on the outcomes of the previous work groups and gather additional input to shape potential implementation pathways for

FEMA BiOp compliance. This engagement process continued through 2020 and 2021 (with some delays due to the challenges of the COVID-19 pandemic) until the release of FEMA's draft implementation plan, titled *Oregon Implementation Plan for NFIP-ESA Integration*. City staff attended all of these engagement events and provided feedback on proposals as they were released. Additionally, City staff have continued to meet with FEMA staff to ask questions and obtain updates on progress on the NEPA review and related work.

Collectively, these discussions and meetings, along with FEMA and DLCD resources, have helped shape the recommendations in this document.

Tribal Governments

In 2012, the Portland City Council adopted Resolution 36941 to formalize its intergovernmental relationship with tribal partners. The Resolution documented the City's policy to implement programs and activities to honor tribal treaty rights, federal tribal trust responsibilities and traditional native religious beliefs. It also affirmed the City's commitment to tribal governments and partnering on economic, environmental and social initiatives. The resolution acknowledged that the protection of cultural and natural resources as well as "customary use" locations are critical to the preservation of treaty rights, cultural heritage and the pursuit of traditional lifeways for present and future generations.

Portland's rivers, streams and floodplains and the salmon, steelhead, lamprey and other species they support are significant cultural resources for tribal governments and play an important role in their members' traditional lifeways. Therefore, collaboration with tribal governments is a key component of the Floodplain Resilience Plan. Prior to the release of this Discussion Draft, BPS staff reached out to seven tribal governments with a summary of the plan's proposals and invite them to discuss and provide feedback on the proposals with City staff. Additionally, during the Discussion Draft public engagement phase, City staff contacted staff from the seven tribal governments via email and a follow-up phone call to offer an opportunity to meet to discuss and and provide feedback on the plan's proposals. As the project moves forward, efforts will continue to be made to gather input from tribal government representatives and staff.

D. Public Engagement

Ensuring effective public engagement and meaningful input is a tenet of the Floodplain Resilience Plan. Public engagement efforts will include a variety of opportunities for stakeholders to understand the project proposals and provide feedback on them both directly to staff and to decision makers, including the Planning and Sustainability Commission and City Council. Feedback on the Discussion Draft was be provided directly to project staff and, based on input received, updates were made as a part of the Proposed Draft that is consideration by the Planning and Sustainability Commission. The Planning and Sustainability Commission will hold at least one hearing and work session to consider recommended

amendments to the plan. Once those amendments have been incorporated into a Recommended Draft, it will be considered by the City Council. City Council will also hold at least one hearing and work session to consider amendments to the plan prior to its official adoption.

Public engagement efforts have been guided by the City of Portland Public Involvement Principles, adopted by the Portland City Council in August 2010. The principles, listed below, represent a road map to guide government officials and staff in establishing consistent, effective and high-quality community engagement across Portland's City government (http://www.portlandoregon.gov/oni/article/312804):

Partnership: Community members have a right to be involved in decisions that affect them. Participants can influence decision-making and receive feedback on how their input was used. The public can recommend projects and issues for government consideration.

Early Involvement: Public involvement is an early and integral part of issue and opportunity identification, concept development, design, and implementation of City policies, programs, and projects.

Building Relationships and Community Capacity: Public involvement processes invest in and develop long-term, collaborative working relationships and learning opportunities with community partners and stakeholders.

Inclusiveness and Equity: Public dialogue and decision-making processes identify, reach out to, and encourage participation of the community in its full diversity. Processes respect a range of values and interests and the knowledge of those involved. Historically excluded individuals and groups are included authentically in processes, activities, and decision- and policy-making. Impacts, including costs and benefits, are identified and distributed fairly.

Good Quality Process Design and Implementation: Public involvement processes and techniques are well-designed to appropriately fit the scope, character, and impact of a policy or project. Processes adapt to changing needs and issues as they move forward.

Transparency: Public decision-making processes are accessible, open, honest, and understandable. Members of the public receive the information they need, and with enough lead time, to participate effectively.

Accountability: City leaders and staff are accountable for ensuring meaningful public involvement in the work of city government.

The Discussion Draft public engagement period included a variety of opportunities for stakeholders to learn about the project and provide feedback on the plan's proposals. An important part of this engagement effort was reaching out to potentially-impacted communities to understand potential impacts on them and identify programs or other approaches that could be used to address those impacts, especially on low-income owners and renters, Communities of Color, the urban Native community and other underserved communities.

The Discussion Draft public engagement process began in November 2021 continued through January of 2022. Engagement opportunities included, but were not limited to, the following:

- Three virtual open houses to describe the project and answer initial stakeholder questions. These open houses and other public engagement events were held virtually due to the COVID-19 pandemic.
- Project helpline and ability for the public to schedule one-on-one appointments with City staff to discuss property-specific questions or concerns.
- Presentations to stakeholder groups, including neighborhood associations, community-based organizations, environmental organizations, and others.

Additionally, three virtual focus group sessions were held with key stakeholders, including (1) Black, Indigenous, and people of color (BIPOC); (2) Environmental stakeholders (an effort was made to include organizations that represent BIPOC communities); and (3) the Urban Native community. Focus groups sessions began with background information on FEMA's National Flood Insurance Program, the 2016 Biological Opinion and FEMA's October 2021 Draft Implementation Plan, and the goals and proposals of the Floodplain Resilience Plan. Participants were asked a series of questions regarding flooding and environmental protections and given the opportunity to share their thoughts, experiences, and concerns with City staff. Focus group participants were compensated for their time and knowledge.

City staff continued, when requested, to present (virtually) to interested stakeholder groups and answer questions via email and phone from February to July 2022.

V. Overview of Recommendations

To ensure that the City of Portland continues to be in compliance with the NFIP moving forward, the Floodplain Resilience Plan includes a number of recommended updates:

1) Amendments to the zoning maps to apply appropriate zoning regulations to all of the city's floodplains;

2) Updates to Zoning Code regulations for the city's combined flood hazard area; and

3) Expand and strengthen the Bureau of Environmental Services restoration program to support the long-term recovery of salmon and steelhead while also working to expand the availability of private and (potentially) public mitigation banks to provide another option for mitigating floodplain development impacts in the floodplain.

Together, these proposals will make progress toward compliance with the FEMA BiOp and further the City's commitment to contribute to the recovery of endangered and threatened salmon and steelhead species in its waterways. Each of the proposals is described in more detail below.

A. Mapping

Background/Overview

Zoning maps identify where overlay zones and plan districts with floodplain-specific regulations must be met. The FEMA BiOp and Draft Implementation Plan contain a number of recommendations related to where development activities should be managed to limit impacts on threatened and endangered salmon and steelhead species. Most importantly, in recognition of the importance of all floodplains in providing flood storage and fish habitat, the FEMA BiOp recommends that development impacts be managed and mitigated in both undeveloped and developed floodplains. The FEMA BiOp also directed FEMA to require higher mitigation ratios for both floodplain habitat and storage capacity in areas closest to waterways, including in the high-hazard area (farthest landward extent of the floodway and 10-year flood interval) and the riparian buffer area (defined in the BiOp as floodplain areas within 170 feet of ordinary high water).

Additionally, the FEMA BiOp recognized the limitations of many existing 100-year floodplain maps and identified the updating of flood hazard maps as a key component of the RPA. In Element 3 of the RPA, NMFS states that the "adoption of maps is prerequisite to effective management of flood-related hazards areas." NMFS also quotes a portion of the 2013 Community Rating System Coordinator's Manual (440-2) that asserts "the map a community uses for floodplain management can and should be updated frequently to account for annexations, new divisions, site-by-site analyses, better ground elevation data, and incorporation of new hazard data. To make the map more useful and easier to use,

it should include detailed topography, building footprints, natural features and other data that can help relate the floodplain information to conditions on the ground and to other programs."

FEMA's 100-year floodplain map for the Willamette River is out of date because the large majority of the floodplain extent is based on a model completed in 1979. Since then, there has been significant development in Portland's floodplains and in the floodplains of communities upstream of Portland. There have also been changes to riverbeds as a result of dredging, siltation and other processes. The existing FEMA floodplain maps do not reflect these changes. As NMFS stated, effective floodplain management is contingent upon having up-to-date maps based on best available science.

The Army Corps of Engineers released model of the Lower Willamette River, described in more detail on page 18, for use by City (and the Environmental Protection Agency in the Portland Harbor area) in March 2022. The Army Corps of Engineers model incorporates recent river bathymetry, topography based on up-to-date Light Detection and Ranging (LiDAR) data, and current development patterns and can be used to determine the expected extent and depths of flood events with characteristics similar to those in the existing FEMA 100-year floodplain and the 1996 flood. After receiving the model, the City used it to estimate the extent and flood elevations of a 1996-like flood when considering current conditions. The results of the 1996 flood model, referred to as the Modeled Willamette River 1996 Flood Extent, provide a better estimate of the area that would be impacted by a flood similar to what occurred in February of 1996. This type of event is expected to be more common as a result of climate change.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the 100-year floodplain to replace the existing one. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA. The new estimate of the 100-year floodplain will contribute to the protection of people, property and habitat in areas prone to flooding but not currently identified in the existing FEMA 100-year floodplain.

Proposed Zoning Map Amendments

To be consistent with the FEMA BiOp and Draft Implementation Plan and to ensure that future development avoids or mitigates impacts to floodplain habitat, it is important to clearly identify those areas in relevant regulatory maps so that the appropriate requirements can be applied. To that end, proposed zoning map amendments include the following:

1) Apply the Environmental Conservation (c) overlay zone to undeveloped floodplains not currently in the c overlay zone within the Fanno Creek and Tryon Creek watersheds.

2) Apply the River Environmental (e) overlay zone so that all of the Willamette River Central Reach floodplain within 170 feet of the ordinary high water mark (known as the riparian buffer area), and apply the e overlay zone to undeveloped floodplains more than 170 feet from the ordinary high water mark if they are not currently in the e overlay zone.

3) Update the boundaries of the existing Willamette River South Reach riparian buffer area and areas where the e overlay zone is applied based on the new Modeled Willamette River 1996 Flood Extent.

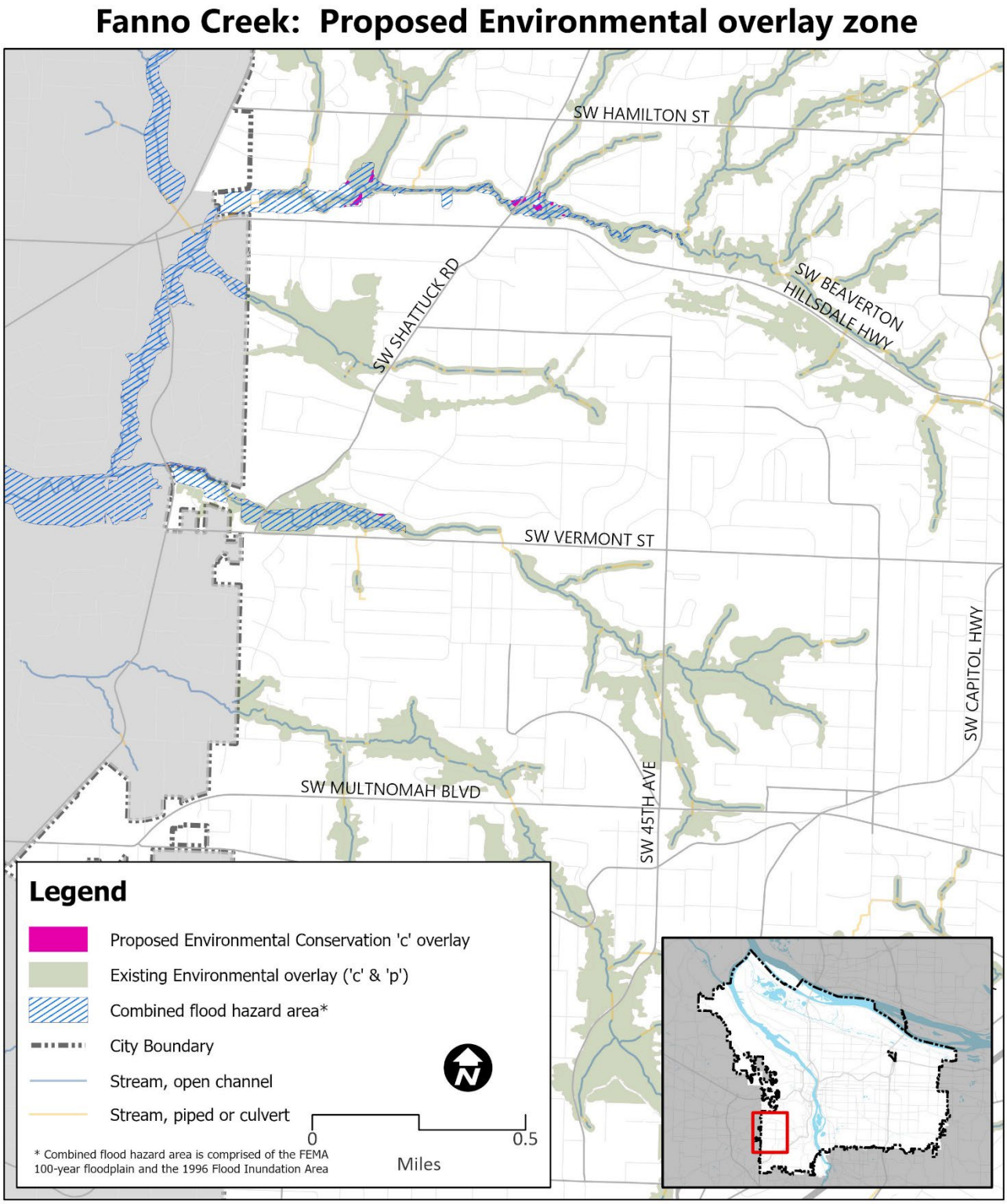
Environmental Conservation Overlay Zone

As described above, the FEMA BiOp and Draft Implementation Plan include guidance on addressing the impacts of floodplain development. To be compliant with FEMA guidance, the long-term goal is to apply environmental zoning regulations to all floodplains within 170 feet of the ordinary high water mark (known as the riparian buffer area) along the Willamette River, Columbia River, and portions of the Columbia Slough and to all other undeveloped floodplains in the city. Environmental regulations have been applied to many of the city's floodplains through the Environmental and River overlay zones, but they are not consistently applied to all floodplains under the City's jurisdiction (which includes, for example, portions of unincorporated Multnomah County).

As a part of this project, the term "combined flood hazard area" is proposed to be added to the Zoning Code. The combined flood hazard area will encompass the 100-year floodplain, the Modeled Willamette River 1996 Flood Area, and the 1996 Flood Inundation Area.

The Environmental Conservation overlay zone will be applied to undeveloped floodplain not currently in an environmental overlay zone within the Tryon Creek and Fanno Creek FEMA 100-year floodplain (see Map 1 and Map 2). Most of this proposed expansion is within the Fanno Creek floodplain.

Map 1. Proposed Environmental Conservation Overlay Zone in the Fanno Creek floodplain



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July, 2022

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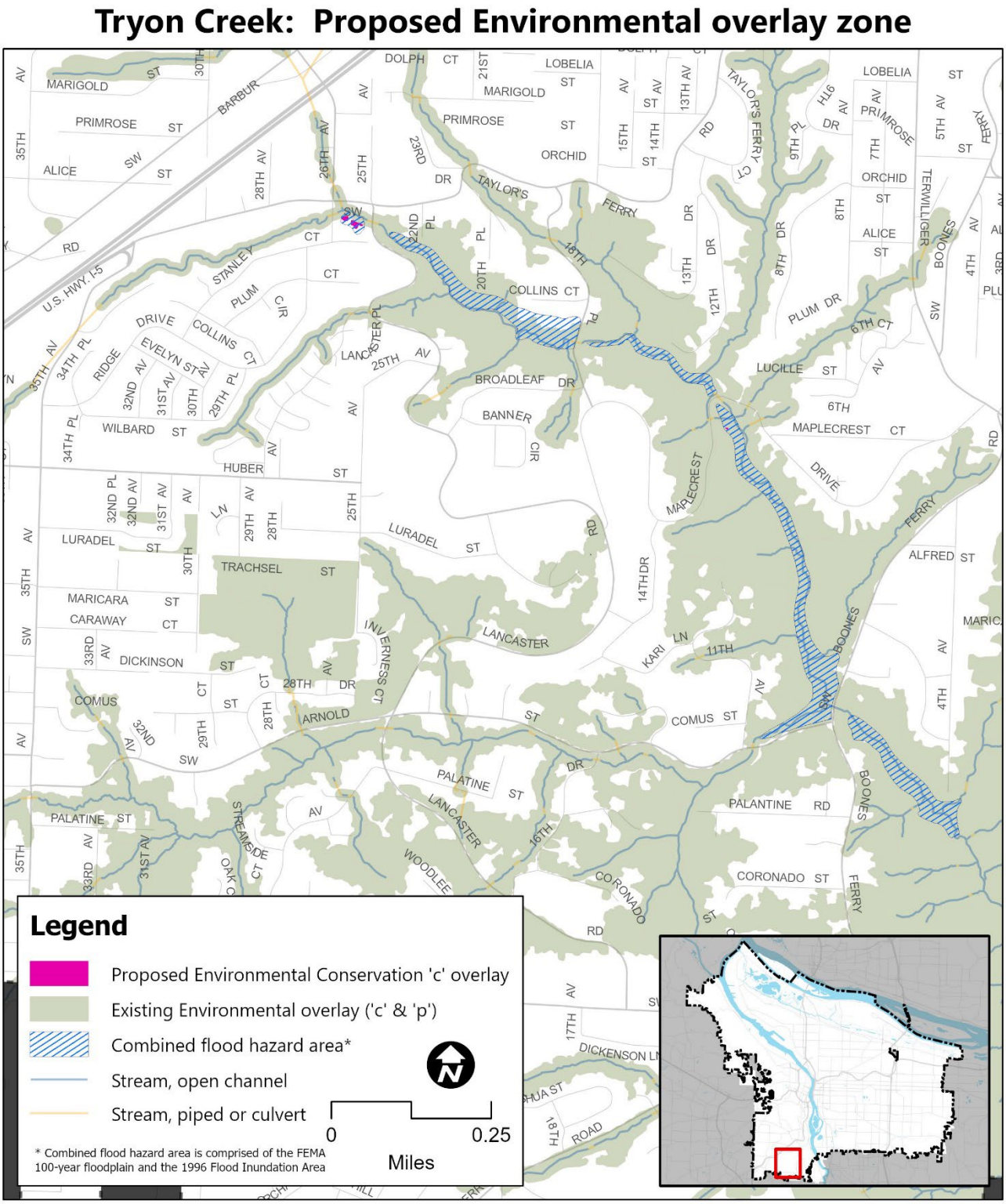
Map 2. Proposed Environmental Conservation Overlay Zone in the Tryon Creek floodplain



A Note on the Environmental Overlay Zones in the Columbia Corridor

The proposed changes to the Environmental overlay zones will not apply to three zones that play a key role in meeting the City's economic development goals, especially related to the industrial sector: Heavy Industrial (IH), General Industrial 2 (IG2) and General Employment 2 (EG2). The City of Portland adopted its most recent Economic Opportunities Analysis (EOA) in 2016, as a part of the *2035 Comprehensive Plan*. Since then, the industrial land capacity in the Columbia Corridor has been absorbed at a faster rate than expected, leaving limited capacity to accommodate these floodplain management and other proposed environmental protections while still ensuring compliance with State Land Use Planning Goal 9, Economic Development.

The Bureau of Planning and Sustainability has started to update the Goal 9-required EOA. As a part of the EOA update process, City staff will evaluate and apply protections, as deemed appropriate, to a variety of environmental resources in the Columbia Corridor, including floodplains, streams, wetlands, and others. The EOA is expected to be completed within the next two years.

The Floodplain Resilience Plan Discussion Draft included a proposed expansion of the Conservation overlay zone onto floodplains along the Columbia River and Columbia Slough that are not in the IH, IG2 or EG2 zone. This Proposed Draft no longer proposes to expand the Conservation overlay zone onto Columbia River and Columbia Slough floodplains.

The appropriate locations for any expansion of the Environmental Conservation overlay zone to Columbia River and Columbia Slough floodplains will be determined as a part of the EOA process. Any proposed expansion of the Environmental Conservation will be included in a package of Zoning Code changes to be adopted with the new EOA. The EOA Zoning Code package will update the underlying Natural Resources Inventory data in the Columbia Corridor, consolidate the existing Columbia Corridor resource management plans into a single document for guidance on the management of natural resources, and include changes to the Environmental overlay zones that are consistent with the recently-completed Ezones Map Correction Project. This package will ensure that the Environmental overlay zones are applied to existing natural resources (including rivers, streams, floodplains, wetlands and other important habitat) based on current technologies and a robust ground-truthing effort in the Columbia Corridor. This will significantly increase the accuracy of the application of the Environmental overlay zones and the effectiveness of those protections moving forward.

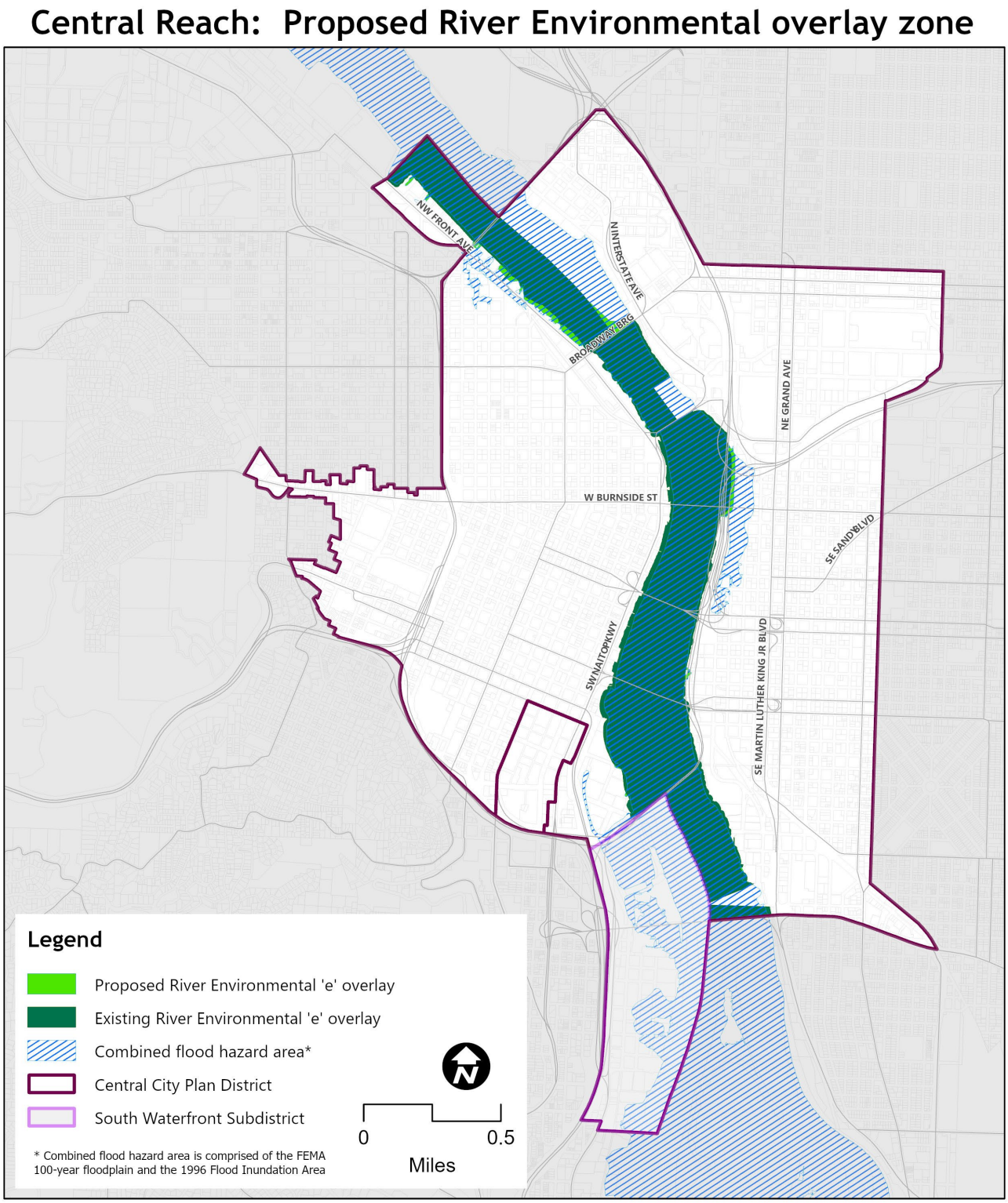
Central Reach Maps

As stated above, the FEMA BiOp and Draft Implementation Plan recommend that development impacts be managed in floodplains and established the importance of the riparian buffer area (floodplain areas 170 feet landward of ordinary high water). Adopted in December of 2020, the River Plan / South Reach applied the River overlay zones to the Willamette River South Reach and incorporated the floodplain regulations recommended in the FEMA BiOp. Updates in the plan included application of the River Environmental overlay zone to all South Reach floodplains and the implementation of riparian buffer area-specific requirements, among others.

The *Central City 2035 Plan*, originally adopted in 2016 and then readopted in 2018 after an appeal, applied the River overlay zones in the Willamette River Central Reach. At that time, the application of the River Environmental overlay zone was generally focused on land within the 50-foot river setback but not the remainder of the floodplain. Since the FEMA BiOp was released in the same year as the 2016 adoption of the *Central City 2035 Plan*, the plan did not fully address the FEMA BiOp or Draft Implementation Plan guidance.

An expansion of the River Environmental overlay zone to encompass both developed and undeveloped Central Reach floodplains within the riparian buffer area and undeveloped floodplain located outside the riparian buffer area is proposed (see Map 3). The River Environmental overlay zone requires that development impacts are avoided to the extent possible and, when impacts can't be avoided, mitigation is required. Mitigation of development impacts can be achieved through meeting established standards or through River Review, a land use review process. Mitigation of actions must fully offset all development impacts, also known as achieving a "no-net-loss" standard.

Map 3. Proposed River Environmental Overlay Zone in the Willamette River Central Reach



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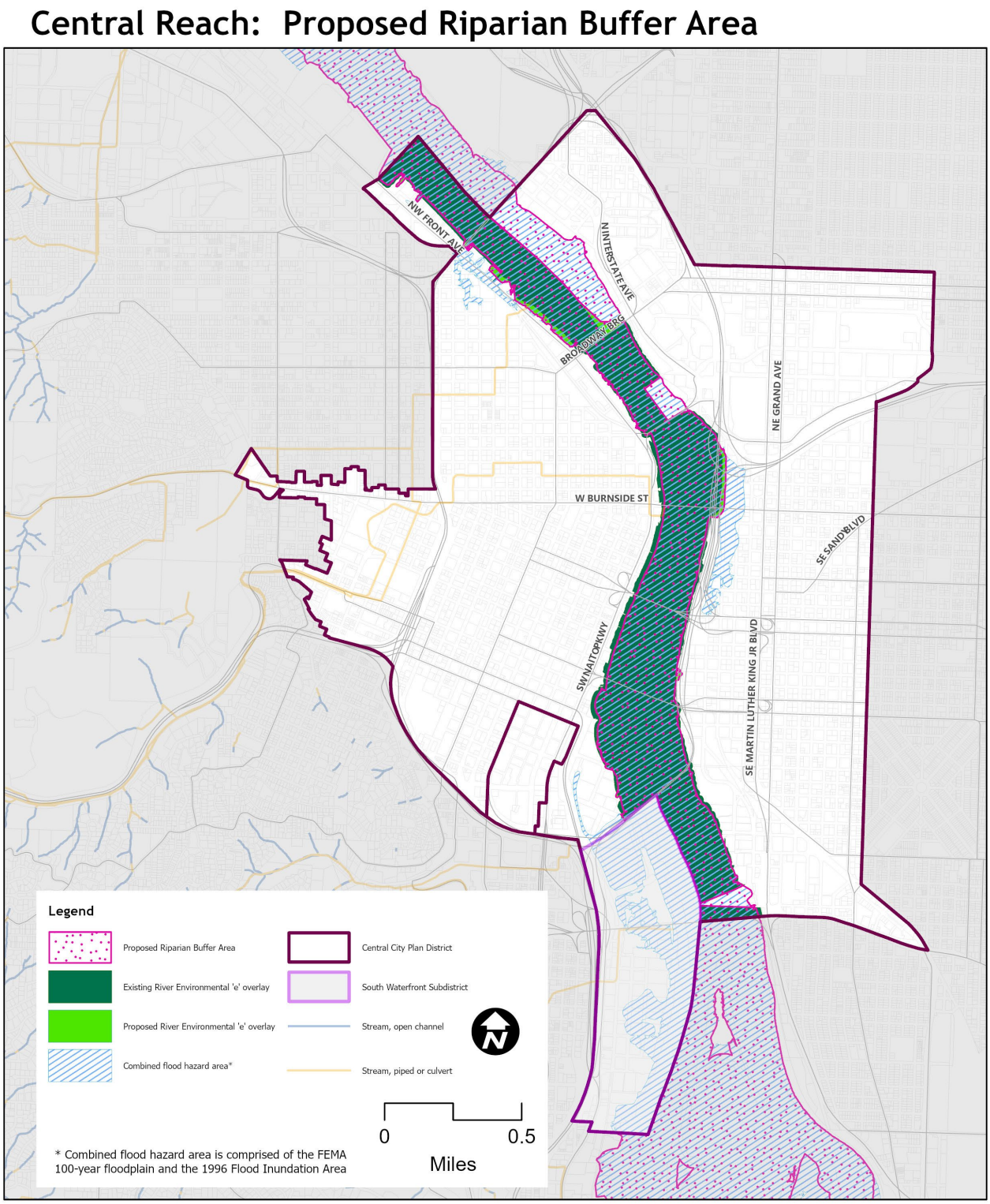
A Central Reach riparian buffer area map – similar to the existing South Reach riparian buffer map – is proposed to be added to the River Overlay Zones chapter (see Map 4). In the riparian buffer area shown on the map, future floodplain development will be required to offset all impacts to natural resources, as required wherever the River Environmental overlay zone is applied, and demonstrate an improvement in one of two floodplain-related riparian functions: (1) Bank function, and control of sediments, nutrients and pollution; or (2) Streamflow and moderation and flood storage. These functions are identified and described in the City's 2012 Natural Resources Inventory Update and adopted natural resource management plans. The more detailed proposed zoning maps can be found in the River Overlay Zones chapter amendments located in Chapter VI, Implementation, C. Zoning Code Amendments (see page 75).

It should be noted that in many cases in the Central Reach (and elsewhere), the combined flood hazard area does not extend 170 feet from the ordinary high water mark. In those cases, the riparian buffer area is less than 170 feet from the river.

These proposed zoning map amendments implement the FEMA BiOp and Draft Implementation Plan recommendations while also achieving greater consistency in the Willamette River Central and South reaches floodplain regulations.

Map 4. Proposed Riparian Buffer Area in the Willamette River Central Reach



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South Reach Maps

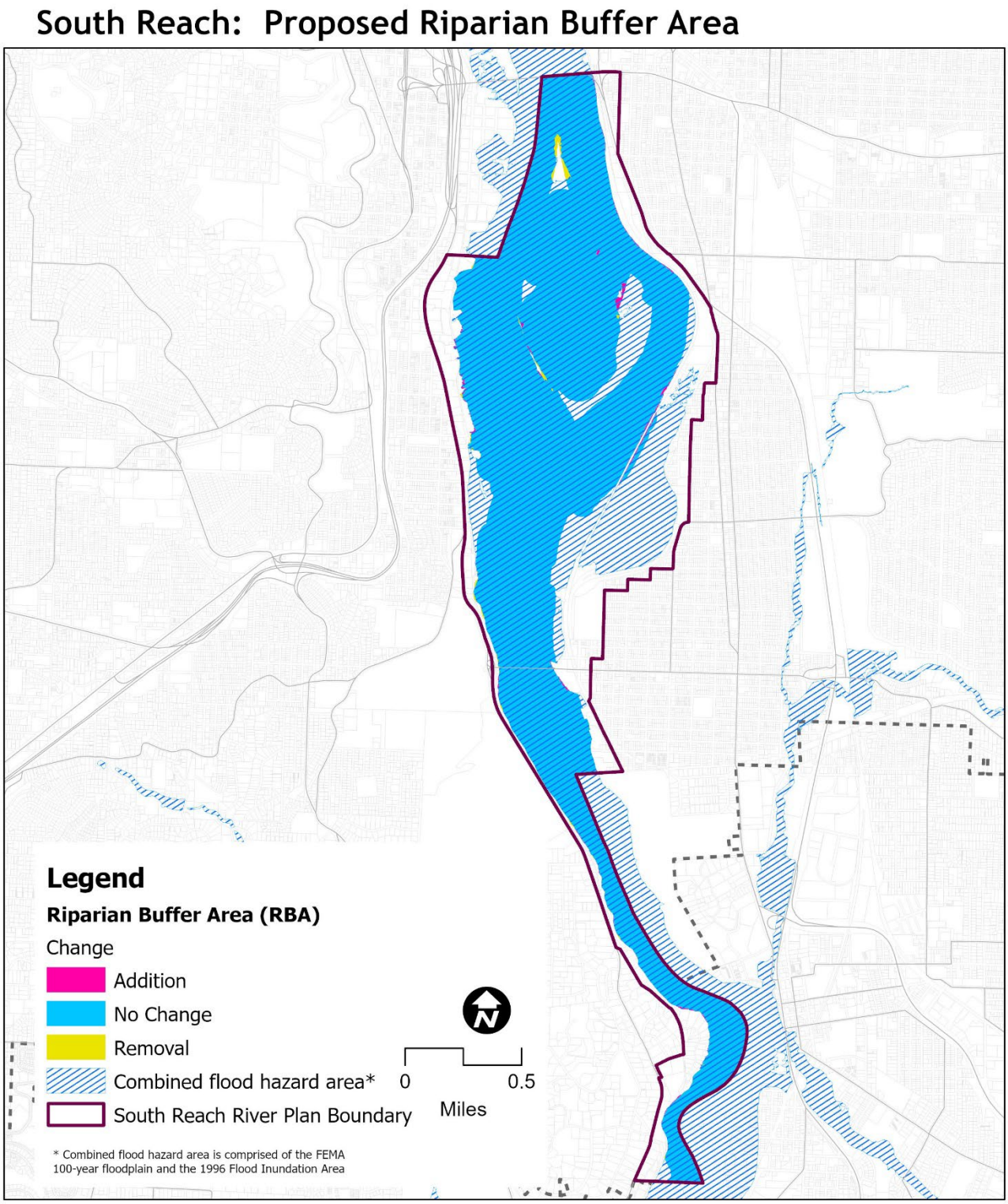
As stated previously, the River Plan / South Reach was adopted in December of 2020 and applied the River overlay zones to the Willamette River South Reach. Updates in the plan included the incorporation of floodplain management requirements consistent with the FEMA BiOp and Draft Implementation Plan, as well as the application of the River Environmental overlay zone to all South Reach floodplains and the implementation of riparian buffer area-specific requirements, among others. In that plan, the River Environmental overlay zone was applied to floodplains the FEMA 100-year floodplain and the Metro-defined 1996 Flood Inundation Area.

With the completion of the new Modeled Willamette River 1996 Flood Extent, the combined flood hazard area in the Willamette River South Reach needs to be updated to include this newly-defined flood area. The Modeled Willamette River 1996 Flood Extent will replace the 1996 Flood Inundation Area in the Willamette River combined flood hazard area.

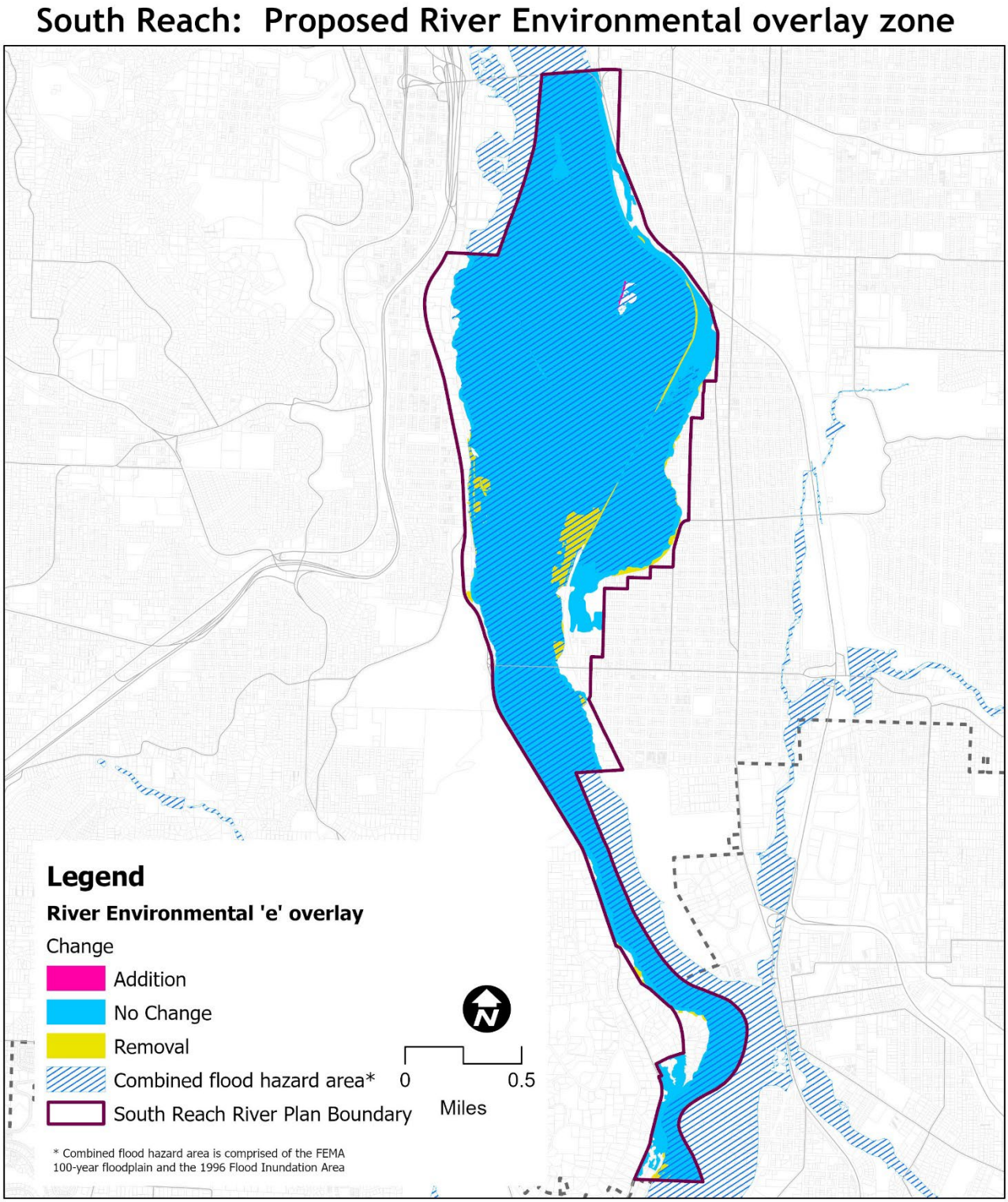
This updated combined flood hazard area has been used to amend the extent of the Willamette River South Reach riparian buffer area and River Environmental overlay zone. Utilizing the updated combined flood hazard area, the extent of the riparian buffer area has been expanded in some locations and reduced in others (see Map 5). The large majority of the riparian buffer area is unchanged. Similarly, updates to the extent of the River Environmental overlay zone are proposed to account for the incorporation of the Modeled Willamette River 1996 Flood Extent into the combined flood hazard area.

In addition to addressing the areas identified in the Modeled Willamette River 1996 Flood Extent, the River Environmental overlay zone is proposed to be removed from developed floodplains that are beyond the riparian buffer area and the minimum 100 feet from top of bank application that was included in the River Plan/South Reach. This change recognizes that applying the River Environmental overlay zone to developed floodplains (outside the riparian buffer area or minimum 100 feet from top of bank) does not contribute to the protection or expansion of natural resources and would only result in additional development process and review costs for applicants. All proposed changes to the River Environmental overlay zone are shown in Map 6.

Map 5. Proposed Changes to the Riparian Buffer Area in the Willamette River South Reach



Map 6. Proposed changes to the River Environmental Overlay Zone in the Willamette River South Reach



B. Floodplain Code Amendments

Overview

The FEMA BiOp and Draft Implementation Plan provided clear recommendations on the updates to floodplain regulations needed to avoid impacts on threatened and endangered salmon and steelhead species. As stated previously, to comply with FEMA guidance, the City has established a long-term goal of applying environmental regulations to floodplains within the riparian buffer areas of the Willamette River, Columbia River and portions of the Columbia Slough, as well as all undeveloped floodplains elsewhere in the city. This effort began with the updates included in the River Plan / South Reach and will continue through subsequent phases. Proposed amendments to the zoning maps were discussed in the previous section. The map amendments are coupled with a number of amendments to the Zoning Code that modify habitat mitigation requirements for floodplain development.

A property's zoning map designation (base zone, overlay zone, plan district, etc.) guides how development can be conducted on the site and what mitigation, if any, must be completed to offset development impacts. A base zoning designation is applied to all properties in the city and establishes baseline zoning requirements for development. There are no proposed changes to base zones as part of this Floodplain Resilience Plan effort.

In addition to base zone requirements, a property may also be subject to the requirements of an overlay zone. Overlay zones are applied in combination with a base zone to address specific subjects that may be applicable in a variety of areas in the City. A given parcel may have more than one overlay zone applied, in addition to the base zone, depending on a variety of considerations. In general, a development is subject to all of the regulations that apply. However, if an overlay zone regulation conflicts with a base zone regulation, the overlay zone regulation take precedence.

The City of Portland has six environmental-related overlay zones: River Environmental (e), River Natural (n), River Water Quality (q), Environmental Protection (p), Environmental Conservation (c), and the Pleasant Valley Natural Resource (v) overlay.

Except for within the South Waterfront subdistrict of the Central City plan district, the environment-related River overlay zones are applied along the Willamette River Central Reach and South Reach. The River Environmental overlay zone replaced the River Natural and River Water Quality overlay zones in the Central Reach and South Reach as a part of the *Central City 2035 Plan* and *River Plan / South Reach*, respectively. The River Environmental overlay zone ensures that development impacts to important natural resources are avoided to the extent possible and, when impacts can't be avoided, mitigation is required. Any loss of habitat features and/or functions must be mitigated. As a part of the *River Plan / South Reach*, additional mitigation for development impacts in the South Reach riparian buffer area were established. The riparian buffer area encompasses land in the combined flood hazard area (i.e., the

FEMA 100-year floodplain or Modeled Willamette River 1996 Flood Extent) that is within 170 feet of the top of bank. If the floodplain does not extend to 170 feet from the top of bank, the riparian buffer area will be less than 170 feet from the waterway. As discussed previously, development in the riparian buffer area is required to offset all impacts to natural resources, as required wherever the River Environmental overlay zone is applied, and also demonstrate an improvement in one of two floodplain-related riparian functions: (1) Bank function, and control of sediments, nutrients and pollution; or (2) Streamflow and moderation and flood storage. The River Environmental overlay zone mitigation requirements are consistent with the FEMA BiOp and Draft Implementation Plan. The North Reach of the Willamette River is still subject to the requirements of the Greenway overlay zones chapter (33.440).

Development in the South Waterfront subdistrict of the Central City plan district is guided by regulations in 33.510.253, Greenway Overlay Zone in South Waterfront Subdistrict. Much of the South Waterfront combined flood hazard area is contained within the South Waterfront greenway overlay zone, and updates to the floodplain management requirements in South Waterfront are therefore proposed in the greenway overlay zone. Existing requirements within 33.510.253 are largely focused on proposed development within the South Waterfront Greenway Area, which includes the area from ordinary low water to 100 feet landward of top of bank. Land use reviews for proposed development in the South Waterfront Greenway must meet the approval criteria set out in 33.851, South Waterfront Greenway Review.

There are two environmental overlay zones applied throughout much of the rest of the city, the Environmental Protection and Environmental Conservation overlay zones. The Environmental Protection overlay zone is applied to the most critical natural resources where new development and impacts should be avoided, except under rare circumstances. The Environmental Protection overlay zone is typically applied to and along rivers, streams, drainageways and wetlands, as well as areas within roughly 50 feet of waterbodies. The Environmental Protection overlay zone may be applied to areas that provide unique upland habitat or are at a high risk of natural hazards like flooding, landslides or wildfire. The Environmental Conservation overlay zone is applied to significant natural resources where development can be designed to minimize impacts to the resources and mitigation for unavoidable impacts can often be achieved through on-site actions. The Environmental Conservation overlay zone is typically applied to vegetated areas that are located more than 50 feet from open waterbodies. Development that minimizes impacts to natural resources may be permitted in the Conservation overlay zone but mitigation for impacts is required

Proposed Code Updates

There are a number of proposed updates for the regulations described in the previous section, including to the regulations in the River Environmental overlay (33.475) and the Environmental overlay zones (33.430). A summary of these changes is provided below. The details of the proposed Zoning

Code amendments can be found in Chapter VI, Implementation, C. Zoning Code Amendments (see page 75).

There are no changes proposed for the Greenway overlay zones or the Pleasant Valley Natural Resource overlay zone as a part of this project. Updates to North Reach Greenway overlay zone regulations will be made as a part of a future River Plan / North Reach project.

Zoning Code Definitions

- Add a definition of "combined flood hazard area" to 33.910, Definitions, and replace references to specific floodplains (e.g., FEMA 100-year, 1996 Flood Inundation Area, etc.) with the term combined flood hazard area in multiple chapters of the Zoning Code. The combined flood hazard area will be defined as the FEMA 100-year floodplain, the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management.

  Adding this definition allows for the area to be referenced throughout the code and will allow for updates to the definition as better data becomes available. This will avoid the need to update every section of the code where floodplains are referenced in the future.

South Waterfront Regulations (part of 33.510, Central City Plan District)

- Update the greenway development standards as follows:
  - Add standards for removal or pruning of vegetation outside of the riparian buffer area but in the combined flood hazard area. These standards are similar to those in the River Environmental overlay zone, which is applied to the north and south of South Waterfront. If these standards cannot be met, South Waterfront Greenway Review is required.
  - Clarify that the lighting standards apply to all development within the River General (g) overlay zone. The lighting standards currently apply to the area but are nested within the code in a way that implies they only apply within the greenway setback area. The language in this subsection of the code makes clear that that was not the original intent of the lighting standards.
- Update 33.851 so that South Waterfront greenway reviews can be processed through a Type II procedure rather than a Type III procedure.
- Revise the organizational structure of 33.510.253 to make the code easier to follow

River Overlay Zones (Willamette River Central and South Reaches)

- Apply the requirements of the riparian buffer area to the Willamette River Central (as identified

in a new map described in the previous section). The riparian buffer area includes land in the combined flood hazard area within 170 feet of ordinary high water. These riparian buffer area requirements are already applied in the South Reach. In the riparian buffer area, future development will be required to offset all impacts to natural resources, as required wherever the River Environmental overlay zone is applied, and demonstrate an improvement in one of two floodplain-related riparian functions: (1) Bank function, and control of sediments, nutrients and pollution; or (2) Streamflow and moderation and flood storage.

Environmental Overlay Zones (throughout the city)

- In the combined flood hazard area on lots not zoned Heavy Industrial (IH), General Industrial 2 (IG2) or General Employment (EG2), the following is proposed:
    - Limit vegetation that is allowed to be removed through exemptions.
    - Increase tree replacement requirements to a minimum 3:1 ratio.
    - Prohibit use of standards if a property line adjustment will result in a property entirely within the combined flood hazard area (similar to requirement for Environmental Protection zone).

See page 45 for more information about how floodplains in IH, IG2 and EG2 zones will be addressed in a future project.

C. Restoration Projects and Mitigation Banks

Overview

To ensure that the City can achieve the habitat mitigation directives of the FEMA BiOp and fulfill City Council direction to contribute to the recovery of the species, regulatory updates (including those proposed in this plan) will need to be combined with restoration and mitigation banking programs. An underlying assumption of the City's overall program – and FEMA's guidance – is that regulatory changes alone will not provide adequate protections or improvement in habitat over time. Therefore, a key component of the City's overall strategy is to achieve long-term preservation and protection of floodplain habitat by strengthening existing floodplain restoration programs and expanding options for mitigation banking to offset development impacts in the floodplain.

The Bureau of Environmental Services plays the primary role in floodplain restoration in the city. The Bureau designs and completes restoration projects throughout the city to help protect watershed health, manage stormwater, support salmon recovery, reduce flooding and improve habitat for plants, fish and wildlife species, including those that are considered threatened or endangered. Restoration work strives to repair the damage done to our environment and natural systems (like rivers and

streams) by human development and activities, and protect people, property and city assets from flooding, especially in the face of climate change.

The Bureau of Environmental Services frequently restores in-stream habitat and floodplains, focusing on floodplains that are at a high risk for small-scale, but frequent flooding and areas with high potential habitat for salmon spawning and rearing. Healthy, connected floodplains protect people, property and habitat from fast moving, polluted stormwater, provide safe places for fish and other aquatic life to seek refuge during a flood, and allow for infiltration that cleans and cools the water while also replenishing groundwater that provides important sources of stream flows during the hot, dry summer months. Typical floodplain habitat improvements include, but are not limited to, reconnecting rivers and streams to existing or newly restored habitat and removing fish passage barriers, creating or enhancing riparian wetlands, and providing complex spawning and rearing grounds, shallow water habitat, and shady, vegetated, slow-moving off-channel areas which offer cold water refugia for fish as they rear, migrate and spawn in and through Portland. These projects are often voluntary efforts to meet the bureau charter, mission, and values, and are guided by watershed and asset management plans and other bureaus' watershed priorities. Because these projects are mostly voluntary, the City cannot provide assurances to FEMA that the projects will continue to happen over time.

Increased certainty on future restoration projects is necessary to achieve consistency with the FEMA BiOp and Draft Implementation Plan – and the Endangered Species Act, more generally. To do that, the City must institutionalize how restoration sites for Portland's 13 protected salmon and steelhead species will be identified, acquired and restored, which is currently proposed through strengthening the City's charter. Adequate funding must be provided for acquisition and restoration of these sites and to ensure that the habitat benefits of the restoration program are quantified as a contributor to the City's overall FEMA BiOp compliance strategy, which are currently captured by BES' new Portfolio structure and process and in the City's Mitigation Action Plan.

In addition to a floodplain restoration program, increasing the availability of both private and (potentially) public mitigation banks as an option for off-site mitigation of development impacts is an important step in providing additional flexibility in meeting expanded or increased mitigation requirements. Mitigation banks can be a more effective option because they focus mitigation investments into larger mitigation projects designed and managed by professionals with long term stewardship obligations, as compared to on-site mitigation or other off-site options.

Mitigation banks may provide credits for habitat impacts and/or flood storage losses. There are three established mitigation banks within the City of Portland: the Linnton Mill restoration, the Harborton habitat restoration, and the Alder Creek restoration project. Harborton and Alder Creek are currently only available for impacts identified through a Natural Resource Damage Assessment (NRDA) process at this time. These private banks can be approved by the U.S. Army Corps of Engineers to sell credits

under the Clean Water Act's Section 404 permit system and by the Oregon Department of State Lands to sell credits under the Removal/Fill permits. The Linnton Mill restoration is slated to provide credits to offset private development. Owners of the Linnton Mill restoration have applied for approval to sell credits for impacts related to Section 404 permits. Because mitigation banks are typically large-scale, self-financed, and are intended to support regulatory market demands, effective planning and financing of mitigation banks can be complex and may sometimes benefit from or require a jurisdictional partner for feasibility.

City of Portland staff have been working with NMFS' representatives of the Portland Harbor Trustee Council to develop an approach where these existing mitigation banks will be able to sell flood storage credits to support future changes to the City's Building Code (Title 24), Chapter 24.50 requirements for fill and structures placed in the floodplain. An accounting methodology for these credits has been developed by NMFS and it is expected that future projects will be able to utilize them to meet City compensatory excavation (cut) mitigation requirements. The details of this process will be addressed as the Chapter 24.50 update project moves forward.

Proposed Updates

Though availability of mitigation banks is currently limited, updates were made to the Zoning Code as a part of the *River Plan / South Reach* to allow for the use of mitigation banks for development impacts to existing habitat areas (in 33.475, River Overlay Zones, and 33.865, River Review). Similar updates for the Environmental overlay zone will be a part of the Economic Opportunities Analysis Zoning Code update package.

The City is currently working on the development of a potential pilot mitigation bank at the east end of the Hawthorne Bridge (referred to as Eastbank Crescent), as a part of the OMSI Master Plan development. An inter-bureau Finance Working Group has been established to evaluate different funding options and bank development structures that could be used by the City for the Eastbank Crescent mitigation bank. The Finance Working Group is expected to provide recommendations on how the City should move forward by the end of 2022. The addition of this mitigation bank will be an important component of the City's successful implementation of the FEMA BiOp guidance, by providing another off-site option for meeting habitat and compensatory excavation (cut) mitigation requirements. As a part of this effort, the City is also partnering with OMSI, Tribal Partners, and state agencies to identify barriers and opportunities for developing a robust mitigation banking program within the city limits.

Specific actions proposed to implement these changes for restoration and mitigation sites can be found in the Action Plan in Chapter VI., A. Action Plan (see page 59).

VI. Implementation

This chapter includes an Action Plan, specific amendments to the applicable natural resource protection plans to support implementation of the proposed Zoning map changes and the Zoning Code amendments previously described in the Floodplain Code Amendments section (see page 53) of Chapter V. Section A, Action Plan, identifies a variety of actions needed to support and complement the implementation of the aims of the plan. Section B, Amendments to the Natural Resource Protection Plans, identifies the necessary updates to existing natural resource protection plan that were included in the Ezone Map Correction Project (adopted to in May of 2022) to support the proposed application of the Environmental Conservation overlay in the Fanno and Tryon Creek floodplains. Section C, Zoning Code Changes, presents the detailed changes to existing code, with new code underlined and changes to existing code in strikethrough.

A. Action Plan

The following action chart describes projects, programs and other activities that are needed by City bureaus, agency partners, community organizations and others to effectively implement the Floodplain Resilience Plan. The action chart is adopted with the understanding that it is a starting point and that some actions may need to be refined, amended or replaced over time. Actions items are adopted by resolution and are non-binding.

Chart Order

The action charts are grouped by categories: 1) Mapping and Modeling; 2) Regulatory Updates; 3) Restoration and Mitigation; and 4) Property Owner and Renter Assistance Programs.

Action Identifier

The Code column provides the action's unique identifier. Each code begins with one letter, which corresponds to the category identified above. The letter code for each of the categories is as follows:

Mapping and Modeling	MM
Regulatory Updates	RG
Mitigation and Restoration	MR
Property Owner and Renter Assistance Programs	PR

The category code for each action is then followed by a number. The numbering of actions does not in any way correlate with importance or a priority ranking system.

Timeline

Each action identifies a proposed implementation timeline: Adopt with Plan, Ongoing, Next 5 years, and 6 – 20 years.

Implementers

Each action identifies one or more lead and partner implementers. Implementers include:

BDS	Portland Bureau of Development Services
BES	Portland Bureau of Environmental Services
BPS	Portland Bureau of Planning and Sustainability
City	City of Portland
County	Multnomah County
Metro	Metro (regional government)
OGR	Office of Government Relations
PBEM	Portland Bureau of Emergency Management
PHB	Portland Housing Bureau
FEMA	Federal Emergency Management Agency
Port	Port of Portland
Private	Private sector
Public	General public
Tribal	Tribal governments
USACE	United States Army Corps of Engineers

Action Plan

#	ACTION	ADOPT WITH PLAN	NEXT 5 YEARS	6-20 YEARS	ONGOING	LEAD	PARTNER(S)
MAPPING AND MODELING							
MM-1	**Floodplain map update by FEMA.** Work with other governmental entities with jurisdiction along the Willamette River to advocate for the prioritization of FEMA's adoption of a new 100-year floodplain extent using the outcomes of the U.S. Army Corps of Engineers (as a part of the Oregon Silver Jackets Team) 2022 Willamette River modeling effort.		✓			BPS	FEMA OGR Metro Other Lower Willamette River jurisdictions
MM-2	**Flood Insurance Study and Flood Insurance Rate Map (FIRM) update.** Work with FEMA to produce an updated Willamette River Flood Insurance Study and Flood Insurance Rate Map (FIRM) then complete the following: • Update the City's adopted 100-year flood hazard area and the Metro Title 3, Water Quality and Flood Management, maps to incorporate its modeled extent • Remove all references to the Modeled Willamette River 1996 Flood Extent from the Zoning Code and Title 24 Chapter 24.50, Flood Hazard Areas.			✓		BPS BDS	USACE FEMA Metro
MM-3	**Johnson Creek flood mapping and flood storage mitigation.** Continue efforts to reduce flood risk and impacts and update floodplain maps in the Johnson Creek watershed by: • Improving the accuracy of existing Johnson Creek floodplain maps, including in areas around BES restoration sites • Analyze the impacts and benefits of allowing off-site compensatory cuts in the floodplain.		✓			BES	USACE FEMA

#	ACTION	ADOPT WITH PLAN	NEXT 5 YEARS	6-20 YEARS	ONGOING	LEAD	PARTNER(S)
MM-4	**Future Climate Change Map**. Utilize the U.S Army Corps of Engineers 2021/22 Lower Willamette River and the Columbia River Treaty models as the basis for developing a model to estimate future flood risk due to climate change along the Willamette River, Columbia Slough and Columbia River. Floodplain regulations should then be applied to climate change-related flood risk area.		✓			BES	FEMA USACE BPS
REGULATORY UPDATES							
RG-1	**Title 24, Chapter 24.50.** Amend Title 24, Chapter 24.50, Flood Hazard Areas, to incorporate FEMA's compensatory excavation (cut) guidance included in the FEMA BiOp and Draft Implementation Plan. Updates are expected to include the following: • Add a definition for "flood displacement" to require compensatory excavation (cut) for the placement of fill (i.e., soil) and structures in the floodplain. Currently, excavation is required only for placement of fill. • Increase compensatory excavation (cut) requirements for the high hazard area (2:1), riparian buffer area (1.5:1) and undeveloped floodplain (1.5:1). Developed floodplains will still be subject to balanced cut/fill requirements (1:1). • Allow for the use of mitigation bank credits to satisfy compensatory excavation (cut) requirements and define a process for tracking mitigation bank credits over time.		✓			BPS	BDS BES Port Public Private

#	ACTION	ADOPT WITH PLAN	NEXT 5 YEARS	6-20 YEARS	ONGOING	LEAD	PARTNER(S)
RG-2	**Economic Opportunities Analysis.** As a part of the Economic Opportunities Analysis, complete the following: • Evaluate and apply, as deemed appropriate, the City's environmental overlay zones (either Environmental Conservation or River Environmental) to the riparian buffer areas of the Willamette River North Reach, the Columbia River and portions of the Columbia Slough, as well as all undeveloped floodplains landward of the riparian buffer area. • Consider and account for the expected increased compensatory excavation (cut) requirements (see RG-1) in the City's industrial and employment areas (e.g., Columbia Corridor and Willamette River North Reach).		✓			BPS	BDS BES Port Public Private
RG-3	**River Plan / North Reach**. After adoption of an updated Economic Opportunities Analysis, initiate the River Plan/North Reach project. This project will establish a new 20-year vision and update the policies, regulations, and future actions in the area.		✓			BPS	BDS BES Port Public Private

#	ACTION	ADOPT WITH PLAN	NEXT 5 YEARS	6-20 YEARS	ONGOING	LEAD	PARTNER(S)
RG-4	**Johnson Creek Floodplain Resiliency Project.** Initiate a floodplain resiliency-focused project for the Johnson Creek watershed with the following components: • Apply Environmental overlay zones to all undeveloped floodplains in Johnson Creek and update relevant portions of the Zoning Code to ensure tree and vegetation requirements are consistent with the FEMA Final Implementation Plan, including in the Johnson Creek Plan District. • Review and amend, as needed, the Johnson Creek compensatory excavation (cut) requirements in Title 24 Chapter 24.50, Flood Hazard Areas, to be consistent with the FEMA Final Implementation Plan.		✓			BPS	BDS BES Public Private
MITIGATION AND RESTORATION							
MR-1	**Floodplain habitat and flood storage mitigation banks.** Identify and evaluate potential locations for future floodplain habitat and flood storage mitigation banks, including at Eastbank Crescent as a part of the OMSI Master Plan development, and determine the appropriate level of City involvement in establishing and maintaining these mitigation banks.		✓			BES	BPS BDS
MR-2	**Floodplain-focused restoration program.** Establish processes and ongoing funding for a floodplain-focused restoration program to meet the FEMA BiOp requirements and continue to support salmon and steelhead recovery in the city.		✓			BES	

#	ACTION	ADOPT WITH PLAN	NEXT 5 YEARS	6-20 YEARS	ONGOING	LEAD	PARTNER(S)
MR-3	**Floodplain land acquisition program.** Identify grants or other funding sources to expand the Johnson Creek Willing Seller Program and/or the Watershed Land Acquisition Program to more directly address the purchase of priority floodplain properties outside of the Johnson Creek watershed.				✓	BES	FEMA PBEM Parks & Recreation BPS
MR-4	**Post-disaster land acquisition program.** Develop and implement a post-disaster land acquisition strategy to identify properties that are subject to high flood risk and establish a mechanism for ongoing funding for this program.		✓			PBEM	BES FEMA
PROPERTY OWNER AND RENTER ASSISTANCE PROGRAMS							
PR-1	**Tools to increase climate and flood resilience.** Explore options for developing financial tools to help property owners improve climate and flood resilience, such as a revolving loan fund or a program to assist property owners in obtaining elevation certificates to remove them from floodplain insurance requirements. Explore limitations and conditions for different uses, year of property acquisition, etc.		✓			BPS	PHB FEMA County

B. Updates to Applicable Natural Resource Protection Plans

This section identifies specific proposed amendments to volumes 1 and 2 of the Environmental Overlay Zones Map Correction Project to update the existing natural resource protection plans that apply to the Fanno Creek and Tryon Creek watersheds (See Section V, Overview of Recommendations, A. Mapping). Specifically, the following parts of the Ezone Map Correction Project documents are proposed for amendments:

- Volume 1: Project Overview
- Volume 2, Part C: Tryon Creek and Southwest Hills East Natural Resources Inventory and Protection Decisions

Amendments to Environmental Overlay Zone Map Correction Project adopted documents:

Volume 1: Project Overview

Amend Table 5: Tryon Creek and Southwest Hills East—Summary of Decisions for SW15 and SW16 (added text shown in gray highlight).

Table 5: Tryon Creek and Southwest Hills East – Summary of Decisions

Resource Site	Natural Resource Feature	Environmental Overlay Zone
SW15	Stream channels to top-of-bank	protection (p)
	Wetlands	protection (p)
	Land within 25 feet of the top-of-bank of streams	protection (p)
	Land within 25 feet of wetlands	protection (p)
	Land between 25 feet and 50 feet of the top-of-bank of streams	conservation (c)
	Land between 25 feet and 50 feet of the top-of-bank of wetlands	conservation (c)
	Forest vegetation in subdivision at SW 31st Ave, and forest vegetation in neighborhood between SW 41st and SW 43rd Ave	conservation (c)
	Vegetated flood area	conservation (c)
SW16	Stream channels to top-of-bank	protection (p)
	Wetlands	protection (p)
	Land within 50 feet of the top-of-bank of streams	protection (p)
	Land within 50 feet of wetlands	protection (p)
	In Marshall Park, forest vegetation contiguous to but more than 50 feet from the top-of-bank of streams	protection (p)
	Outside Marshall Park, forest vegetation contiguous to but more than 50 feet from the top-of-bank of streams	conservation (c)
	Land between 50 and 75 feet of streams and wetlands	conservation (c)
	Vegetated flood area	conservation (c)

Amend Table 6: Fanno Creek—Summary of Decisions for FC4 and FC9

Table 6: Fanno Creek – Summary of Decisions		
Resource Site	**Natural Resource Feature**	**Environmental Overlay Zone**
FC4	Stream channels to top-of-bank	protection (p)
	Wetlands	protection (p)
	Land within 25 feet of the top-of-bank of streams	protection (p)
	Land within 25 feet of wetlands	protection (p)
	Inside parks, land between 25 and 50 feet of wetlands	protection (p)
	Outside of parks, land between 25 and 50 feet of wetlands	conservation (c)
	Land between 25 feet and 50 feet of the top-of-bank of streams	conservation (c)
	Vegetated flood area	conservation (c)
FC9	Stream channels to top-of-bank	protection (p)
	Wetlands	protection (p)
	Land within 50 feet of the top-of-bank of streams	protection (p)
	Land within 25 feet of wetlands	protection (p)
	Within parks, forest vegetation contiguous to but more than 50 feet from the top-of-bank of streams and extending to 100 feet from top-of-bank	protection (p)
	Within parks, forest vegetation contiguous to but more 100 feet from the top-of-bank of streams	conservation (c)
	Within parks, land between 25 and 50 feet of wetlands	protection (p)
	Outside parks, land between 25 and 50 feet of wetlands	conservation (c)
	Outside parks, forest vegetation contiguous to but more than 50 feet from the top-of-bank of streams	conservation (c)
	Vegetated flood area	conservation (C)

Volume 2, Part C: Tryon Creek and Southwest Hills East, Natural Resources Inventory and Protection Decisions

Amendment #1 Amend page 253 (Resource Site No.: SW15; Site Name: Falling Creek Headwaters) as shown below. Added text shown in gray highlight:

consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

There is development located in the floodplain. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

There is a roughly 5-acre patch of forest vegetation located along SW Dickinson St and another roughly 5-acre patch of forest vegetation located along SW Pasadena St. These forest patches extend across multiple properties. The forest patches are located immediately uphill from the headwaters of streams and wetlands that feed into Falling Creek. The forests provide multiple functions including storage of water and reduction of overland flows, which that manages and mitigates flow within the streams and wetlands. This reduces the risk of flooding and erosion in lower Falling Creek. Impacts to the forest should be limited.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and Goal 5 Compliance, and the resource site-specific evaluation for SW15, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone ('p' zone) to stream channels from top-of-bank to top-of-bank, wetlands and land within 25 feet of stream top-of-bank or wetlands.
2. Apply a conservation overlay zone ('c' zone) to land between 25 and 50 feet of stream top-of-bank or wetlands.
3. Apply a conservation overlay zone ('c' zone) to the area of forest vegetation located in the two conservation tracts on the west and east side of SW 31st Ave; and between SW 41st Ave and SW 43rd Ave.
4. Apply a conservation overlay zone ('c' zone) to vegetated flood area.
5. Allow conflicting uses within all other areas containing significant natural resources.

Amendment #2: Amend page 270 (Resource Site No.: SW16; Site Name: Marshall Park/Capitol Hill) as shown below. Added text shown in gray highlight:

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3and Goal 5 Compliance, and the resource site-specific evaluation for SW16, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone ('p' zone) to stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank or wetlands.
2. Inside Marshall Park, apply a protection overlay zone ('p' zone) to areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank.
3. Outside Marshall Park, apply a conservation overlay zone ('c' zone) to land between 50 and 75 feet of stream top-of-bank; and within areas of forest vegetation that are contiguous to but more than 75 feet from stream top-of-bank.
4. Apply a conservation overlay zone ('c' zone) to vegetated flood area.
5. Allow conflicting uses within all other areas containing significant natural resources.

Volume 2, Part D: Fanno Creek, Natural Resources Inventory and Protection Decisions

Amendment #1: Amend page 85 (Resource Site No.: FC4; Site Name: Fanno Creek West) as shown below. Added text shown in gray highlight:

social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2.5, R2 and R1 base zones. Commercial uses are allowed in the CE, CM2 and CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site FC4, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

There is development located in the floodplain. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

Amendment #2: Amend page 86 (Resource Site No.: FC4; Site Name: Fanno Creek West) as shown below. Added text shown in gray highlight:

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and Goal 5 Compliance, and the resource site-specific evaluation for FC4, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone ('p' zone) to stream channels from top-of-bank to top-of-bank, wetlands and land within 25 feet of stream top-of-bank or wetlands.
2. Within public parks, apply a protection overlay zone ('p' zone) to land within 25 and 50 feet of stream top-of-bank or wetlands.
3. Outside of public parks, apply a conservation overlay zone ('c' zone) to land within 25 and 50 feet of stream top-of-bank or wetlands.
4. Apply a conservation overlay zone ('c' zone) to vegetated flood area.
5. Allow conflicting uses within all other areas containing significant natural resources.

Amendment #3: Amend page 165 (Resource Site No.: FC9; Site Name: Vermont Tributary) as shown below. Added text shown in gray highlight:

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2.5, R2 and R1 base zones. Commercial uses are allowed in the CE, CM2 and CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site FC9, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

There is development located in the floodplain. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

Amendment #4: Amend page 166 (Resource Site No.: FC9; Site Name: Vermont Tributary) as shown below. Added text shown in gray highlight:

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3, Natural Resources Inventory, Volume 4, Title 13 and Goal 5 Compliance, and the resource site-specific evaluation for FC9, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone ('p' zone) to stream channels from top-of-bank to top-of-bank, wetlands and land within 50 feet of stream top-of-bank or 25 feet of wetlands.
2. Within Gabriel Park, apply a protection overlay zone ('p' zone) to land between 25 and 50 feet of wetlands; and within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank extending to 100 feet from streams.
3. Within Gabriel Park, apply a conservation overlay zone ('c' zone) to areas of forest vegetation that are contiguous to but more than 100 feet from stream top-of-bank.
4. Outside of Gabriel Park, apply a conservation overlay zone ('c' zone) to land between 25 and 50 feet of wetlands; and within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank.
5. Apply a conservation overlay zone ('c' zone) to vegetated flood area.
6. Allow conflicting uses within all other areas containing significant natural resources.

C. Zoning Code Amendments

Substantive Amendments

Housekeeping Amendments: References to the "Combined Flood Hazard Area"

Substantive Amendments

Commentary

33.430 Environmental Zones

The National Marine Fisheries Service (NMFS) determined that the Federal Emergency Management Agency's (FEMA) implementation of the National Flood Insurance Program (NFIP) in Oregon jeopardizes the continued existence of protected salmon and steelhead in a Biological Opinion released in April 2016 (referred to as the FEMA BiOp). The FEMA BiOp provides guidance to FEMA on amending minimum NFIP criteria to ensure that they adequately protect floodplain habitat and flood storage, consistent with the Endangered Species Act (ESA). FEMA does not have the authority to approve or deny development in the floodplain therefore changes to local development regulations must occur to effectively implement the FEMA BiOp guidance.

FEMA worked with Oregon jurisdictions to develop the *Oregon Implementation Plan for NFIP-ESA Integration*, which aims to respond to local conditions while protecting flood storage and floodplain habitat and improving conditions for salmon and steelhead. Per the Draft Implementation Plan, Portland must demonstrate that, collectively, development, mitigation and restoration efforts result in no net loss of floodplain habitat and flood storage capacity. ESA-compliant development regulations, in combination with habitat restoration projects, will help ensure Portlanders have on-going access to the Federally backed flood insurance and access to financial assistance for flood recovery.

Combined Flood Hazard Area

Throughout this chapter, the proposed amendments reference the "combined flood hazard area," which is the area comprised of the farthest landward extent of the FEMA 100-year floodplain (area that has a one percent chance of flooding in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management.

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to advocate for FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the 100-year floodplain and incorporate it into the City's combined flood hazard area. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.430 Environmental Zones

430

Sections:

Commentary

***Note:* The existing zoning code text used for these code amendments incorporates code changes adopted as a part of Ezones Map Correction Project. The Ezone Map Correction Project was adopted in May of 2022 and will go into effect on October 1, 2022.**

33.430.070.B.

Replats are added to the list of actions to which these regulations apply. Regulations for replats are found in Chapter 33.675, which was added to the Zoning Code as a part of the Residential Infill Project. Replats function similar to property line adjustments so the environmental overlay zone regulations will apply to replats in a similar way.

33.430.080.D.1

This amendment removes the exemption for replacement of existing structures within the combined flood hazard area. This change will ensure that the impacts of these activities are adequately mitigated, either by meeting the development standards or going through an environmental review.

33.430.070 When These Regulations Apply
Unless exempted by Section 33.430.080, below, the regulations of this chapter apply to the following:

A. Development;

B. All land divisions, ~~and~~ property line adjustments, and replats except for middle housing land divisions. The regulations of this chapter do apply to development proposed on a middle housing land division site;

C.-G. [No change]

33.430.080 Items Exempt From These Regulations
The following items, unless prohibited by Section 33.430.090, below, are exempt from the regulations of this chapter. Other City regulations such as Title 10, Erosion Control, and Title 11, Trees, must still be met.

A.-C. [No change]

D. Existing development, operations, and improvements, including the following activities:

1. Maintenance, repair, and replacement of existing structures, exterior improvements, roads, public trails, public rest points, public view areas, public interpretative facilities, and utilities. Replacement is not exempt within the combined flood hazard area or whenever coverage or utility size is increased;

Commentary

33.430.080.D.7.a.(2), and (4)
These two amendments are intended to limit the exemptions for removal and pruning of trees to non-native and non-nuisance trees located outside of the combined flood hazard area, except in the IH, IG2 and EG2 zones. To ensure the no-net-loss threshold is achieved, removal of all native and non-nuisance trees within the combined flood hazard area must be subject to tree replacement standards and can no longer be exempt.

The City of Portland Economic Opportunities Analysis (EOA), most recently adopted in 2016 as a supporting document for the *2035 Comprehensive Plan*, identified a small amount of industrial land capacity in the combined Harbor Access Lands/Harbor-Airport geography. Much of this land capacity has been absorbed since EOA adoption and the Bureau of Planning and Sustainability is in the process of developing a new EOA.

To ensure continued compliance with Statewide Planning Goal 9 while the new EOA is under development, the amended regulations proposed in this chapter will not apply to lots in three industrial and employment zones: Heavy Industrial (IH), General Industrial 2 (IG2), and General Employment 2 (EG2). Once the EOA update is complete, BPS expects to conduct an additional legislative project to apply these new regulations to those three zones.

33.430.080.D.10.
This amendment no longer exempts development over existing paved surfaces if the development is in the combined flood hazard area. Approval of development through standards or environmental review will ensure that any impacts within the combined flood hazard area are mitigated to achieve the no-net loss standard in floodplain habitat. The exception for the three zones described above - Heavy Industrial (IH), General Industrial 2 (IG2), and General Employment 2 (EG2) – apply in this case, as well. Once the Economic Opportunities Analysis is complete, these requirements are expected to be applied to all zoning designations.

33.430.080.D.11.
Replats are added to this exemption, along with land divisions and property line adjustments, when no additional building sites are created and no development is proposed. Replats function similar to property line adjustments so replats have been added to all requirements of this chapter that apply to property line adjustments.

33.430.080.E.5.d.
This amendment differentiates tree removal within the combined flood hazard area from tree removal outside the area. In addition to not removing native trees, non-nuisance trees must also not be removed in the combined flood hazard area. Just like native trees, non-native non-nuisance trees provide riparian corridor and wildlife habitat functions. Tree removal requirements outside of the combined flood hazard area remain the same.

The exception for the Heavy Industrial (IH), General Industrial 2 (IG2), and General Employment 2 (EG2) zones – described in the commentary for changes to 33.430.080.D.7.a. - apply in this case.

2-6. [No change]

7. Removing or pruning the following trees and plants:

   a. Trees. The following trees may be removed or pruned if no development or other activities subject to the regulations of this chapter are proposed and all removal or pruning activities are surrounded or protected to prevent erosion and sediment from leaving the site or negatively impacting resources on the site. Permanent erosion control, such as replanting areas of bare soil must be installed after removal or pruning:

      (1) [No change]

      (2) Non-native non-nuisance trees ~~and~~located outside of the combined flood hazard area except in the IH, IG2 and EG2 zones where non-native non-nuisance trees and plants can be removed within and outside of the combined flood hazard area;

      (3) ~~t~~Trees listed on the Nuisance Plants List;

      (~~3~~4) Trees or portions of trees that are located within 10 feet of an existing building or structure attached to a building, such as a deck, stairs, ~~and~~or carport. This exemption does not apply to tree removal within the combined flood hazard area unless the tree to be removed is located on a lot zoned IH, IG2 or EG2; or

      (~~4~~5) [No change]

   b. [No change]

8.-9. [No change]

10. Development over existing paved surfaces that are not within the combined flood hazard area and are over 50 feet from any identified wetland or waterbody; and

11. Land divisions, ~~or~~ Property Line Adjustments, or replats where all properties are developed, no additional building sites are created and no additional development is proposed.

E. The following new development and improvements:

1-4. [No change]

5. Temporary site investigative work including soil tests, land surveys, groundwater and water quality monitoring stations when all of the following are met:

   a.-c. [No change]

   d. No native trees are removed and within the combined flood hazard area located outside of the IH, IG2 and EG2 zones, no non-native non-nuisance trees are removed.

Commentary

33.430.080.E.10.c. and d. and 33.430.080.E.11.d. and e.
These amendments again differentiate tree removal allowed inside and outside the combined flood hazard area. Within the combined flood hazard area, all native and non-native, non nuisance trees over 6 inches in diameter removed as a part of trail or fire break construction or as part of an outdoor uses must be replaced, consistent with the directives of the FEMA BiOp.

33.430.080.E.12.
Replats are being added to this exemption, along with land divisions and property line adjustments, when criteria a. through c. are met. Replats function similar to property line adjustments so replats have been added to the requirements of this chapter that apply to property line adjustments.

6-9. [No change]

10. Additional disturbance for gardens, play areas surfaced with grass, groundcover plants, bark chips, sand or gravel, and septic systems when the added disturbance area meets all of the following:

    a.-b. [No change]

    c. Outside the combined flood hazard area, ~~N~~no native trees 6 or more inches in diameter are removed;

    d. Within the combined flood hazard area, no native or non-native non-nuisance trees 6 or more inches in diameter are removed; and

    ~~d~~e. The disturbance area is located at least 30 feet from the top of bank of a stream or drainage and at least 50 feet from the edge of a wetland.

11. Trails and fire breaks meeting all of the following:

    a.-c. [No change]

    d. Outside the combined flood hazard area, ~~N~~no native trees 6 or more inches in diameter and no native shrubs larger than 5 feet tall may be removed;

    e. Within the combined flood hazard area, no native or non-native non-nuisance trees 6 or more inches in diameter and no native shrubs larger than 5 feet tall may be removed;

    ~~e~~f. [No change]

    ~~f~~g. [No change]

12. All land divisions with tentative plans, final plans, and recorded plats showing all of the following for every lot created or adjusted; and Property Line Adjustments and replats with plans showing all of the following for each lot adjusted:

    a.-c. [No change]

F. [No Change]

33.430.130 Permit Application Requirements

A building permit or development permit application that is reviewed for compliance with the standards of this chapter requires more information than a permit not affected by these provisions. The information in Subsections A and B must be submitted with permit application plans. Submission of the information in Subsection C is optional.

A. An existing conditions site plan including:

1.-3. [No change]

4. Within the disturbance area, all trees that are 6 or more inches in diameter must be indicated by size and species. Trees outside of the disturbance area must be shown as crown cover with an indication of species composition; ~~and~~

Commentary

33.430.130.A.6
This amendment adds the combined flood hazard area to the items to be included on the existing conditions site plan. Including the combined flood hazard area allows City staff to evaluate the impacts of proposed development to meet the no-net-loss of floodplain habitat standard.

33.430.130.B 7 and 8
Title 24 Chapter 24.50, Flood Hazards, regulates the placement of fill within the combined flood hazard area. However, in order for City staff to evaluate that all requirements can be met, including those of Title 24.50, the location and amount of both fill and proposed cut within the combined flood hazard area must be shown on the proposed site plan. In addition, key characteristics of the proposed cut must also be provided. Inclusion of this information in the proposed development plan will provide more certainty for both the applicant and the City.

5. Topography shown by contour lines at 2 foot vertical contours in areas of slopes less than 10 percent and at 5 foot vertical contours in areas of slopes 10 percent or greater~~.~~; and

6. Extent of the combined flood hazard area.

B. Proposed development plan including:

1.-4. [No change]

5. Trees proposed to be preserved and trees proposed to be removed. For trees to be preserved, tree protection, meeting the requirements of Chapter 11.60, Technical Specifications, must be shown. A tree plan may also be required to comply with Chapter 11.50, Trees in Development Situations; ~~and~~

6. Where applicable, the location and specifications of the site enhancement option with dimensions, a list of plants on the Nuisance Plants List to be removed, and a landscape plan indicating the size, species, and location of all vegetation to be planted~~.~~;

7. Location and volume (cubic yards) of fill to be placed within the combined flood hazard area; and

8. Location, volume (cubic yards), and design of proposed cut within the combined flood hazard area.

C. [No change]

33.430.140 General Development Standards

The standards below apply to all development in the environmental zones except as follows:

- Utilities subject to Section 33.430.150;
- Septic systems subject to Section 33.430.155;
- Land divisions subject to Section 33.430.160;
- Property line adjustment subject to Section 33.430.165;
- Resource enhancement projects subject to Section 33.430.170;
- Rights-of-way improvements subject to Section 33.430.175;
- Stormwater outfalls subject to Section 33.430.180;
- Flood and water control facilities subject to Section 33.430.185
- Public recreational trails subject to Section 33.430.190.; and
- Tree removal in scenic resources zone subject to Section 33.430.195.

Standards A through C and G through S apply to new development in the resource area. Standards D through S except L apply to alterations to existing development in the resource area. Only standards E, J, K, N, Q, R, and S apply to new development and alternations to existing development in the transition area~~s~~. All of the applicable standards must be met.

A.-B. [No change]

C. The disturbance area must be set back at least:

1.-4. [No change]

Commentary

33.430.140.C.5 and D.1 and 2.b
In order to avoid further loss of floodplain habitat due to development occurring without appropriate mitigation, these amendments limit where disturbance area is allowed to areas outside of the combined flood hazard area. Proposals for alterations to existing development within the combined flood hazard area will be subject to environmental review and all impacts will be mitigated to ensure no net loss of floodplain habitat.

The exception for the Heavy Industrial (IH), General Industrial 2 (IG2), and General Employment 2 (EG2), described in the commentary for changes to 33.430.080.D.7.a. (see page 82), apply in this case. Once the Economic Opportunities Analysis is complete, the requirements will be applied to these zoning designations.

Table 430-3 Tree Replacement in the Environmental Overlay Zone
Table 430-3 is updated to require a minimum of 3:1 tree replacement for all tree removal in the combined flood hazard area, which is the minimum tree replacement required by the FEMA BiOp. To ensure this minimum replacement, a note is added to prevent the use of Option B for removal of trees less than 20 inches in diameter. As with other amendments to this chapter, the minimum tree replacement ratio does not apply to lots zoned IH, IG2, or EG2.

5. Five feet from the edge of the combined flood hazard area. This standard does not apply within the IH, IG2 and EG2 zones.

~~5~~6. [No change]

D. For alterations to existing development, one of the following must be met:

1. The disturbance area does not exceed the limitations of Table 430-1 and the disturbance area is not expanded into or within five feet of the resource area of an environmental protection zone or within five feet of the combined flood hazard area located outside of the IH, IG2 and EG2 zones; or

2. If the existing disturbance area now exceeds the limitations of Table 430-1, alterations are allowed within the existing disturbance area if the following are met:

   a. [No change]

   b. Increases in building coverage and exterior improvement area are allowed if:

      (1) The increase is located outside of the combined flood hazard area. This standard does not apply within the IH, IG2 and EG2 zones; and

      (2) A~~a~~ site enhancement option is completed on the site. Applicants must show that an area equivalent in size to at least 50 percent of the area proposed for development will be enhanced following one or more of the options described in Table 430-2. If the proposed development is less than 100 square feet, the minimum enhanced area will be 50 square feet.

E.-S. [No change]

Table 430 – 3
Tree Replacement in the Environmental Overlay Zone

Size of tree to be removed (inches in diameter)	Option A (no. of native trees to be planted)	Option B (combination of native trees and shrubs)
At least 6 and up to 12	2[1]	Not applicable
More than 12 and up to 20	3	1 tree and 3 shrubs[2]
More than 20 and up to 25	5	3 trees and 6 shrubs
More than 25 and up to 30	7	5 trees and 9 shrubs
More than 30	10	7 trees and 12 shrubs

Note:

[1] Within the combined flood hazard area located outside of the IH, IG2 and EG2 zones, Option A requires at least 3 native trees to be planted.

[2] Option B is not applicable within the combined flood hazard area except on lots zoned IH, IG2 or EG2.

Commentary

33.430.165. Standards for Property Line Adjustments and Replats
Replats are added to the standards for property line adjustments. Replats function similar to property line adjustments so the standards for property line adjustments are also appropriate for replats

33.430.165.A.
This amendment ensures that existing property lines are not adjusted or replatted in such a way as to result in a parcel with no area remaining outside of the combined flood hazard area, unless the parcel was entirely within the combined flood hazard area to begin with. If a parcel is created with no area outside of the combined flood hazard area, development can only occur within the combined flood hazard, which is inconsistent with the directives of the FEMA BiOp. Only property line adjustments and replats that provide an adequate area for future development outside the combined flood hazard area will be allowed through this standard.

33.430.170.A.4. and .5.e.
These amendments correct the terminology used to refer to the Base Flood Elevation (BFE) defined by FEMA. The existing language incorrectly refers to the Base Floodplain Elevation.

33.430.165 Standards for Property Line Adjustments and Replats
The following standards apply to Property Line Adjustments (PLAs) and replats in the environmental overlay zones that do not meet one of the exemptions in 33.430.080.~~C~~D.11 or 33.430.080.~~D~~E.~~11~~12. For purposes of this section, the site of a Property Line Adjustment is the two properties affected by the relocation of the common property line. All of the standards must be met.

A. A Property Line Adjustment or replat may not result in any property being entirely in the environmental protection zone or entirely in the combined flood hazard area unless that property ~~is~~was entirely in the environmental protection zone or combined flood hazard area before the PLA or replat, or the property will be dedicated or limited by deed restriction to the uses allowed in the OS zone.

B. [No change]

33.430.170 Standards for Resource Enhancement Projects
The following standards apply to resource enhancement projects in the environmental zones. The applicant for projects that will take place within the area shown on Map 430-10 may choose to meet all of the standards of subsection A, all of the standards of subsection B, or all of the standards of subsection C. Applicants for projects that will take place outside the area shown on Map 430-10 must meet all of the standards in subsection C.

A. Bank reconfiguration. The following standards apply to bank reconfiguration projects that take place in the Bank Reconfiguration and Basking Features Area shown on Map 430-10. Slough and drainageway banks, which are the area between the ordinary high water mark and the top of bank, may be regraded when all of the following are met:

1-3. [No change]

4. The placement of large wood on the bank is allowed to improve bank stabilization if installed above the Base Flood~~plain~~ Elevation (BFE), as defined on the Federal Emergency Management Agency Flood Insurance Rate Maps;

5. Trees or snags, 6 inches or greater in diameter, that are removed landward of the new top-of-bank must be replaced and meet the following:

a.-d. [No change]

e. If the replacement trees are planted within 100 feet of the Columbia Slough main channels or secondary drainageways, the trees must be planted above the Base Flood~~plain~~ Elevation (BFE), as defined on the Federal Emergency Management Agency Flood Insurance Rate Maps.

6.-7. [No change]

8. No structures are proposed except for public viewing areas developed as part of the project. The public viewing areas must meet the following:

a.-c. [No change]

Commentary

33.430.170.A.8.d. and e. and 33.430.170.B.
These amendments differentiate tree removal within the combined flood hazard area from tree removal outside the area. Within the combined flood hazard area, native and non-native non-nuisance trees greater than 10 inches in diameter must not be removed. Any non-nuisance trees between 6 and 10 inches in diameter that are removed from the combined flood hazard area must be replaced at a three-to-one ratio. Similar to native trees, non-native, non-nuisance trees provide the riparian corridor and wildlife habitat functions, including managing stormwater, reducing flood risk, holding soils in place and reducing landslide hazards, cooling the air, and providing resting, nesting and food sources for wildlife. These functions are critical components of floodplain habitat, as identified in the FEMA BiOp. Tree removal requirements outside of the combined flood hazard area are unchanged.

33.430.170.B.3.
This amendment corrects the terminology used to refer to the Base Flood Elevation (BFE) defined by FEMA. The existing language incorrectly refers to the Base Floodplain Elevation.

d. Outside the combined flood hazard area:

(1) Native trees more than 10 inches in diameter are not removed; and

(2) ~~e.~~ Each 6 to 10-inch diameter native tree removed is replaced at a rate of three trees for each one removed. The replacement trees must be a minimum one-half inch diameter or 3 to 5-gallon conifers and be native trees listed on the Portland Plant List. All trees must be planted on the site; ~~and~~

e. Within the combined flood hazard area:

(1) Native and non-native non-nuisance trees more than 10 inches in diameter are not removed; and

(2) Each 6 to 10-inch diameter native or non-native non-nuisance tree removed is replaced at a rate of three trees for each one removed. The replacement trees must be a minimum one-half inch diameter or 3 to 5-gallon conifers and be native trees listed on the Portland Plant List. All trees must be planted on the site.

9. [No change]

B. Basking features. The following standards apply to the placement of large wood or large rocks as basking features for wildlife in the Bank Reconfiguration and Basking Features Area shown on Map 430-10. The placement of large wood or large rocks as basking features for wildlife within the Columbia Slough, Whitaker Slough, Buffalo Slough, Peninsula Canal, or other drainageways or identified wetlands is allowed when all of the following are met:

1. [No change]

2. No native trees are removed and no non-native non-nuisance trees are removed within the combined flood hazard area;

3. The basking feature is installed above the Base Flood~~plain~~ Elevation (BFE), as defined on the Federal Emergency Management Agency Flood Insurance Rate Maps;

4. [No change.]

5. No structures are proposed except for public viewing areas developed as part of the project. The public viewing areas must meet the following:

a.-c. [No change]

d. Outside the combined flood hazard area:

(1) Native trees more than 10 inches in diameter are not removed; and

(2) ~~e.~~ Each 6 to 10-inch diameter native tree removed is replaced at a rate of three trees for each one removed. The replacement trees must be a minimum one-half inch diameter or 3 to 5-gallon conifers and be native trees listed on the Portland Plant List. All trees must be planted on the site; ~~and~~

Commentary

33.430.170.C.

These amendments differentiate what tree within the combined flood hazard area from tree removal outside the area. Within the combined flood hazard area, removal of all native and non-native non-nuisance trees are either not allowed or require replacement when associated with the construction of a public viewing area. Similar to native trees, non-native, non-nuisance trees provide the riparian corridor and wildlife habitat functions, including managing stormwater, reducing flood risk, holding soils in place and reducing landslide hazards, cooling the air, and providing resting, nesting and food sources for wildlife. These functions are critical components of floodplain habitat, as identified in the FEMA BiOp. Tree removal requirements outside of the combined flood hazard area are unchanged.

e. Within the combined flood hazard area:

(1) Native and non-native non-nuisance trees more than 10 inches in diameter are not removed; and

(2) Each 6 to 10-inch diameter native or non-native non-nuisance tree removed is replaced at a rate of three trees for each one removed. The replacement trees must be a minimum one-half inch diameter or 3 to 5-gallon conifers and be native trees listed on the Portland Plant List. All trees must be planted on the site; and

6. [No change]

C. All other resource enhancement projects. The following standards apply to all other resource enhancement projects not addressed by subsections 170.A or B. All of the following standards must be met:

1.-2. [No change]

3. Outside the combined flood hazard area, ~~N~~no native vegetation listed on the Portland Plant List is removed except as allowed by C.~~5~~6. below. Non-native trees and vegetation may be removed;

4. Within the combined flood hazard area, no native trees or vegetation listed on the Portland Plant List or non-native non-nuisance trees are removed, except as allowed by C.~~5~~6. below;

~~4.~~5. Disturbance areas related to structure removal must be replanted with native plants to achieve a 90 percent vegetative cover within one year. Disturbance area that is related to the removal of structures from the water is exempt from this standard;

~~5.~~6. No structures are proposed except for public viewing areas developed as part of the project. The public viewing areas must meet the following:

a.-c. [No change]

d. Outside the combined flood hazard area:

(1) Native trees more than 12 inches in diameter are not removed; and

(2) ~~e.~~ Each 6 to 12-inch diameter native tree removed is replaced as shown in Table 430-3. Replacement trees and shrubs must comply with the planting standards of Subsection 33.430.140.K; ~~and~~

e. Within the combined flood hazard area:

(1) Native and non-native non-nuisance trees more than 12 inches in diameter are not removed; and

(2) Each 6 to 12-inch diameter native and non-native non-nuisance tree removed is replaced as shown in Table 430-3. Replacement trees and shrubs must comply with the planting standards of Subsection 33.430.140.K; and

33.430.175.D.
This amendment prevents the use of the standards when removal of native and non-native non nuisance trees over six inches in diameter is deemed necessary in the combined flood hazard area. The amendment is consistent with FEMA guidance. Retaining mature native and non-native non-nuisance trees within the combined flood hazard area is essential to maintaining and expanding existing floodplain habitat and functions. These standards do not include tree replacement requirements. Mitigation for tree removals in the combined flood hazard area will, instead, be determined through land use review.

33.430.180.D.
This amendment fixes a typo in reference to the Nuisance Plants List, which was previously referred to as the Nuisances Plants List.

33.430.230. Procedure
Replats are added to the list of actions that are processed through the Type Ix procedure.

33.430.240.A Supplemental site plans required
In order to effectively evaluate the impacts of a proposed development, the application submittal requirements have been updated to include a requirement to show the combined flood hazard area.

In addition, the boundaries of the environmental resource and transition area must be shown so that staff can confirm that standards are met by the proposed development. These additional documentation requirements codify information that is commonly requested from applicants during land use reviews.

~~6.~~7. Temporary disturbance areas may be seeded with non-native see that is sterile and is certified as 100 percent weed-free for erosion control purposes until replanting occurs.

33.430.175 Standards for Right-of-Way Improvements
The following standards apply to unimproved and partially improved rights-of-way. All of the standards must be met. New rights-of-way that are part of a proposed land division or planned development must be reviewed under the Standards for Land Divisions and Planned Developments in Section 33.430.160.

A.-C. [No change]

D. Trees within the right-of-way may be removed within the improvement area and within 10 feet of the edge of the improvement except that native and non-native non-nuisance trees greater than 6 inches in diameter located in the combined flood hazard area may not be removed. In no case may the combined total diameter of all trees removed exceed 225 inches, counting only native trees that are at least 6 inches. Trees ~~other than~~that are not native trees ~~are exempt from this standard and may be removed without being counted as part of~~ do not count toward the 225 inches; and

E. [No change]

33.430.180 Standards for Stormwater Outfalls
The following standards apply to the installation of stormwater outfalls. All of the standards apply in the resource area. Only standards B through E and H apply in the transition area.

A.-C. [No change]

D. Trees listed on the Nuisance~~s~~ Plant List may be removed. Each tree at least 6 inches in diameter must be replaced with one tree.

E.-I. [No change]

33.430.230 Procedure
Environmental reviews are processed through the following procedures:

A. Property Line Adjustments, replats, resource enhancement activities, public recreational trails, rest points, view points, and interpretative facilities are processed through the Type Ix procedure.

B.-C. [No change]

33.430.240 Supplemental Application Requirements
In addition to the application requirements of Section 33.730.060, the following information is required for an environmental review application:

A. Supplemental site plans required. One copy of each plan must be at a scale of at least one inch to 100 feet. The following supplemental site plans are required:

- Existing conditions;
- Conditions existing prior to a violation (if applicable);

Commentary

33.430.250.A.
Replats are added to the list of actions that are subject to the approval criteria in 33.430.250.A.

- Proposed development;
- Construction management; and
- Mitigation or remediation.

A mitigation site plan is required whenever the proposed development will result in unavoidable significant detrimental impact on the identified resources and functional values. A remediation site plan is required whenever significant detrimental impacts occur in violation of the Code and no permit was applied for. The Director of BDS may waive items listed in this Subsection if they are not applicable to the specific review; otherwise they must be included. Additional information such as wetland characteristics or soil type may be requested through the review process.

1. The existing conditions site plan must show the following for the entire site:
   a. ~~Special~~ Combined flood hazard area and floodway boundaries;
   b.-e. [No change]
2. The proposed development site plan must show the following:
   a. Combined flood hazard area and boundaries of the resource area and the transition area;
   a.-f. [Renumber b. to g.]
3. A construction management site plan must show the following:
   a. Combined flood hazard area and boundaries of the resource area and the transition area;
   a.-f. [Renumber b. to g.]
4. [No change]

B. [No change]

33.430.250 Approval Criteria

An environmental review application will be approved if the review body finds that the applicant has shown that all of the applicable approval criteria are met. When environmental review is required because a proposal does not meet one or more of the development standards of Section 33.430.140 through .190, then the approval criteria will only be applied to the aspect of the proposal that does not meet the development standard or standards.

A. Public safety facilities, rights-of-way, driveways, walkways, outfalls, utilities, septic systems, land divisions, Property Line Adjustments, Replats, Planned Developments, and Planned Unit Developments. Within the resource areas of environmental zones, the applicant's impact evaluation must demonstrate that all of the general criteria in Paragraph A.1 and the applicable specific criteria of Paragraphs A.2, 3, or 4, below, have been met:

1. General criteria for public safety facilities, rights-of-way, driveways, walkways, outfalls, utilities, septic systems, land divisions, Property Line Adjustments, replats, Planned Developments, and Planned Unit Developments~~;~~:
   a.-e. [No change]

Commentary

2.-3. [No change]

4. Land divisions, Property Line Adjustments, replats, Planned Developments, and Planned Unit Developments:

a.-c. [No change]

B.-G. [No change]

Commentary

33.475 River Overlay Zones

Amendments throughout this chapter replace references to the 100-year floodplain and 1996 Flood Inundation Area with a single term, "combined flood hazard area," now defined in 33.910, Definitions. The combined flood hazard area is the area comprised of the farthest landward extent of the FEMA 100-year floodplain (area that has a one percent chance of being flooded in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the current 100-year floodplain and incorporate it into the City's regulated floodplains. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.475.020.A.3.

This amendment deletes the statement that the River Environmental always applies in combination with one of the other River Overlay zones. In some cases, the River Environmental is applied without any of the other River Overlay zones. This amendment will avoid confusion in implementation of the River Environmental overlay zone requirements.

33.475.050.A

These amendments replace references to the 100-year floodplain and 1996 Flood Inundation Area with "combined flood hazard area."

33.475 River Overlay Zones

475

33.475.020 River Overlay Zones

A. Purpose. The River Overlay zones implement the land use pattern identified in the Central City 2035 Plan (2020) and River Plan / South Reach (2020). There are three River Overlay zones each with their own purpose:

1.-2. [No change]

3. River Environmental. The River Environmental overlay zone protects, conserves and enhances important natural resource functions and values while allowing environmentally sensitive development. The purpose of the zone is to limit the impacts from development and vegetation maintenance on the natural resources and functional values contained within the overlay zone. The River Environmental regulations encourage flexibility and innovation in site planning and provide for development that is carefully designed to be sensitive to the site's protected resources. Mitigation is required for unavoidable impacts and is intended to compensate for impacts and improve natural resource features or functions over time. The River Environmental overlay zone applies to specific natural resource areas identified in two detailed studies: the Willamette River Central Reach Natural Resources Protection Plan (2020) and the River Plan / South Reach Natural Resources Protection Plan (2020). ~~This overlay zone always applies in combination with one of the other River Overlay zones.~~

33.475.050 Supplemental Permit Application Requirements

The following information is required when a permit for development or exterior alteration in the River Overlay zones is reviewed for compliance with this chapter.

A. Supplemental site plans. The following supplemental site plans are required when a permit for development or exterior alteration within the River Overlay zones is reviewed for compliance with this chapter. Five copies of each required site plan must be submitted. The site plans must show the entire site, must be drawn accurately to a scale that is between 1 inch to 50 feet and 1 inch to 10 feet, and must show all property lines with dimensions, a north arrow and a date. Additional site plans that show only a portion of the site may be submitted. All copies of site plans must be suitable for reproduction on paper no smaller than 8.5 x 11 inches and no larger than 36 x 48 inches; and

1. An existing conditions site plan including:

   a.-c. [No change]

   d. Extent of the riparian buffer area~~, 100-year floodplain,~~ and ~~1996 Flood Inundation Area~~combined flood hazard area;

   e.-g. [No change]

Commentary

2. A proposed development or exterior alterations plan including:

   a.-b. [No change]

   c. Extent of the riparian buffer area~~, 100-year floodplain,~~ and ~~1996 Flood Inundation Area~~combined flood hazard area;

   d. Location and ~~size~~volume (cubic yards) of fill to be placed within the combined flood hazard area~~100-year floodplain and 1996 Flood Inundation Area~~;

   e. Location, ~~size~~volume (cubic yards), and design of proposed cut within the combined flood hazard area~~100-year floodplain and 1996 Flood Inundation Area~~;

   f.-j. [No change]

B.-C. [No change]

33.475.220 Landscaping

The following regulations apply to new development and exterior alterations to existing development in the River General and River Recreational overlay zones. Adjustments are prohibited.

A.-B. [No change]

C. Landscaped area site preparation. Before installing the required landscaping, the following standards must be met:

1.-2. [No change]

3. If the area to be planted is not currently vegetated, the soil must be amended with 12 inches of growing medium. If the planting area is in subarea 1 has an average slope of 30 percent or steeper (30 percent slope represents a rise over run ratio of 1:3.3), and is armored with rip rap, the growing medium may be placed in planting wells. The composition of the growing medium must meet one of the following:

   a. For all planting areas located outside of the combined flood hazard area, the growing medium must be a blend of loamy soil, sand, and compost that is 30 to 40 percent plant material compost (by volume); or

   b. For all planting areas located within the combined flood hazard area, the growing medium must be a blend of loamy soil, sand, small gravels and compost. A landscape architect or civil engineer must certify that the growing medium is adequate to support the establishment and growth of vegetation, and that any growing medium to be located in subarea 1 is heavier than water.

4.-5. [No change]

Commentary

33.475.405.T

This amendment adds maintenance of trees within five feet of signage to maintain visibility of the sign to the list of exempt items. This exemption will allow for pruning and removal, as necessary, of small trees that may block the view of permanent signage.

33.475.440.K.6.(2)

These amendments replace references to the 100-year floodplain and 1996 Flood Inundation Area with "combined flood hazard area."

33.475.405 Items Exempt From These Regulations

The following items are exempt from the River Environmental overlay zone regulations:

A.-S. [No change]

T. Installation of signage and maintenance within 5 feet to preserve the visibility of signage provided no trees over 1.5 inches in diameter are removed within or riverward of the river setback, and no trees over 3 inches are removed landward of the river setback; and

U.-V. [No change]

33.475.440 Development Standards

Unless exempted by 33.475.405., the standards in this Section apply to development, exterior alterations, and land divisions in the River Environmental overlay zone. All of the applicable standards must be met. Proposals that do not meet all the standards within each relevant section require approval through River Review.

A.-J. [No change]

K. Standards for removal or pruning of vegetation. The following standards apply to the removal or pruning of vegetation:

1.-5. [No change]

6. Trees removed must be replaced as shown in Table 475-2 and must meet the following:

   a. Replacement vegetation must meet all of the following:

      (1) [No change]

      (2) The planting must occur within the River Overlay zones. Trees must not be planted within a Scenic overlay zone. If the vegetation is not planted on the applicant's site, then the applicant must own the property or possess a legal instrument, such as an easement or deed restriction, that is approved by the City as sufficient to ensure the right to carry out, monitor, and maintain the mitigation. If tree removal on the project site is located in ~~either~~ the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area, tree planting must also be within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area; and

      (3) [No change]

   b. [No change]

33.475.440.L.2.b, M.3.a. and M.3.b.

These amendments replace references to the 100-year floodplain and 1996 Flood Inundation Area with "combined flood hazard area."

Table 475 – 2 **Tree Replacement in River Environmental Overlay Zone**		
Size of tree to be removed (inches in diameter)	Option A (no. of native trees to be planted)	Option B (combination of native trees and shrubs)
At least 1.5 and up to 6	1	Not applicable
More than 6 and up to 20	3	Not applicable
More than 20 and up to 25	5	3 trees and 6 shrubs
More than 25 and up to 30	7	5 trees and 9 shrubs
More than 30	10	7 trees and 12 shrubs

L. Standards for mitigation. The following standards apply to mitigation required by Subsections A., C., J., O., and P.

1. [No change]

2. Location of mitigation. The mitigation area must be located as follows:

   a. [No change]

   b. All other mitigation areas must be located in the River Environmental overlay zone and if the disturbance area is located within the ~~100-year floodplain or the 1996 Flood Inundation Area~~combined flood hazard area, the mitigation area must also be located within the ~~100-year floodplain or the 1996 Flood Inundation Area~~combined flood hazard area.

3.-9. [No change]

M. Standards for mitigation. The following standards apply to the application of soil amendments

1.-2. [No change]

3. The composition of the growing medium must meet one of the following:

   a. For all planting areas located outside of the combined flood hazard area, the growing medium must be a blend of loamy soil, sand, and compost that is 30 to 40 percent plant material compost (by volume); or

   b. For all planting areas located within the combined flood hazard area, the growing medium must be a blend of loamy soil, sand, small gravels and compost. A landscape architect or civil engineer must certify that the growing medium is adequate to support the establishment and growth of vegetation, and is heavier than water.

4.-5. [No change]

P. [No change]

Commentary

33.475.440.Q. Standards for land divisions and Planned Developments

These amendments replace references to the 100-year floodplain and 1996 Flood Inundation Area with "combined flood hazard area."

Q. Standards for land divisions and Planned Developments. The following standards apply to land divisions and Planned Developments.

1. [No change]

2. All development is outside the ~~100-year floodplain and 1996 Flood Inundation Area~~combined flood hazard area;

3. Where there is a house on the site that is in the ~~100-year floodplain and 1996 Flood Inundation Area~~combined flood hazard area, it may remain if a new lot is created that meets the following:

   a. The existing house will remain; and

   b. A new lot is created to contain the existing house as well as a future building site at least five feet from ~~100-year floodplain and 1996 Flood Inundation Area~~combined flood hazard area. For the purpose of this subsection, "building site" means an area of any shape in which a square 40 feet by 40 feet will fit;

4. Areas of the ~~100-year floodplain and 1996 Flood Inundation Area~~combined flood hazard area that are outside of lots being created under the provisions of Paragraph P.3. are located entirely within environmental resource tracts. The tracts must be owned in common by all of the owners of the land division site, by a Homeowner's Association, by a public agency, or by a non-profit organization;

5.-12. [No change]

R. [No change]

Clean Up of Contaminated Sites

33.475.500 Removal or Remediation of Hazardous Substances

A.-E. [No change]

F. Regulations that apply to actions to remove or remediate hazardous substances that occur in specific areas. The following regulations apply to actions within the River Environmental overlay zone to remove or remediate hazardous substances based on specific locations:

1. The following regulations apply to areas landward of the top of bank (top of bank is shown on Map 475-2):

   a.-b. [No change]

   c. Tree replacement. Trees that are 1.5 inches or greater in diameter that are removed must be replaced based on Table 475-9:

Commentary

33.475.500.F.1.c.(3)

These amendments replace references to the 100-year floodplain and 1996 Flood Inundation Area with "combined flood hazard area."

Table 475-9 **Tree Replacement in Hazardous Substance Cleanup Sites**		
Size of tree to be removed (inches in diameter)	**Option A (no. of native trees to be planted)**	**Option B (combination of native trees and shrubs)**
At least 1.5 and up to 6	2	Not applicable
More than 6 and up to 20	3	Not applicable
More than 20 and up to 25	5	3 trees and 6 shrubs
More than 25 and up to 30	7	5 trees and 9 shrubs
More than 30	10	7 trees and 12 shrubs

(1)-(2) [No change]

(3) Location. All replacement trees must be planted within the River Environmental overlay zone, within 50 feet of the River Environmental overlay zone, or within 50 feet of the top of bank of the Willamette River in the River Environmental overlay zone. See Map 475-2. If the project site is located in the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area, the plantings must also be within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area. The person conducting the cleanup must own the property where the trees are planted or possess a legal instrument, such as an easement or deed restriction, that is approved by the City as sufficient to ensure the right to carry out, monitor, and maintain the plantings; and

(4) [No change]

d. [No change]

2.-3. [No change]

G. [No change]

Commentary

Map 475-6 (1 of 2) Central Reach Riparian Buffer Area

In recognition of the unique contributions of floodplains directly adjacent to the riverbank to special status species habitat and flood capacity, the application of the "riparian buffer area" is proposed for the Willamette River Central Reach. The riparian buffer area includes the area 170 feet landward of Ordinary High Water (constrained by the combined flood hazard area), and is an area identified in the FEMA BiOp as a place where additional steps to mitigate development impacts are necessary. The riparian buffer area in the Central Reach is depicted in the proposed Map 475-6 (1 of 2).

In the riparian buffer area, "beneficial gain" must be demonstrated as a part of proposed development. Beneficial gain is defined as no net loss of natural resource area or any functional values and a significant improvement of at least one floodplain-related functional value.

The riparian buffer area and associated requirements were established for the Willamette River South Reach as a part of the River Plan/South Reach. This amendment applies those same requirements to the Central Reach.

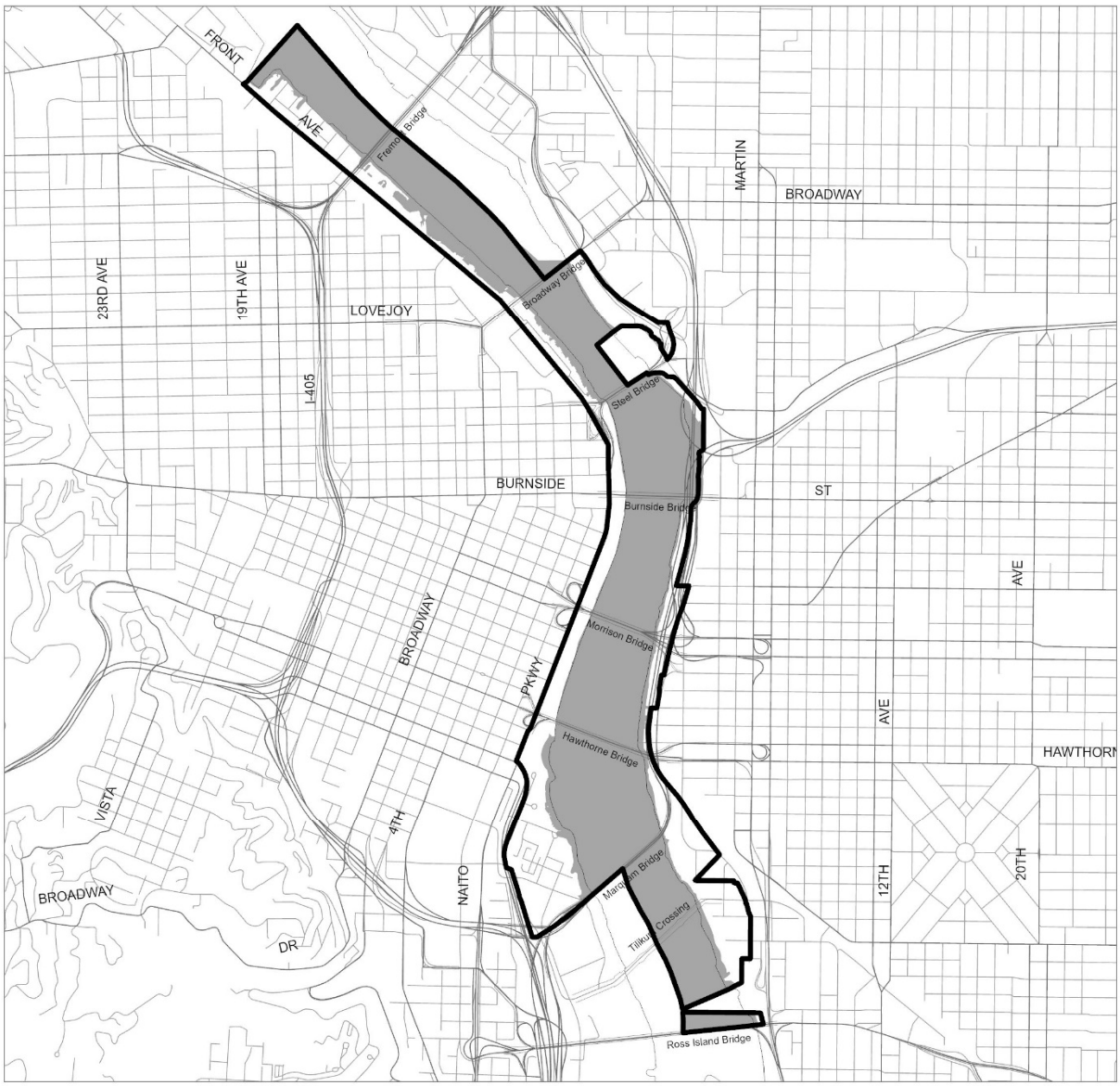
As a part of this project, the River Environmental Overlay Zone will be applied to the riparian buffer area and undeveloped portions of the combined flood hazard area. Application of the River Environmental will ensure development impacts are avoided, to the extent possible, in this important habitat area and that adequate mitigation is provided when impacts on floodplain habitat are unavoidable.

Central Reach Riparian Buffer Area

Map 475-6

Map 1 of 2

Map Revised Xxxxx X, 202X



Legend

- City Boundary
- Urban Service Boundary
- River Overlay Boundary
- Riparian Buffer Area

NORTH

0 1,600 3,200

Scale in Feet

Bureau of Planning and Sustainability
Portland, Oregon

Commentary

Map 475-6 (2 of 2) South Reach Riparian Buffer Area

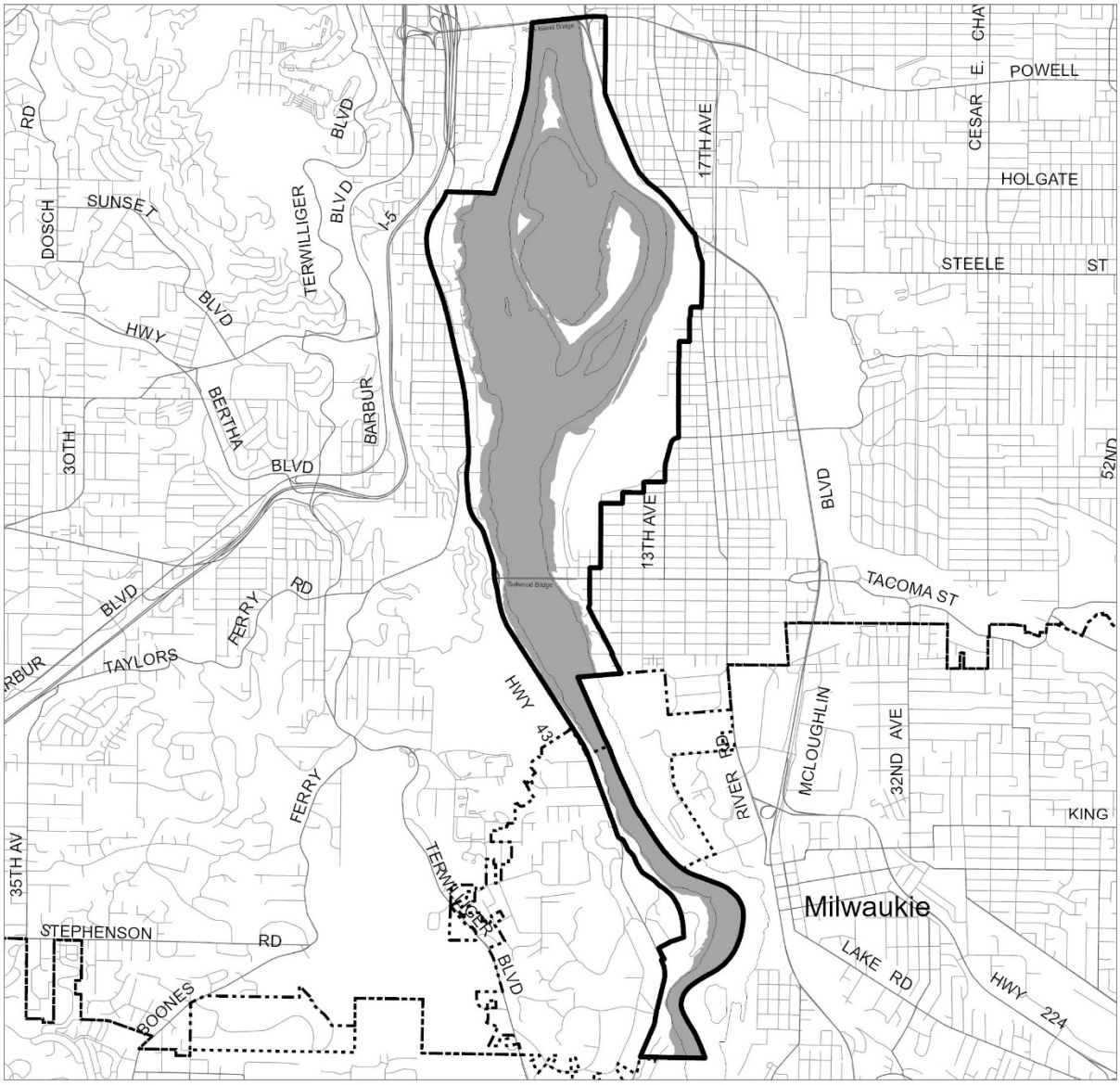
The existing Map 475-6 is replaced with a new one that identities the South Reach Riparian Buffer Area map as Map 2 of 2.

South Reach
Riparian Buffer Area

Map 475-6

Map 2 of 2

Map Revised Xxxxx X, 202X



Legend

- City Boundary
- Urban Service Boundary
- River Overlay Boundary
- Riparian Buffer Area

NORTH

0 1,600 3,200

Scale in Feet

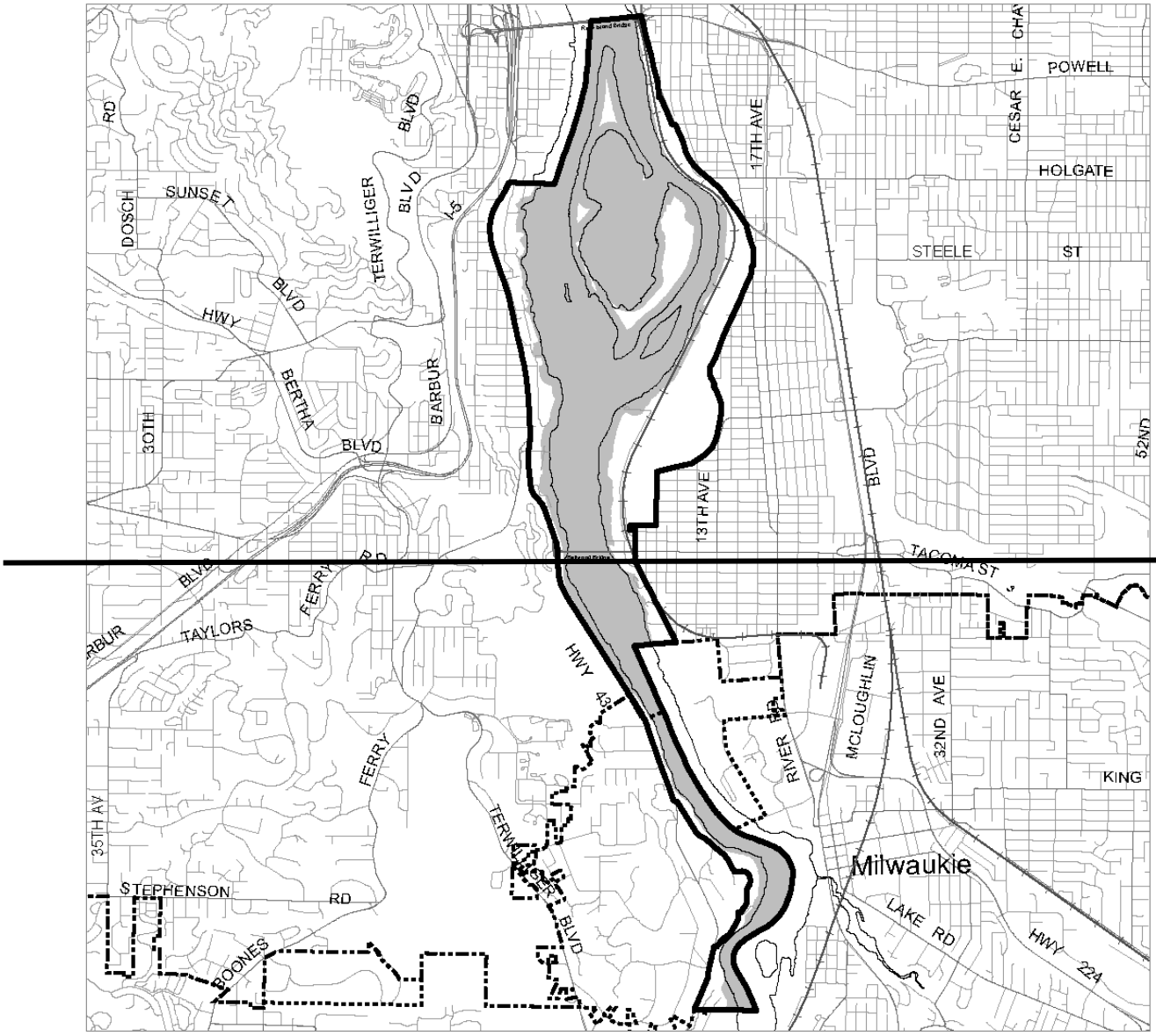
Bureau of Planning and Sustainability
Portland, Oregon

Commentary

South Reach
Riparian Buffer Area

Map 475-6

Map Revised March 1, 2021



Legend

- City Boundary
- Urban Service Boundary
- River Overlay Boundary
- Riparian buffer area

NORTH

0 2,200 4,400

Scale in Feet

Bureau of Planning and Sustainability
Portland, Oregon

Commentary

33.510 Central City Plan District

The Central City Plan District guides development throughout the Central City, including in the South Waterfront Subdistrict. Because of its development expectations and character, the South Waterfront Subdistrict has unique development requirements and review processes.

The changes proposed in this chapter update the requirements within the Greenway overlay zone in the South Waterfront Subdistrict to improve floodplain management and ensure the preservation of floodplain habitat.

Throughout this chapter, the proposed amendments reference the "combined flood hazard area," which is the area comprised of the farthest landward extent of the FEMA 100-year floodplain(area with a one percent chance of flooding in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management.

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the 100-year floodplain and incorporate it into the City's regulated floodplains. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.510.200.D.3.b.

This amendment adds the word "Setback" to the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2). The amendment also updates the incorrect reference to Figure 510-3. Figure 510-2 should be referenced. This change in the naming of the South Waterfront Greenway Setback Area provides clarity on the regulations in this specific area to avoid confusion related to new regulations for activities in the Greenway River General overlay zone.

This update is made throughout the chapter, wherever the "South Waterfront Greenway Area" is referenced.

33.510 Central City Plan District

33.510

33.510.200 Floor Area Ratios

A.-C. [No change]

D. Limits on increased floor area. Maximum FAR can be increased on a site if FAR is transferred or bonus FAR is earned as allowed by 33.510.205, Floor Area Bonus and Transfer Options. The following limits apply to increases in FAR:

1.-2. [No change]

3. South Waterfront subdistrict. In the South Waterfront subdistrict the following applies:

   a. [No change]

   b. The total floor area on a site, including bonus floor area and transferred floor area, may be more than 9 to 1 if all of the following are met:

      (1) The floor area above the 9 to 1 ratio is transferred from the South Waterfront Greenway Setback Area shown on Figure 510-~~3~~2; and

      (2) The portion of the South Waterfront Greenway Setback Area that floor area is being transferred from must have been dedicated to the City after September 1, 2002

E. [No change]

33.510.205 Floor Area Bonus and Transfer Options

A.-B. [No change]

C. Floor area bonus options. Additional development potential in the form of floor area is earned for a project when the project includes any of the specified features listed below. The bonus floor area amounts are additions to the maximum floor area ratios shown on Map 510-2.

1. [No change]

2. Bonus flood area options.

   a.-c. [No change]

Commentary

33.510.205.C.2.d.(1)
This amendment adds the word "Setback" to the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2). The amendment also updates the incorrect reference to Figure 510-3. Figure 510-2 should be referenced.

33.510.205.C.2.d.(6)
This amendment updates the references to the correct paragraphs in 33.510.253.E.5.b. and g., respectively.

33.510.215.B.3.b.(2)
This amendment updates the reference to the correct paragraph in 33.510.253.E.5.g. and adds "Setback" to the area previously called the "South Waterfront Greenway Area" (as shown on Figure 510-2).

d. South Waterfront Willamette River Greenway bonus option. To complement and enhance the existing public corridor, projects along the Willamette River Greenway in the South Waterfront subdistrict that provide open space for public activity will receive bonus floor area. For each square foot of open space dedicated, a bonus of 3 square feet of additional floor area is earned. Open space that will earn bonus floor area under Subparagraph C.2.e, Open Space bonus option, may not be used to earn additional floor area under this bonus. To qualify for this bonus, the following requirements must be met:

(1) Location. The open space must abut the South Waterfront Greenway Setback Area, as shown on Figure 510-~~3~~2;

(2)-(5) [No change]

(6) Landscaping. The open space must be landscaped to meet the requirements of Paragraphs 33.510.253.E.5.~~a~~b.(2) and E.5.~~f~~g.(5) that apply to South Waterfront Greenway subarea 3;

(7)-(8) [No change]

e.-f. [No change]

33.510.215 Required Building Lines

A. [No change]

B. Required building line standards.

1.-2 [No change]

3. Standards for the South Waterfront subdistrict. In the South Waterfront subdistrict, new development and major remodels must meet one of the following standards. Exterior walls of buildings designed to meet the requirements of this Paragraph must be at least 15 feet high measured from the finished sidewalk at the building's edge:

a. [No change]

b. The building must extend to within 12 feet of the street lot line for 75 percent of the lot line, and the space between the building and the street lot line must meet one of the following:

(1) [No change]

(2) Be landscaped in one of the following ways:

- The proposed landscaping meets the L2 standard;
- The proposed landscaping meets the landscaping regulations of 33.510.253 E.5.~~f~~g.(5) for subarea 3 of the South Waterfront Greenway Setback Area except that trees are not required; or

Commentary

33.510.251.B.1.
This amendment adds "Setback" to the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2).

33.510.251.B.4.
This amendment updates the reference to the correct paragraph in 33.510.253.E.5.g. and adds "Setback" to the area previously called the "South Waterfront Greenway Area" (as shown on Figure 510-2).

- The applicant submits with the application for a land use review a letter from the Bureau of Environmental Services stating that the landscaping meets the guidelines of the Stormwater Management Manual.

4.-5 [No change]

33.510.251 Additional Standards in the South Waterfront Subdistrict

A. [No change]

B. Accessways.

1. Purpose. Accessways provide physical access and connections to the Greenway for neighbors, visitors, and residents of South Waterfront who might otherwise be cut off from the Willamette River and the Greenway trail. Accessways are generally extensions of existing and planned east-west public rights-of-way, and may or may not provide vehicle access. Accessways provide safe and convenient bicycle and pedestrian connections to and from the Greenway trail. Accessways contribute to stormwater management in the subdistrict. They also provide a visual connection to the South Waterfront Greenway Setback Area and provide a transition from the natural emphasis of the South Waterfront Greenway Setback Area to the urban emphasis of the rest of the district.

2-3. [No change]

4. Landscaping. The area between the building and the accessway must meet the landscaping standards of 33.510.253 E.5.~~f~~g.(5) that apply to subarea 3 of the South Waterfront Greenway Setback Area. However, along accessways that are designated as special building height corridors on Map 510-15, trees are not required.

33.510.253 Greenway Overlay Zone in the South Waterfront Subdistrict

A.-C. [No change]

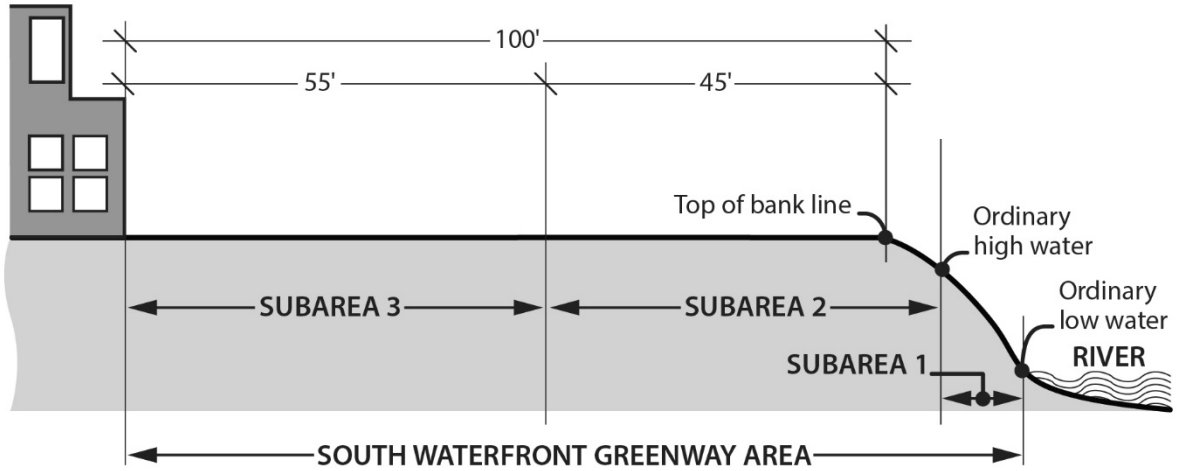
Commentary

Figure 510-2 South Waterfront Greenway Setback Area and Subareas
This amendment updates the name of Figure 510-2 to "South Waterfront Greenway Setback Area and Subareas." This change provides clarity on the regulations in this specific area to avoid confusion related to new regulations for activities in the Greenway overlay, more generally, contained in 33.510.253.E. The South Waterfront Greenway Setback Area and Subareas include land from ordinary low water to 100 feet landward of the top of bank line.

33.510.253.D. Required South Waterfront Greenway Setback Area improvements
These amendments add "Setback Area" to the title of the paragraph and "Setback" when the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2) is referenced. This change provides clarity on the regulations in this specific area to avoid confusion related to new regulations for activities in the Greenway overlay, more generally. Additionally, the reference to applicable landscape requirements is updated to the correct paragraph in 33.510.253.E.5.g., based on proposed changes in that subsection.

33.510.253.D.1.a. and c.
This amendment updates the reference to the correct paragraph in 33.510.253.E.5.g., based on proposed changes in that subsection.

Figure 510-2
South Waterfront Greenway Setback Area and Subareas



Greenway Area = from ordinary low water to 100' from top of lank line
Subarea 1 = from ordinary low water to ordinary high water
Subarea 2 = from ordinary high water to 45' in from top of bank line
Subarea 3 = from 45' in from top of bank to 100' in from top of bank line

D. Required South Waterfront Greenway Setback Area improvements. Adjustments and modifications to this subsection are prohibited.

1. Required landscaping.

   a. When development on the site, or alterations to structures, the site, or rights-of-way are made, and BDS determines that the value of the proposed alterations on the site is more than $330,800, the site must be brought into conformance with the landscape requirements of Paragraph E.5.~~f~~g. that apply to subareas 2 and 3 of the South Waterfront Greenway Setback Area. The value of the alterations is based on the entire project, not individual building permits. It is the responsibility of the applicant to document the value of the required improvements.

      The following alterations and improvements do not count toward the dollar threshold of this subsection:

      (1)-(5) [No change]

   b. [No change]

   c. Supplemental application requirement. Where landscaping is required by this paragraph, the applicant must submit a landscape plan to BDS that shows that the landscaping will grow to meet the landscape standards of Subparagraph E.5.~~f~~g., below, within five years. The landscape plan must be certified by a licensed landscape architect, or by a qualified restoration specialist as part of a formal City revegetation project under authority of Portland Parks and Recreation or the Bureau of Environmental Services.

Commentary

33.510.253.D.2.
This amendment updates the reference to the correct subparagraph in 33.510.253.E.5.g., based on proposed changes in that subsection.

33.510.253.D.3.
This amendment updates the references to the correct subparagraphs in 33.510.253.E.5.e. and 33.510.253.E.f., respectively, based on proposed changes in those subsection.

33.510.253.D.5.
This amendment updates the reference to the correct subparagraph in 33.510.253.E.5.g., based on proposed changes in that subsection.

33.510.253.E. Review thresholds and development standards
This amendment updates the name of the paragraph to better describe the regulations it contains. For clarity, the introductory paragraph is being deleted and the relevant information within it has been relocated elsewhere in the section.

33.510.253.E.1. Where these regulations apply
This subsection is being deleted because it is redundant with information contained in other parts of this subsection.

33.510.253.E.1. Design review
For clarity, the information currently contained in E.1 is being moved here.

2. Bank improvements. In subarea 1, when there is any regrading, bank stabilization, or other activities affecting the contours and composition of soil, the requirements of Paragraph E.5.~~f~~g. for subarea 1 must be met.

3. Major public trail and pedestrian connections and public viewpoints. When development on a site, or alterations to structures, the site, or rights-of-way are made that add more than 50,000 square feet of floor area to the site, the applicant must provide public access easements for, and construct, the major public trail, pedestrian connections to the major public trail, and public viewpoints in accordance with Subparagraph E.5.~~d~~e., and Subparagraph E.5.~~e~~f. The requirement to provide an access easement for, and construct, the major public trail, pedestrian connections, and public viewpoints applies only when the development described above will increase the use of the major public trail system or will contribute to the need for additional major public trail facilities, and application of the regulations is determined to be roughly proportional to the impacts of the proposed development. The square footage added to the site is calculated based on the total amount added, regardless of the amount demolished

4. [No change]

5. Landscaping monitoring and reporting. Monitoring required landscaping is the ongoing responsibility of the property owners. If landscaping is required by the subsection, the owner must submit a report to BDS documenting that the landscape standards of Subparagraph E.5.~~f~~g. below, have been met on the site. The report must be submitted within 1 year of the installation date, or within the timeline approved through a South Waterfront Greenway Review. See Chapter 33.851.

E. Review thresholds and ~~D~~development standards. ~~Generally, proposals are subject to design review. In most instances, applicants may choose between meeting development standards or going through South Waterfront greenway review. In some instances South Waterfront greenway review is required.~~

~~1. Where these regulations apply. The regulations of this subsection apply in the South Waterfront Greenway Area as shown on Figure 510-2. The regulations apply to development and alterations to structures, sites, and rights-of-way.~~

1~~2~~. Design review. Within the South Waterfront Greenway Setback Area shown on Figure 510-2, ~~N~~new development, and changes to the land or structures including excavations and fills, bridges, and docks are subject to design review, unless exempted by Paragraph E.4.

2~~3~~. South Waterfront greenway review. South Waterfront greenway review is required for the following:

Commentary

33.510.253.E.2.a.

This amendment clarifies specifically which development standard must be met in order to avoid South Waterfront Greenway Review. Additionally, the subparagraph has been updated to clarify that South Waterfront Greenway Review is not required when a site has nonconforming development, as long as the exterior alteration bring the site closer to conformance with applicable greenway standards.

33.510.253.E.3. Adjustment review

This new subparagraph makes it clear that an adjustment or modification is required for any new development or exterior alterations that do not meet the exterior lighting standards in Paragraph E.5.j. that is not exempted by Paragraph E.4. An adjustment or modification is more appropriate than South Waterfront Greenway Review for the exterior lighting standards.

33.510.253.E.4. Exemptions

This amendment clarifies to the name of the paragraph.

33.510.253.E.4.a.

This amendment removes "where there are not exterior alterations" because, by definition, changes to the interior of the building do not include exterior alterations.

33.510.253.E.4.c.

This amendment deletes the exemption for excavations and fills less than 50 cubic yards. Per FEMA guidance, all fill in the floodplain must be mitigated to maintain flood storage.

33.510.253.E.4.c.

This amendment clarifies when dredging, channel maintenance and material removal is exempt. The more detailed exemption is consistent with the exemption already in place in the River Overlay Zones chapter.

33.510.253.E.4.f.

This amendment deletes the exemption for placement of up to four single piles or two multiple pile dolphins along the shoreline. Per FEMA guidance, development that may impact the critical habitat of endangered and threatened salmon and steelhead must be avoided or mitigated to ensure no habitat loss. Deletion of this exemption ensures that the habitat and flood storage impacts of the placement of piles is appropriately mitigated through Greenway review.

33.510.253.E.4.f.

This amendment clarifies that planting of native vegetation on the Portland Plant List is exempt as long as certain criteria are met. This will encourage the planting of native vegetation on the riverbank

a. New development or exterior alterations that do not meet the standards of Paragraph E.5.b through E.5.i and are not exempted by Paragraph E.4. South Waterfront greenway review is not required for exterior alterations to nonconforming development in the South Waterfront Greenway Setback Area if the exterior alteration brings the site closer to conformance with the applicable standards in E.5;

b. New development, or changes to the land or structures, riverward of top of bank, including excavations and fills, bridges, and docks, unless exempted by Paragraph E.4.

3. Adjustment review. An adjustment, or modification through design review, is required for new development or exterior alterations that do not meet the standards of Paragraph E.5.j and are not exempted by Paragraph E.4.

4. Exemptions ~~from design review and South Waterfront greenway review~~. The following are exempt from this Subsection:~~design review and South Waterfront greenway review;~~

a. Changes to the interior of a building ~~where there are not exterior alterations~~;

b. Normal maintenance and repair;

~~c. Excavations and fills of less than 50 cubic yards;~~

c~~d~~. Dredging, channel maintenance, and the removal of materials from the river~~;~~ and~~as~~ as follows:

1. Dredging, channel maintenance, and the removal of materials outside the federal navigation channel as follows:
   - Dredging and the removal of materials in waters that are 35 feet deep or deeper, measured from the ordinary high water mark; or
   - Channel, slip and berth maintenance that has been approved by the U.S. Army Corps of Engineers.

2. The placement of dredged materials within the River General overlay zone is not exempt.

d~~e~~. Emergency procedures necessary for safety or the protection of property;

~~f. The placement of up to four single piles, or two multiple-pile dolphins for each 100 feet of shoreline for an existing river-dependent or river-related use.~~

e~~g~~. Development of public streets identified in the adopted *South Waterfront District Street Plan, Criteria and Standards* are exempt from design review, but not greenway review.

f. Planting of native vegetation listed on the Portland Plant List when planted with hand-held equipment or equipment with a wheel surface-to-ground pressure of no more than 7.5 psi.

Commentary

33.510.253.E.4.g.
This new exemption exempts tree removal that is allowed through tree standards (33.510.253. E.5.i) so that proposals involving only tree removal riverward of top of bank will not automatically be required to go through Design Review or South Waterfront Greenway Review. If the proposed tree removal does not meet standards, South Waterfront Greenway Review will be required.

33.510.253.E.5. Development standards
This amendment deletes the introductory paragraph for this subsection. Relevant information within it has been relocated into subsections elsewhere in the section.

33.510.253.E.5.a.
This new subsection describes which standards in E.5. apply to which areas within the Greenway overlay zone and whether the standards can be adjusted. These descriptions will provide clarity for applicants as well as City staff during implementation.

33.510.253.E.5.b.
This amendment adds the word "Setback" when the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2) is referenced.

g. Tree removal as follows:

(1) Trees on the Nuisance Plants List;

(2) Dead, dying or dangerous trees or portions of trees when they pose an immediate danger, as determined by the City Forester or certified arborist;

(3) Trees that exceed the height restriction of a view corridor within special height restrictions designated in the Central City Scenic Resources Protection Plan; or

(4) In addition to the trees listed above, up to 50 inches of non-native, non-nuisance trees.

5. Development standards. ~~The following development standards must be met unless the applicant chooses South Waterfront greenway review. Adjustments and modifications to these standards are prohibited.~~

a. Where the standards apply.

(1) Standards E.5.b through E.5.h apply in the South Waterfront Greenway Setback Area shown on Figure 510-2. South Waterfront greenway review is required for proposals that do not meet the standards. Adjustments to standards E.5.b through E.5.h are prohibited.

(2) The standards in E.5.i apply within the combined flood hazard area and within the South Waterfront Greenway Setback Area shown on Figure 510-2. South Waterfront greenway review is required for proposals that do not meet the standards. Adjustments to the standards in E.5.i are prohibited.

(3) The standards in E.5.j apply within the River General overlay zone. Adjustments or modifications through design review are allowed for the standards in E.5.j.

b~~a~~. Non-landscaped area. Limiting the percentage of non-landscaped area allowed in the South Waterfront Greenway Setback Area ensures that the area will be configured to accommodate a minimum percentage of living plant cover. Non-landscaped area includes all aboveground structures and paving materials, including permeable paving materials.

(1) Subareas 1 and 2. Up to 20 percent of the portion of the site in subareas 1 and 2 may be covered by non-landscaped area; however, paved surfaces that are required under the provisions of Paragraph E.5.e~~f~~., Public viewpoints, are exempt from this limitation. Non-landscaped area may be no closer than 10 feet of the top of bank line as shown on Map 510-21, South Waterfront 2002 Top of Bank Line;

Commentary

33.510.253.E.5.c.
These amendments add "Setback" when the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2) is referenced, updates the referenced requirements in the subsection to refer to the E.5.c. rather than E.5.b. and adds a sentence to clarify that alterations to nonconforming buildings are allowed as long as any projections at or above grade are not expanded. The latter update addresses an issue that has caused confusion in the past.

33.510.253.E.5.c(4)
This amendment adds that any buildings proposed in subarea 3 must be located outside of the combined flood hazard area. This requirement will ensure that new buildings placed within the South Waterfront Greenway Setback Area will not impact floodplain habitat or reduce flood storage without being effectively mitigated.

33.510.253.E.5.d.
This amendment adds "Setback" when the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2) is referenced.

(2) Subarea 3. Up to 20 percent of the portion of the site in subarea 3 may be covered by non-landscaped area. However, required trail and pedestrian connection improvements are exempt from this limitation.

c~~b~~. Buildings. Buildings are allowed within the South Waterfront Greenway Setback Area if they meet E.5.~~b~~c.(1) and (2) and either E.5.~~b~~c.(3) or (4). Other buildings or portions of buildings are not allowed within the South Waterfront Greenway Setback Area. Alterations to nonconforming buildings are allowed provided the building and any projections are not expanded within the South Waterfront Greenway Setback Area.

(1) The site meets the non-landscaped area requirements under E.5.~~a~~b., above; and

(2) The building does not obstruct required pedestrian connections and trails; and

(3) The building is river-dependent or river related; or

(4) All of the floor area of the building is in Retail Sales And Service uses and the following are met:

- The building has less than 1,000 square feet of floor area;
- The building is entirely within subarea 3 and not located within the combined floor hazard area; and
- The building is located landward of the South Waterfront recreational trail.

d~~c~~. Fences and walls. Fences and walls are allowed in subarea 3 of the South Waterfront Greenway Setback Area if they are no more than 3 feet in height and do not obstruct the required pedestrian connections and trails. Fences and walls are not allowed in subareas 1 and 2 of the South Waterfront Greenway Setback Area.

e~~d~~. Major public trails and pedestrian connections.

(1) Purpose. Major public trails provide public access to and along both sides of the Willamette River. Major public trails are one of the tools used to comply with the public access requirements of the Comprehensive Plan and the Willamette Greenway Plan. Pedestrian connections ensure that there is adequate, safe, and direct pedestrian access from the adjacent development and from the district as a whole to the major public trails.

Commentary

33.510.253.E.5.e.(2)

This amendment adds "Setback" when the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2) is referenced. Additionally, the references to other sections of the chapter are updated to incorporate changes proposed to their numbering.

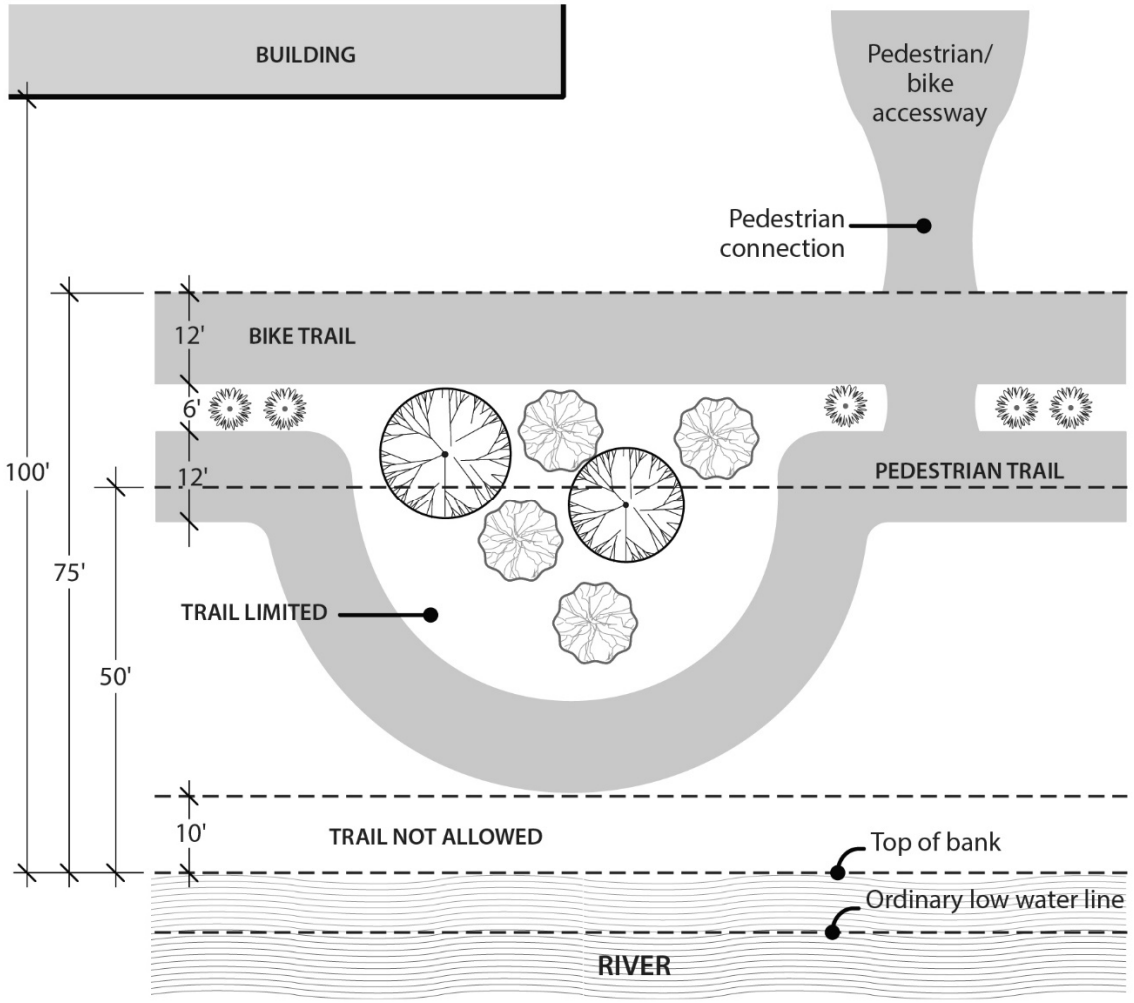
(2) Major public trails. Major public trails must meet the following standards. When required by Subsection D., sites with major public trail symbol shown on the Official Zoning Maps must provide easements that would accommodate construction, maintenance, and public use of a major public trail that meets the following standards. See Figure 510-3.

- Location. The major public trail must be located in the South Waterfront Greenway Setback Area shown on Figure 510-2. All portions of the major public trail must be at least 10 feet and no more than 75 feet from the top of bank line as shown on Map 510-21, South Waterfront 2002 Top of Bank Line; however, any portion of the major public trail that is within 45 feet of the top of bank line as shown on Map 510-21, South Waterfront 2002 Top of Bank Line, is subject to the maximum non-landscaped area limitations of Subparagraph E.5.~~a~~b.;
- Width. The major public trail must consist of two paths, each at least 12 feet in width;
- Landscaped median. The two paths must be separated by a landscaped median at least 6 feet wide. Landscaping within this median must meet the requirements of Paragraph E.5.~~f~~g. The landscaping may be interrupted by public access connections between the two paths;
- Use. The path closest to the river must be designated for pedestrians only. The path farthest from the river must be designated for bicycles and other non-motorized transportation modes;
- Connectivity.
    - The major public trail or major public trail easement must connect to the existing major public trails or trail easements on adjacent sites; and
    - The major public trail or major public trail easement must connect to the required pedestrian circulation system on the site.
- Additional standards. In addition to the standards of this subparagraph, the standards of Chapter 33.272, Major Public Trails, must also be met.

(3) Pedestrian connections. When a major public trail or major public trail easement is required, at least one pedestrian connection must be provided between the trail easement and any accessway that terminates on the site.

Commentary

Figure 510-3
South Waterfront Greenway Trail



f~~e~~. Public viewpoints.

(1) Purpose. Public viewpoints provide stopping places and clearings along the South Waterfront Greenway trail and the Willamette River where the public can view and enjoy the natural and scenic qualities of the Greenway and the river. Public viewpoints are one of the tools used to comply with the public access requirements of the Comprehensive Plan and the Willamette Greenway Plan.

Commentary

33.510.253.E.5.g.(2)

This amendment corrects the referenced section in 33.248, Landscaping and Screening, to 33.248.040. The existing reference to 33.248.065 is incorrect.

(2) Viewpoint requirements. A public viewpoint must be provided on sites designated in the Central City Scenic Resources Protection Plan.

- Sites with a viewpoint designation must provide a viewpoint area that meets the following standards:
  - The viewpoint area must be at least 500 square feet in area;
  - The viewpoint area must abut the Greenway trail or a public access connection must be provided from the Greenway trail to the viewpoint area;
  - The viewpoint area and any public access connection to the viewpoint area from the Greenway trail must comply with the Use of Trail, Hours of Use, Trespass, and Trail Maintenance and Liability sections of Chapter 33.272, Major Public Trails;
  - Materials, benches, and lighting used in the viewpoint area must meet the requirements of the Portland Bureau of Parks and Recreation; and
  - If an accessway or street that is mapped as a special building height corridor on Map 510-15 terminates on the site, the view corridor must continue the projected centerline of the accessway or street as shown in Figure 510-4.

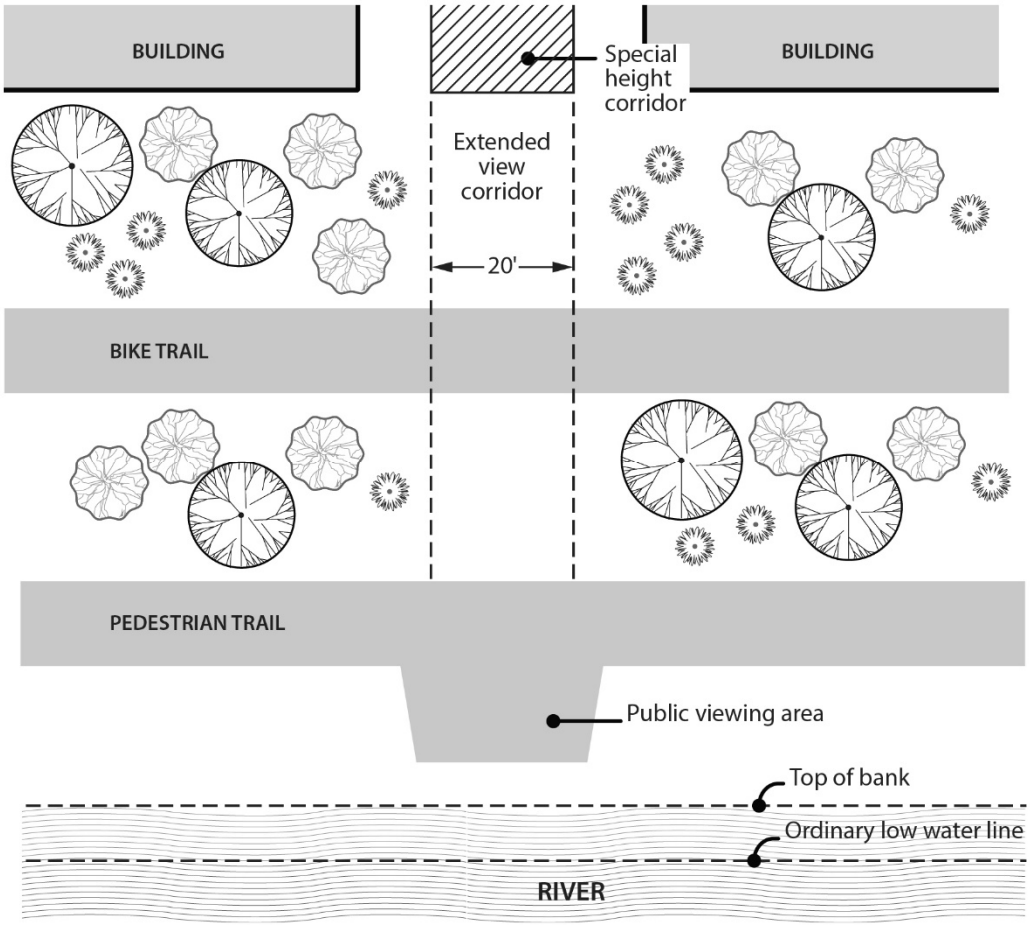
~~g~~f. Landscaping.

(1) Coverage. Eighty (80) percent of the area that is not covered by buildings, trails, or other allowed non-landscaped area must be covered by shrubs or ground cover, and all trees required by this paragraph must be installed in the ground and healthy;

(2) Existing landscaping. Existing plants may be used to meet the standards of this paragraph, if protected and maintained during construction as specified in Section 33.248.~~065~~040. However, plants identified in the South Waterfront Greenway Nuisance Plants List of the *Portland Plant List* must be removed.

Commentary

Figure 510-4
Public Viewpoint and View Corridor



(3) Required landscaping in subarea 1. In subarea 1, the area beginning 3 feet above the ordinary low water line must meet the following requirements:

- Shrubs. At least 80 percent of the required landscaped area must be planted in shrubs;
- Trees. Trees are not required, but are allowed;
- Ground cover. All of the required landscaped area that is not planted with shrubs or trees must be fully covered with ground cover plants;
- Plant list. Only plants listed in the South Waterfront Greenway Subarea 1 Plant list of the *Portland Plant List* may be planted; and
- Installation of landscaping. All planting must be of a sufficient size and number to meet the coverage standards within five years. Restoration size plant material, including bare-root, is allowed and recommended. Planting is not required to meet the size and spacing requirements of 33.248.030, Plant Materials. Planting is not allowed during the summer.

(4) Required landscaping in subarea 2. In subarea 2, the required landscaping is:

- Shrubs. At least 80 percent of the landscaped area must be planted in shrubs;

33.510.253.E.5.h. Other development

These amendments add "Setback" to the area previously called the "South Waterfront Greenway Area" (shown on Figure 510-2) and update the references to 33.510.253.E.5.g. to the correct 33.510.253.E.5.h.

- Trees. At least one tree must be planted for every 400 square feet of landscaped area. Trees may be clustered;
- Ground cover. All of the landscaped area that is not planted with shrubs or trees must be fully covered with ground cover plants;
- Plant list. Only plants listed in the South Waterfront Greenway Subarea 2 and 3 Plant List of the *Portland Plant List* may be planted. At least eight different species must be planted; and
- Installation of landscaping. All planting must be of a sufficient size and number to meet the coverage standards within 5 years. Planting is not required to meet the size and spacing requirements of 33.248.030, Plant Materials.

(5) Required landscaping in subarea 3. In subarea 3, the required landscaping is:

- Shrubs. At least 60 percent of the landscaped area must be planted in shrubs. At least 50 percent of the shrubs used to meet this requirement must be listed in the South Waterfront Greenway Subarea 2 and 3 Plant List of the *Portland Plant List*;
- Trees. At least 1 tree must be planted for every 1,000 square feet of landscaped area. At least 50 percent of the trees used to meet this requirement must be listed in the South Waterfront Greenway Subarea 2 and 3 Plant List of the *Portland Plant List*;
- Ground cover. All of the landscaped area that is not planted with shrubs or trees must be fully covered with ground cover plants. At least 50 percent of the ground cover plants must be listed in the South Waterfront Greenway Subarea 2 and 3 Plant List of the *Portland Plant List*;
- Plant list. Except as allowed by (1), (2) and (3), only plants listed in the South Waterfront Greenway Subarea 2 and 3 Plant List of the *Portland Plant List* may be planted. The following plants are prohibited:
  - Plants included on the Nuisance Plants List or Required Eradication List of the *Portland Plant List*;
  - Plants included in the South Waterfront Greenway Nuisance Plants List of the *Portland Plant List*.
- Installation of landscaping. All planting must be of a sufficient size and number to meet the coverage standards within five years. Planting is not required to meet the size and spacing requirements of 33.248.030, Plant Materials.

hg. Other development. Other development is allowed within the South Waterfront Greenway Setback Area if it meets ~~Subparagraphs~~ E.5.gh.(1) and (2) and either E.5.gh.(3) or (4).

(1) The site meets the non-landscaped area requirements under E.5.ab.~~, above~~;

(2) The development does not obstruct required pedestrian connections and trails; and

33.510.253.E.5.i. Trees

This amendment adds standards for removal or pruning of vegetation within the Greenway overlay zone. These standards establish the removals and pruning that will be allowed without South Waterfront Greenway Review. These requirements are generally consistent with those in the River Overlay Zones chapter, which is applied in the Willamette River Central Reach (to the north) and South Reach (to the south).

South Waterfront greenway review is required for non-exempt development proposals in the Greenway overlay zone that do not meet the tree standards.

(3) The development is located in subarea 3; or

(4) The development is river-dependent or river-related.

i. Trees.

(1) Trees must be preserved except as follows:

- Trees on the Nuisance Plants List may be removed;
- Trees located within 10 feet of existing or proposed buildings and structures attached to buildings may be removed;
- Trees that exceed the height restriction of a view corridor within special height restrictions designated in the Central City Scenic Resources Protection Plan may be removed;
- Dead, dying or dangerous trees or portions of trees when they pose an immediate danger, as determined by the City Forester or certified arborist may be removed; and
- In addition to the trees listed above, up to 50 inches of non-native, non-nuisance trees may be removed.

(2) Trees removed within the South Waterfront Greenway Setback Area that are 1.5 inches in diameter or greater and trees located in the combined flood hazard area landward of the South Waterfront Greenway Setback Area that are 3 inches in diameter or greater must be replaced as shown in Table 510-1.

(3) Replacement trees must meet the following:

- Replacement trees must be a minimum ½-inch caliper, bareroot or live stakes, unless they are oak or madrone, which may be one gallon size. No more than ten percent of the trees may be oak or madrone. Shrubs must be a minimum of one gallon size or bareroot. All other species must be a minimum of four-inch pots or equivalent; and
- Replacement trees must not be planted within a view corridor. Planting to replace trees removed from the combined flood hazard area must be within the combined flood hazard area. If the vegetation is not planted on the applicant's site, then the applicant must own the property or possess a legal instrument, such as an easement or deed restriction, that is approved by the City as sufficient to ensure the right to carry out, monitor, and maintain the mitigation.

(4) The requirements of Section 33.248.090, Mitigation and Restoration Planting must be met.

(5) All vegetation removal activities must be surrounded or protected to prevent erosion and sediment from leaving the site or negatively impacting resources on the site.

Table 510-1. Tree Replacement in the South Waterfront Greenway Overlay Zone
Table 510-1 is added to identify the number of trees required to be planted when trees of different sizes are removed. The number of trees required to be replanted increases as the tree diameter at breast height increases. The minimum 3:1 tree replacement ratio for trees six inches and greater is consistent with the FEMA BiOp and with similar requirements in the River Overlay Zones chapter, which is applied in the Willamette River Central Reach (to the north) and South Reach (to the south).

33.510.253.E.5.j. Exterior lighting
This amendment relocates the exterior lighting requirements from their original location (33.510.253.E.5.h.) to the Greenway overlay zone general development standards. Moving the requirements to this location will ensure that the requirements apply to all development within the Greenway overlay zone. The previous location limited the application of the standards only to the South Waterfront Greenway Setback Area, though the intention was for them to apply to all of the Greenway overlay zone.

33.510.253.E.5.j(2) General standards
This subparagraph is amended to remove the reference to the River General overlay zone because 33.510.253.E.5.a. identifies where each of the standards apply, making the reference redundant. Additionally, the standards are amended to apply minimum lamp specifications to all of the Greenway overlay zone, rather than just to areas near the Willamette River. This requirement is consistent with those in the River Overlay Zones chapter, which is applied in the Willamette River Central Reach (to the north) and South Reach (to the south).

(6) Temporary disturbance area must be replanted to meet the subarea 3 standards in 33.510.253.F.2.f.(5).

Table 510-1
Tree Replacement in the South Waterfront Greenway Overlay Zone

Size of tree to be removed (inches in diameter)	Option A (no. of native trees to be planted)	Option B (combination of native trees and shrubs)
At least 1.5 and up to 6	1	Not applicable
More than 6 and up to 20	3	Not applicable
More than 20 and up to 25	5	3 trees and 6 shrubs
More than 25 and up to 30	7	5 trees and 9 shrubs
More than 30	10	7 trees and 12 shrubs

j~~h~~. Exterior lighting.

(1) Purpose. The standards for exterior lighting are intended to:

- Avoid or minimize light glare and light spill from artificial lighting and associated negative impacts on fish and wildlife and their habitats;
- Reduce light pollution and glare impacts on residential developments;
- Maintain public safety and security along the major public trail, pedestrian connections to the major public trail, in parks, along public streets, and on piers and gangways; and
- Provide flexibility for river dependent operations associated with docks.

(2) General standards. The following standards apply to all exterior lights ~~located within the River General overlay zone~~.

- Exterior lights must not project light upward or to the side of the fixture; ~~and~~
- The top and sides of all exterior light fixtures must be shielded with 100 percent opaque materials; and
- Lamps must fall below 3000K or within an S/P ratio range of 1 to 1.2.

(3) Additional standards for areas near the Willamette River. The following standards apply to all permanent exterior lights located within and riverward of the greenway setback, and all permanent exterior lights located within 25 feet landward of the greenway setback. Exterior lights within public streets are exempt from this Subsubparagraph.

- Exterior lights are allowed only if the lights are for the following use or development:
  - Park and Open Area uses;
  - The major public trail or pedestrian connections to the major public trail;

Commentary

33.510.261.F.3. Maximum allowed parking

This amendment updates the reference to Table 510-2, Maximum Parking Ratios.

  - Public viewing areas; or
  - River-dependent or river-related development.
- Structures that support exterior light fixtures must be setback at least 5 feet from the top of bank of the Willamette River except for docks and gangways, and must be setback at least 30 feet from any other stream, drainageway, wetland or water body;
- Structures that support exterior light fixtures must be spaced at least 25 feet apart; and
- ~~Lamps must fall below 3000K or within an S/P ratio range of 1- 1.2; and~~
- Exterior lights must not project directly into the Willamette River.

F. Greenway goal exception. Approval of an exception to Statewide Planning Goal 15, Willamette Greenway, is required to locate development or a right-of-way that is not river-dependent or river-related within 25 feet of the top of bank. A greenway goal exception is not required to add revetments to a riverbank. The approval criteria are in Section 33.840.200, Greenway Goal Exception.

33.510.261 Parking Built After July 9, 2018

A.-G. [No change]

F. Growth Parking. The regulations of this subsection apply to Growth Parking. Adjustments to the regulations of this subsection are prohibited.

1.-2. [No change]

3 Maximum allowed parking. Growth Parking is limited to the maximum ratios in Table 510-~~1~~2. Where there is more than one use on a site, the amount of parking allowed is calculated based on the net building area of each use.

4. [No change]

Commentary

Table 510-2

Table 510-1 has been renumbered to account for the new tree replacement table added in 33.510.253.E.5.i.

Table 510-~~1~~2 Maximum Parking Ratios [1]						
Uses	**Parking Sectors**					
	1 North Pearl	2 North/ Northeast	3 Goose Hollow	4 Core	5 Central Eastside	6 South Waterfront
Residential Uses	1.2	1.2	1.2	1.2	1.2	1.2
Office, Retail Sales And Service, Schools, Colleges, Daycare	1.5	1.35	1.5	1.0	2.0	2.0
Grocery Store	2.0	2.0	2.0	2.0	2.0	2.0
Anchor Retail [2]	1.5	1.5	1.5	1.5	1.5	1.5
Hotel/motel and meeting or conference rooms	1/room, plus 1/1,000 square feet of meeting/conference rooms.					
Manufacturing and Production, Warehouse and Freight Movement, Wholesale Sales, Industrial Service	1.0	2.0	1.0	1.0	2.0	1.0
Medical Center	1.5	1.35	1.5	1.5	2.0	2.0
Major Event Entertainment, Commercial Outdoor Recreation, Parks And Open Areas	Parking requires Central City Parking Review and must meet the Visitor parking approval criteria in 33.808.100.					
Community Service, Religious Institutions, Theaters, and all other uses	.5	.5	.5	.5	.5	.5

[1] Maximum ratios are per 1,000 square feet of net building area for non-residential/hotel uses; per dwelling unit or hotel room for residential/hotel uses

[2] Anchor retail is a single structure with more than 50,000 square feet of net building area in Retail Sales and Service uses.

33.510.261.G.4. Maximum allowed parking

This amendment updates the reference to Table 510-2, Maximum Parking Ratios.

G.- Preservation Parking. The regulations of this subsection apply to Preservation Parking. Adjustments to this subsection are prohibited.

1.-3. [No change]

4 Maximum allowed parking. The maximum ratio for Preservation Parking is the same as for Growth Parking, except for hotels and motels where the maximum ratio is one half the ratio allowed for new hotels. See Table 510-~~1~~2. Where there is more than one use on a site, the amount of parking allowed is calculated based on the net building area of each use.

H.-I. [No change]

Commentary

33.631 Sites in the Combined Flood Hazard Area

This amendment updates the name of the title to refer to the "combined flood hazard area" to recognize that the requirements of this chapter apply to within the combined flood hazard area, which is the area comprised of the farthest landward extent of the FEMA 100-year floodplain (area with a one percent chance of flooding in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management.

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the 100-year floodplain and incorporate it into the City's regulated floodplains. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.631.100.A. RF through R2.5 zones.

These amendments clarify that these requirements apply to the combined flood hazard area, not just the Special Flood Hazard Area, as described above.

33.631.100.B.1

To ensure that lots created by land divisions do not result in loss of floodplain habitat and functions, this amendment requires that all lots created must have sufficient area outside of the combined flood hazard area to accommodate development. New lots fully within the combined flood hazard area or without adequate area for development are not allowed.

33.631.100.B.2

This amendment removes the allowances to create lots without adequate area outside of the combined flood hazard area for development and uses that are not river dependent or river-related. This amendment ensures that the creation of new lots through land divisions will not automatically result in impacts to floodplain habitat. Consistent with the intent of the FEMA BiOp, this amendment will ensure that newly created lots reserve sufficient land outside of the combined flood hazard to accommodate all development and future construction.

33.631.100.C.1.

This amendment clarifies that these requirements apply to the combined flood hazard area, not just the Special Flood Hazard Area, as described above.

33.631 Sites in the Combined Flood Hazard Area~~s~~ 631

33.631.020 Where the Approval Criteria Apply

The approval criteria of this chapter apply to proposals for land divisions where any portion of the land division site is in the ~~special~~ combined flood hazard area.

33.631.100 Flood Hazard Area Approval Criteria

A. RF through R2.5 zones. The following criteria must be met in the RF through R2.5 zones:

1. Where possible, all lots must be outside of the ~~special~~ combined flood hazard area; and

2. Where it is not possible to have all lots outside of the ~~special~~ combined flood hazard area, all proposed building areas must be outside of the ~~special~~ combined flood hazard area.

B. RM1 through RMP, C, E, I, IR, and CI zones. The following criteria must be met in the RM1 through RMP, C, E, I, IR, and CI zones:

1. ~~Where possible, e~~ Each lot must have adequate area outside of the ~~special~~ combined flood hazard area to accommodate allowed or proposed uses. This criterion does not apply to river-dependent uses; and

2. ~~Where it is not possible to create lots that have adequate area outside of the special flood hazard area to accommodate allowed or proposed uses, the following must be met:~~

   ~~a. Lots must be configured so that development on them will reduce the impact of flooding and to provide the greatest protection for development from flooding;~~

   ~~b. Lots must be configured so that allowed or proposed uses that are not river-dependent will be able to locate on the highest ground and near the highest point of access, and so that development on the lots can be configured in a manner that will minimize obstruction of floodwaters; and~~

   ~~c.~~ Where the proposed uses and development are river-dependent, lots must be configured so that development on them will minimize obstruction of floodwaters.

C. In all zones. The following criteria must be met in all zones:

1. Services proposed in the ~~special~~ combined flood hazard area must be located and built to minimize or eliminate flood damage to the services; and

2. [No change]

Commentary

33.700 Administration and Enforcement

33.700.075.A.4.

This amendment adds the threshold for nonconforming upgrades contained in the Landscaping standards of the River Overlay Zones chapter (33.475.220) to the list of sections that are subject to automatic changes to the dollar thresholds. The threshold triggering compliance in this subsection of the River Overlay Zones chapter (33.700.075.A.) was inadvertently left out of the list in previous amendments.

33.700.075 Automatic Changes to Specified Dollar Thresholds

The sections listed below include dollar thresholds. These thresholds will be increased or decreased each year on March 1. The change will occur automatically, and the new dollar amount will be placed in the Zoning Code without being subject to the procedures for amending the Zoning Code. The change will be based on the annual national average of the Construction Cost Index (CCI), as published in the second January issue of the Engineering News-Record.

A. The following sections are subject to this regulation. Any increase or decrease that is not a multiple of $50 will be rounded to the nearest multiple of $50:

1. 33.258.070.D.2.a;
2. 33.258.070.D.2.d(2);
3. 33.440.230.D.1;
4. 33.475.220.E.1;
5. 33.510.253.D.1.a;
6. 33.515.278.B.17.a(1);
7. 33.560.020;
8. 33.565.310.B.2;
9. Table 846-1; and
10. Table 846-3.

B. [No change]

Commentary

33.851 South Waterfront Greenway Review

South Waterfront greenway review is a greenway review tailored to the South Waterfront area, and is separate from Greenway Review under 33.440, Greenway Overlay Zones. South Waterfront greenway review is specifically focused on development activities that take place within the South Waterfront Greenway Area, which includes the area from ordinary low water to 100 feet landward of top of bank within the South Waterfront subdistrict of the Central City Plan District.

33.851.010 Purpose

This amendment changes the name of the South Waterfront Greenway Setback Area to be consistency with the name change included in 33.510, Central City Plan District, and adds a reference to the combined flood hazard area because the tree standards (33.510.253.E.5.i.) apply in the Greenway Setback Area and the combined flood hazard area. If the tree standards cannot be met, South Waterfront Greenway Review is required.

33.851.100.A Procedures

This amendment reduces the review process for South Waterfront greenway review from a Type III procedure to a Type II procedure. Utilizing a Type II procedure for South Waterfront greenway review is consistent with the review procedure used in the River Overlay Zones chapter, which applies to the greenway in the Central and South Reaches of the Willamette River. Reducing the procedure type will reduce review cost. Type III review is still required for a Greenway goal exception or in cases where a Type III Design Review is required. More information on the different procedures and their processes can be found at: https://www.portland.gov/bds/zoning-land-use/land-use-review-fees-and-types#!/action=viewmore&type=latestPages

Additionally, the amendment updates the referenced Zoning Code chapter for a Greenway Goal Exception. The requirements for a Greenway goal exception are now located in 33.840, not 33.440.360.

33.851.100.B.1 Procedure

This amendment deletes the statement that Design Review will be processed through a Type III procedure. The amendment recognizes that Design Review will not always require a Type III procedure.

33.851 South Waterfront Greenway Review

851

33.851.010 Purpose

South Waterfront greenway review provides flexibility within the South Waterfront ~~g~~Greenway Setback ~~a~~Area and combined flood hazard area and ensures that:

- Development will not have a detrimental impact on the use and function of the river and abutting lands;
- Development will conserve, enhance and maintain the scenic qualities;
- Development will contribute to enhanced ecological functions to improve conditions for fish and wildlife;
- Development will conserve the water surface of the river by limiting structures and fills riverward of the greenway setback;
- Development that does not meet the standards of 33.510.253, South Waterfront Greenway Regulations, will be consistent with the Willamette Greenway Plan and the Central City Plan; and
- The timing of greenway improvements may be flexible to ensure successful implementation of the greenway in a more comprehensive manner.

33.851.100 Review Procedures

A. Procedures. South Waterfront greenway reviews are processed through a Type II~~III~~ procedure. Greenway goal exceptions are processed through a Type III procedure, and must be approved by City Council. See Section 33.840~~440.360~~, Greenway Goal Exception, and Chapter 33.850, Statewide Planning Goal Exceptions.

B. Concurrent Design Review required.

1. Procedure. Proposals subject to South Waterfront greenway review are also subject to Design Review~~, which will be processed through a Type III procedure~~ and reviewed concurrently with the South Waterfront greenway review.
2. [No change]

Commentary

33.851.200 Notice to State Parks and Recreation Division

This amendment removes the requirement for the Bureau of Development Services to send a copy of all South Waterfront greenway reviews applications to the Oregon Department of Transportation Parks and Recreation Division. This language was incorporated into this chapter when it was created for consistency with the Greenway overlay zone chapter (33.440). However, specifically requiring this notice is no longer needed and has not been incorporated into the River Overlay Zones chapter, which is applied in the Central Reach (to the north) and the South Reach (to the south).

33.851.300.C Proposals that do not meet the requirements of 33.510.253.E.

This amendment updates the subsection to make it clear that not all of the standards in 33.510.253.E. apply to proposed development.

33.851.300.D Buildings within the South Waterfront greenway setback area.

These amendments add "Setback" to the area previously called the "Willamette Greenway Area" (shown on Figure 510-2) in all locations where it is referenced and update the references to the development standards in 33.510.253.E. to the correct subsections, based on the changes proposed for 33.510.253.

33.851.300.E Trails, viewpoints and pedestrian connections

These amendments update the references to the development standards in 33.510.253.E. to the correct subsections, based on the changes proposed for 33.510.253.

~~**33.851.200 Notice to State Parks and Recreation Division**~~

~~BDS will send a copy of all applications for South Waterfront greenway review to the Parks and Recreation Division of the Oregon Department of Transportation. The applications will be sent certified mail, return receipt requested. The notice of decision on all South Waterfront greenway reviews will also be sent to the Parks and Recreation Division.~~

33.851.300 Approval Criteria

Requests for a South Waterfront greenway review will be approved if the review body finds that the applicant has shown that all of the following approval criteria are met:

A.-B. [No change]

C. Proposals that do not meet the requirements of 33.510.253.E. If the proposal does not meet all of the applicable standards of Subsection 33.510.253.E., the following approval criteria must be met:

1.-2. [No change]

D. Buildings within the South Waterfront greenway setback area. If the proposal includes buildings that do not meet the standards of 33.510.253.E.5.~~b~~c., at least one of the following approval criteria must be met:

1. The proposal will increase the area available for riparian plant communities on the site by regrading within the greenway setback area to decrease the slope of the river bank (i.e., laying back the bank). Proposals meeting this approval criteria must show that the modified slope of the bank will be no steeper than 5:1, and that buildings will be set back at least 100 feet from ordinary high water and at least 30 feet from the modified top of bank;

2. [No change]

3. The proposal will set all buildings back an average of 100 feet from top of bank; proposals meeting this approval criteria must show that buildings will be set back at least 75 feet from top of bank, that at least 50 percent of the length of all building walls facing the South Waterfront greenway setback area will be set back at least 125 feet from top of bank, and that averaging will better enhance the recreational and ecological functions of the greenway setback area; or

4. [No change]

E. Trails, viewpoints, and pedestrian connections. If the proposal will include trails, viewpoints, or pedestrian connections that do not meet the standards of Subsection 33.510.253.E.5.~~d~~e. or ~~e~~f., the proposal must meet approval criteria E.1. and E.2., and either E.3. or E.4.:

1.-4. [No change]

Commentary

33.851.300.F Landscaping and non-landscaped area

These amendments update the references to the development standards in 33.510.253.E. to the correct subsections, based on the changes proposed for 33.510.253.

F. Landscaping and non-landscaped area. If the proposal will include landscaping or non-landscaped area that does not meet the standards of Subsection 33.510.253.E.5.~~a~~b. or 5.~~f~~g., the proposal must meet either approval criteria F.1. or F.2.:

1.-2. [No change]

Commentary

33.865 River Review

Amendments throughout this chapter replace references to the 100-year floodplain and 1996 Flood Inundation Area with a single term, "combined flood hazard area," now defined in 33.910, Definitions. The combined flood hazard area is the area comprised of the farthest landward extent of the FEMA 100-year floodplain (area that has a one percent chance of being flooded in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the current 100-year floodplain and incorporate it into the City's regulated floodplains. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.865 River Review

865

Sections:

33.865.040 Supplemental Application Requirements

In addition to the application requirements of Section 33.730.060, the following information is required when the River Review application is for development in the River Environmental overlay zone, or for modification of the River Environmental overlay zone boundary:

A. Supplemental site plan requirements. Two physical copies and one PDF of each required site plan must be submitted. The site plans must show the entire site, must be drawn accurately to a scale that is between 1 inch to 50 feet and 1 inch to 10 feet, and must show all property lines with dimensions, a north arrow and a date. Additional site plans that show only a portion of the site may be submitted. All copies of site plans must be suitable for reproduction on paper no smaller than 8.5 x 11 inches and no larger than 36 x 48 inches. The Director of BDS may waive items listed in this subsection if they are not applicable to the specific review; otherwise they must be included. Additional information such as wetland characteristics or soil type may be requested through the review process.

1. Existing conditions site plan. The existing conditions site plan must show the following:

   a. [No change]

   b. ~~100-year floodplain~~ Combined flood hazard area and floodway boundaries. In the case of a violation, also identify the location of the 100-year floodplain and floodway prior to alteration;

   ~~c. 1996 Flood Inundation Area boundary;~~

   d.-k. [Renamed as c.-j.]

2. Proposed development site plan. The proposed development site plan must show the following:

   a.-h. [No change]

   i. Location of excavation and fill and total quantities of each, including balanced cut and fill calculation for any grading in the ~~100-year floodplain and 1996 Flood Inundation Area~~combined flood hazard area;

Commentary

j.-k. [No change]

3. Construction management site plan. The construction management site plan must show the following:

   a.-c. [No change]

   d. Location of excavation and fill and total quantities of each, including balanced cut and fill calculation for any grading in the ~~100-year floodplain and or 1996 Flood Inundation Area~~combined flood hazard area;

   e.-k. [No change]

4. Mitigation or remediation site plan. A mitigation site plan is required when the proposed development will result in unavoidable significant detrimental impact on the resources and functional values identified in the *Willamette River Central Reach Natural Resources Protection Plan* (2018), *River Plan / South Reach Natural Resources Protection Plan* (2020) or when mitigation is proposed in order to meet River Review approval criteria. A remediation site plan is required when significant detrimental impacts occur in violation of the Zoning Code and no permit was applied for. The on-site or off-site mitigation or remediation site plan must show the following:

   a.-k. [No change]

   l. Location of excavation and fill and total quantities of each including balanced cut and fill calculation for any grading in the ~~100-year floodplain and 1996 Flood Inundation Area~~combined flood hazard area; and

   m. [No change]

B. Supplemental narrative. The following is required:

1.-5. [No change]

33.865.100 Approval Criteria.

Requests for a River Review will be approved if the review body finds that the applicant has shown that all applicable approval criteria have been met.

A. Development within the River Environmental overlay zone. The applicant's supplemental narrative must demonstrate that all of the following are met:

1. Land divisions, Property Line Adjustments, and Planned Developments:

   a. Except for river-dependent and river-related uses and development, proposed uses and development must be outside the ~~100-year floodplain and 1996 Flood Inundation Areas~~combined flood hazard area except as provided under Subparagraph A.1.d. Other areas of the ~~100-year floodplain and 1996 Flood Inundation Areas~~combined flood hazard area must be in environmental resource tracts;

   b.-d. [No change]

Commentary

33.865.100.A.1.e(1)

This amendment updates the referenced functional values that must be improved in the riparian buffer area to include two values: (1) bank function and control of sediments, nutrients and pollutants or (2) Large wood and channel dynamics. This update is needed because the previously-referenced functional values - channel complexity, floodplain connectivity, or floodplain complexity – are not specifically identified in the City of Portland *Natural Resource Inventory*. This change provides additional clarity on what is required when development is proposed in the riparian buffer area.

e. Mitigation:

(1) The mitigation plan demonstrates that all significant detrimental impacts on identified scenic and natural resources and functional values, and the interim loss of functional value will be compensated for. In addition, for proposed development within the riparian buffer area that is not river-dependent or river-related, the mitigation plan must result in a significant improvement of at least one of the following functional values: ~~channel complexity, floodplain connectivity,~~Bank function and control of sediments, nutrients and pollutants or ~~floodplain complexity~~large wood and channel dynamics;

(2) [No change]

(3) To the extent practicable, the natural and scenic resources and functional values restored or enhanced as mitigation must be the same kind of resource, performing the same functions as the lost resource. In addition, the mitigation plan must demonstrate that mitigation for tree removal in the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area must meet or exceed the replacement requirements of Table 475-2 and occur within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area;

(4) [No change]

(5) If on-site mitigation is not practicable or ecologically beneficial, then off-site mitigation is allowed as follows:

- Through the purchase of credits from a city approved mitigation bank located along the Lower Willamette River as close as possible to the disturbance area;
- Through offsite mitigation in the River Environmental overlay zone. If the offsite mitigation compensates for significant detrimental impacts located within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area, then the offsite mitigation area must also be located within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area. The applicant must own the area where the mitigation will occur or possess a legal instrument that is approved by the City as sufficient to carry out and ensure the success of the mitigation plan (such as an easement or deed restriction);

(6)-(7) [No change]

2. Resource enhancement and mitigation bank projects:

a.-d. [No change]

3. All other proposals in the River Environmental overlay zone:

a.-c. [No change]

Commentary

33.865.100.A.1.d(1)

This amendment updates the referenced functional values that must be improved in the riparian buffer area to include two values: (1) bank function and control of sediments, nutrients and pollutants or (2) Large wood and channel dynamics. This update is needed because the previously-referenced functional values - channel complexity, floodplain connectivity, or floodplain complexity – are not specifically identified in the City of Portland *Natural Resource Inventory*. This change provides additional clarity on what is required when development is proposed in the riparian buffer area.

d. Mitigation:

(1) The mitigation plan demonstrates that all significant detrimental impacts on identified scenic and natural resources and functional values, and the interim loss of functional value will be compensated for. In addition, for proposed development within the riparian buffer area that is not river-dependent or river-related, the mitigation plan must result in a significant improvement of at least one of the following riparian function~~sal values~~: ~~channel complexity, floodplain connectivity,~~Bank function and control of sediments, nutrients and pollutants or ~~floodplain complexity~~large wood and channel dynamics;

(2) [No change]

(3) To the extent practicable, the natural and scenic resources and functional values restored or enhanced as mitigation must be the same kind of resource, performing the same functions as the lost resource. In addition, the mitigation plan must demonstrate that mitigation for tree removal in the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area must meet or exceed the replacement requirements of Table 475-2 and occur within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area;

(4) [No change]

(5) If on-site mitigation is not practicable or ecologically beneficial, then off-site mitigation is allowed as follows:

- Through the purchase of credits from a City approved mitigation bank located along the Lower Willamette River as close as possible to the disturbance area;
- Through off-site mitigation in the River Environmental overlay zone. If the offsite mitigation compensates for significant detrimental impacts located within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area, then the offsite mitigation area must also be located within the ~~100-year floodplain or 1996 Flood Inundation Area~~combined flood hazard area. The applicant must own the area where the mitigation will occur or possess a legal instrument that is approved by the City as sufficient to carry out and ensure the success of the mitigation plan (such as an easement or deed restriction); and

(6)-(7) [No change]

Commentary

B. Modification of River Environmental overlay zone boundaries. Modifications of River Environmental overlay zone boundaries that reflect permitted changes in the location or quality of resource areas will be approved upon finding that the applicant's statement demonstrates that either Paragraph B.1 or B.2 are met. For modification of River Environmental zone boundaries based on a more detailed site specific environmental study that confirms the location of natural resource features identified in the adopted Natural Resources Inventory, the applicant's impact evaluation must demonstrate that Paragraph B.3 is met:

1.-2. [No change]

3. Modification of River Environmental overlay zone boundaries based on a more detailed site-specific environmental study. The River Environmental overlay zone line location may be modified to more accurately reflect the location of natural resources and functional values on the site. All of the following must be met:

   a.-b. [No change]

   c. The modified River Environmental overlay zone boundary must include all ~~mapped floodplain (100-year floodplain and 1996 Flood Inundation Area)~~ of the combined flood hazard area.

Commentary

33.910.030 Definitions

Combined flood hazard area

This change adds a definition of "combined flood hazard area" to the Zoning Code. This area is comprised of the farthest landward extent of the FEMA 100-year floodplain (area with a one percent chance of flooding in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management.

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the 100-year floodplain and incorporate it into the City's regulated floodplains. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.910 Definitions

910

33.910.030 Definitions

The definition of words with specific meaning in the zoning code are as follows:

Combined Flood Hazard Area. The farthest extent of the land area comprised of the Special Flood Hazard Area, the Modeled Willamette River 1996 Flood Extent and, for areas not included in the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area.

Housekeeping Amendments: References to the "Combined Flood Hazard Area"

Commentary

Housekeeping amendments: Replace floodplain references with "combined flood hazard area"

The amendments in the remaining chapters represent housekeeping amendments, where no substantive changes are proposed. The commentary below applies to all of the code changes proposed in the remaining chapters. The full list of the Zoning Code chapters where housekeeping amendment are proposed can be found on page 75.

Combined Flood Hazard Area

Throughout the following chapters, the proposed amendments replace references to flood hazard areas (including "Special Flood Hazard Area", "Flood Hazard Area", "1996 Flood Inundation Area" and others) with "combined flood hazard area." The "combined flood hazard area," which is the area comprised of the farthest landward extent of the FEMA 100-year floodplain (the area that has a one percent chance of flooding in any given year; also known as the Special Flood Hazard Area) the new Modeled Willamette River 1996 Flood Extent and, outside of the Modeled Willamette River 1996 Flood Extent, the 1996 Flood Inundation Area, as established in Metro Title 3, Water Quality and Flood Management.

The City and the U.S. Army Corps of Engineers (USACE) recognize the model used to delineate the FEMA 100-year floodplain is outdated and does not adequately represent current flood risk. In the spring of 2022, USACE released a new hydraulic model for the Lower Willamette River (including the Columbia Slough and some portions of the Columbia River near its confluence with the Willamette River). Using this hydraulic model, Bureau of Environmental Services staff developed an updated estimate of the flood extent and elevations associated with a 1996-like flood event, using Light Detection and Ranging (LiDAR) technology and recent river bathymetry surveys, upland topography and development patterns. The Modeled Willamette River 1996 Flood Extent and its associated elevations are expected to provide a more accurate estimate of future flood risk.

The City will continue to work with FEMA to utilize the new USACE Lower Willamette River model to develop an up-to-date estimate of the 100-year floodplain and incorporate it into the City's regulated floodplains. This may involve establishing a provisional FEMA Special Flood Hazard Area (100-year floodplain) until the final Special Flood Hazard Area for all of the Lower Willamette River is adopted by FEMA.

33.110 Single-Dwelling Residential Zones

33.110.202 When Primary Structures are Allowed

A.-B. [No change]

C. Primary structures allowed.

1.-3. [No change]

4. On a lot or adjusted lot or combination thereof that either:

   a. [No change]

   b. Does not meet the minimum lot size requirements stated in Table 110-3 but meets all of the following:

      (1) [No change]

      (2) No portion of the lot, adjusted lot or combination is in the ~~special~~combined flood hazard area; and

      (3) [No change]

5. [No change]

D. [No change]

33.110.230 Main Entrances

A. [No change]

B. Where these standards apply.

1.-5. [No change]

6. Development on lots where any portion of the lot is in the ~~special~~combined flood hazard area is exempt from the standard in Subsection D.

C.-D. [No change]

Commentary

33.120 Multi-Dwelling Residential Zones

33.120.231 Main Entrances

A. [No change]

B. Where these standards apply.

1.-5. [No change]

6. Development on lots where any portion of the lot is in a ~~special~~combined flood hazard area is exempt from the standard in Subsection D.

C.-D. [No change]

Commentary

33.258 Nonconforming Situations

33.258 Nonconforming Situations

33.258.060 Nonconforming Residential Densities

A. Changes to dwellings.

1. Generally. Existing dwelling units may continue, may be removed or enlarged, and amenities may be added to the site.

   a. [No change]

   b. Sites where the minimum residential density standard is not met. The following apply to sites where the minimum residential density standard is not met:

      (1) In multi-dwelling zones, there may not be a net decrease in the number of dwelling units, and the site may not move further out of compliance with base zone development standards. Generally, when dwelling units are being added to a site that is nonconforming in minimum density, the site must be brought into conformance with the minimum density requirement. However, units may be added to the site without coming all the way into conformance with the minimum residential density standard in the following situations:

         - An accessory dwelling unit is being added to an existing house, attached house, duplex, or manufactured home;
         - Dwelling units are being added within an existing structure and the footprint of the existing structure is not being enlarged;
         - Dwelling units are being added to a site in the RMP zone;
         - The site is within ~~a~~the combined flood hazard area or potential landslide hazard area.

      (2) [No change]

2. [No change]

B. Discontinuance and damage.

1.-3. [No change]

Commentary

33.285 Short Term, Mass and Outdoor Shelters

33.285 Short Term, Mass and Outdoor Shelters

285

33.285.050 Standards

A.-B. [No change]

C. Outdoor shelters.

1. An outdoor shelter is prohibited in:

   a.-e. [No change]

   f. The ~~special~~combined flood hazard area.

2.-8. [No change]

Commentary

33.296 Temporary Activities

33.296 Temporary Activities

33.296.030 Temporary Activities Allowed

A.-G. [No change]

H. Mass and outdoor shelters.

1. [No change]

2. Outdoor shelters. Outside of OS zones, outdoor shelters are allowed as a temporary activity for up to 180 days within a calendar year when the outdoor shelter is located outside of Environmental overlay zones, the River Natural overlay zone, the River Environmental overlay zone, the Pleasant Valley Natural Resource overlay zone, and the ~~special~~combined flood hazard area

I.-J. [No change]

Commentary

33.418 Constrained Sites Overlay Zone

33.418 Constrained Sites Overlay Zone

418

33.418.030 Applying the Constrained Sites Overlay Zone

The Constrained Sites overlay zone is applied to lots in the R7, R5 and R2.5 zones when any portion of the lot has one of the following constraints:

A. [No change]

B. ~~Special~~Combined flood hazard area

C. [No change]

~~**D. 1996 Flood Inundation area**~~

~~**E**~~**D.** [No change]

~~**F**~~**E.** [No change]

~~**G**~~**F.** [No change]

~~**H**~~**G.** [No change]

~~**I**~~**H.** [No change]

~~**J**~~**I.** [No change]

Commentary

33.465 Pleasant Valley Natural Resources Overlay Zone

33.465 Pleasant Valley Natural Resources Overlay Zone

33.465.240 Supplemental Application Requirements

In addition to the application requirements of Section 33.730.060, the following information is required for a Pleasant Valley resource review application:

A. Supplemental site plan requirements. One copy of each plan must be at a scale of at last one inch to 100 feet. Site plans must show existing conditions, conditions existing prior to a violation, proposed development, and construction management. A mitigation site plan is required whenever the proposed development will result in unavoidable significant detrimental impact on the identified resources and functional values. A remediation site plan is required whenever significant detrimental impacts occur in violation of the Code and no permit was applied for. The Director of BDS may waive items listed in this subsection if they are not applicable to the specific review; otherwise they must be included. Additional information such as wetland characteristics or soil type may be requested through the review process

1. Site plans must show the following:

   a. For the entire site:
      - ~~100-year floodplain~~Combined flood hazard area and floodway boundaries;
      - Boundaries of the Pleasant Valley Natural Resources overlay zone. These boundaries may be scaled in relation to property lines from the Official City Zoning Maps;
      - Topography shown by contour lines at two-foot vertical contours in areas of slopes less than ten percent and at five-foot vertical contours in areas of slopes ten percent or greater;
      - Drainage patters, using arrows to indicate the direction of major drainage flow; and
      - Existing improvements such as structures, or buildings, utility lines, fences, etc.

   b.-c. [No change]

2.-3. [No change]

B. [No change]

Commentary

33.537 Johnson Creek Basin Plan District

33.537 Johnson Creek Basin Plan District

537

33.537.020 Where These Regulations Apply

The regulations of this chapter apply in the Johnson Creek Basin plan district. The boundaries of the plan district are shown on Map 537-1 at the end of this chapter, and on the Official Zoning Maps.

The regulations of Sections 33.537.010 through 33.537.120 apply to all sites in the plan district. The regulations of Section 33.537.125 apply to sites that abut the Springwater Corridor, sites where any portion is within the ~~special~~combined flood hazard area and sites where any portion is within the South subdistrict. The regulations of Section 33.537.130 apply to sites that abut the Springwater Corridor. Where any portion of a site is in the ~~special~~combined flood hazard area, the entire site is exempt from the regulations of Section 33.537.140 and is instead subject to the regulations of Section 33.537.150. The regulations of Section 33.537.160 apply to sites in the Johnson Creek Flood Risk Area. The South subdistrict, Springwater Corridor, and Flood Risk Area are shown on Map 537-1.

33.537.110 Transfer of Development Rights

A. Purpose. These transfer of development rights regulations preserve development opportunities for new housing and reduce development pressure on environmentally sensitive sites. The regulations allow development rights to be transferred from sites with the Environmental Protection Overlay Zones or sites where any portion of the site is in the ~~special~~combined flood hazard area to areas that can accommodate the additional density without environmental conflict.

B. **Regulations.** Transfer of development rights between sites in the plan district is allowed as follows. "Development rights" are the number of potential dwelling units that would be allowed on the site. Bonus density is not transferable.

1. Sending sites.

   a. [No change]

   b. Sites in single-dwelling zones where any portion of the site is in the ~~special~~combined flood hazard area may transfer development rights.

2. Receiving sites. All sites within the Johnson Creek plan district may receive development rights from sending sites except:

   a.-b. [No change]

   c. Sites where any portion of the site is in the ~~special~~combined flood hazard area; and

   d. [No change]

3.-6. [No change]

Commentary

33.537.120 Bonus Density

A. [No change]

B. **Qualifying situations.** Density bonuses are allowed except where prohibited. Density bonuses are prohibited on:

1. [No change]

2. Sites where any portion of the site is in the ~~special~~combined flood hazard area; or

3. [No change]

C.-D. [No change]

33.537.125 Tree Removal Standards

A. [No change]

B. **Where these regulations apply.** The standards of this section apply to trees that are 6 or more inches in diameter in the following locations:

1. [No change]

2. On sites where any portion of the site is within the ~~special~~combined flood hazard area; and

3. [No change]

C.-D. [No change]

33.537.140 South Subdistrict Development Standards

A. [No change]

B. **Where these regulations apply.** The regulations of this section apply in the South subdistrict as shown on Map 537-1. Where any portion of a site is in the ~~special~~combined flood hazard area, the entire site is exempt from the standards of this section and is instead subject to the regulations of Section 33.537.150, Floodplain Development Standards.

C.-E. [No change]

33.537.150 Floodplain Standards

A. [No change]

B. **Where these regulations apply.** These regulations apply to sites where any portion of the site is in the ~~special~~combined flood hazard area..

C.-E. [No change]

Commentary

33.564 Pleasant Valley Plan District

33.564 Pleasant Valley Plan District

564

33.564.070 Transfer of Development Rights

A. [No change]

B Regulations. Transfer of development rights between sites is allowed as follows:

1.-2. [No change]

3. Receiving sites. Development rights may be transferred to any site in the Pleasant Valley plan district or the Johnson Creek Basin plan district except.

   a. [No change]

   b. Sites where any portion of the site is within the ~~100-year floodplain as currently defined by the Federal Emergency Management Agency~~combined flood hazard area; or:

   c. [No change]

4.-7. [No change]

33.564.310 Relationship to other Land Division and Planned Development Regulations

Land divisions and Planned Developments in the Pleasant Valley plan district are subject to the regulations and procedures of the 600 series of chapters of this Title unless superseded by regulations of this plan district. The following do not apply:

A. Chapter 33.631, Sites in ~~Special~~the Combined Flood Hazard Area; and

B. [No change]

Commentary

33.610 Lots in RF through R5 Zones

33.610 Lots in RF through R5 Zones

610

33.610.100 Density Standards

A.-B. [No change]

C. No street created. Where no street will be created as part of the land division, the following maximum and minimum density standards apply. Adjustments to this subsection are prohibited:

1. [No change]

2. Minimum density. Minimum density is based on the zone and size of the site, and whether there are physical constraints. The following formula is used to determine the minimum number of lots required on the site. Exceptions to minimum density are allowed under the provisions of Subsection 33.610.100.E:

   Square footage of site;

   - Square footage of site within an environmental or River Environmental overlay zone, potential landslide hazard area, or ~~special~~the combined flood hazard area;
     x 0.80;
     ÷ Maximum density from Table 610-1;
     = Minimum number of lots required.

D. Street created. Where a street will be created as part of the land division, the following maximum and minimum density standards apply. Pedestrian connections that are self-contained streets created solely for the use of pedestrians and bicyclists are not considered streets for the purposes of calculating density under this subsection. Adjustments to this subsection are prohibited:

1. [No change]

2. Minimum density. Minimum density is based on the zone, the size of the site, whether there are physical constraints, and whether a street is being created. The following formula is used to determine the minimum number of lots required on the site. Exceptions to minimum density are allowed under the provisions of Subsection 33.610.100.E:

   Square footage of site;

   - Square footage of site within an environmental or River Environmental overlay zone, potential landslide hazard area, or ~~special~~the combined flood hazard area;
     x 0.68;
     ÷ Maximum density from Table 610-1;
     = Minimum number of lots required.

E. [No change]

Commentary

33.611 Lots in the R2.5 Zone

33.611 Lots in the R2.5 Zone

611

33.611.100 Density Standards

A.-B. [No change]

C. No street created. Where no street will be created as part of the land division, the following maximum and minimum density standards apply. Adjustments to this subsection are prohibited:

1. [No change]

2. Minimum density. Minimum density is based on the zone and the size of the site and whether there are physical constraints. The following formula is used to determine the minimum number of lots required on the site. Exceptions to minimum density are allowed under the provisions of 33.611.100.E:

   Square footage of site;

   - Square footage of site within an environmental or River Environmental overlay zone, potential landslide hazard area, or ~~special~~the combined flood hazard area;
     x 0.80;
     ÷ 5;000;
     = Minimum number of lots required.

D. Street created. Where a street will be created as part of the land division, the following maximum and minimum density standards apply. Pedestrian connections that are self-contained streets created solely for the use of pedestrians and bicyclists are not considered streets for the purposes of calculating density under this subsection. Adjustments to this subsection are prohibited:

1. [No change]

2. Minimum density. Minimum density is based on the zone, the size of the site, whether there are physical constraints, and whether a street is being created. The following formula is used to determine the minimum number of lots required on the site. Exceptions to minimum density are allowed under the provisions of Subsection 33.610.100.E:

   Square footage of site;

   - Square footage of site within an environmental or River Environmental overlay zone, potential landslide hazard area, or ~~special~~the combined flood hazard area;
     x 0.68;
     ÷ 5,000;
     = Minimum number of lots required.

E. [No change]

Commentary

33.634 Required Recreation Area

33.634 Required Recreation Area

634

33.630.200 Required Recreation Area Standards

A.-C. [No change]

D. Location of preserved trees. Recreation area tracts required by this chapter must meet the following standards:

1. [No change]

2. Location. No more than 50 percent of each recreation area tract may be in an Environmental Overlay Zone or in ~~a special~~the combined flood hazard area;

3.-5. [No change]

Commentary

33.654 Rights-of-Way

33.654 Rights-of-Way

654

33.654.110 Connectivity and Location of Rights-of-Way

A. [No change]

B. Approval criteria.

1. Through streets and pedestrian connections in OS, R, C, E, CI, and IR Zones. In OS, R, C, E, CI, and IR zones, through streets and pedestrian connections are required where appropriate and practicable, taking the following into consideration:

   a.-b. [No change]

   c. Characteristics of the site, adjacent sites, and vicinity, such as:

      (1)-(4) [No change]

      (5) Whether any of the following interrupt the expected path of a through street or pedestrian connection:

         - Environmental, Pleasant Valley Natural Resource, or Greenway overlay zones;
         - Tree groves;
         - Streams;
         - ~~Special~~Combined flood hazard area~~s~~; or
         - Wetlands; and

   d.-e. [No change]

2.-4. [No change]

33.654.130 Additional Approval Criteria for Rights-of-Way

A.-B. [No change]

C. Future extension of proposed dead-end streets and pedestrian connections. Where the land division site is adjacent to sites that may be divided under current zoning, dead-end streets and pedestrian connections must be extended to the boundary of the site as needed to provide future access to the adjacent sites. Options for access and street locations must consider the characteristics of adjacent sites, including terrain, the location of existing dwellings, environmental or Pleasant Valley Natural Resource overlay zoning, streams, wetlands, ~~special~~combined flood hazard area~~s~~, and tree groves. The following factors are considered when determining if there is a need to make provisions for future access to adjacent sites. A need may exist if:

1.-2. [No change]

D.-E. [No change]

Commentary

33.660 Review of Land Divisions in Open Space, Residential, and IR Zones

33.660 Review of Land Divisions in Open Space, Residential, and IR Zones

660

33.660.110 Review Procedures

A. [No change]

B. Type IIx. Except as provided in Subsection A, above, land division proposals that include any of the following elements are processed through a Type IIx procedure:

1.-2. [No change]

3. Lots, utilities, or services are proposed within ~~a special~~the combined flood hazard area; or

4. [No change]

C. [No change]

33.660.120 Approval Criteria

A.-B. [No change]

C. ~~Special~~Combined flood hazard area. If any portion of the site contains ~~special~~combined flood hazard area, the approval criteria of Chapter 33.631, Sites in ~~Special~~ Flood Hazard Areas, must be met;

D.-L. [No change]

33.660.310 Review Procedures

A. [No change]

B. Same procedure as was used for Preliminary Plan. The following proposals are processed through the same procedure type as was used for the Preliminary Plan approval:

1.-9. [No change]

10. Changing the purpose of, or deleting, the following tracts or easements:

a.-c. [No change]

d. ~~Special~~Combined flood hazard area easements or tracts;

e.-g. [No change]

11. Reducing the area or changing the location of the following tracts:

a. [No change]

b. ~~Special~~Combined flood hazard area tract; or

c. [No change]

12.-13. [No change]

Commentary

33.662 Review of Land Divisions in CI, Commercial/Mixed Use, Employment, and Industrial Zones

33.662 Review of Land Divisions in CI, Commercial/Mixed Use, Employment, and Industrial Zones

33.662.110 Review Procedures

A. [No change]

B. Type IIx. Except as provided in Subsection A, above, land division proposals that include any of the following elements are processed through a Type IIx procedure:

1.-2. [No change]

3. Lots, utilities, or services are proposed within ~~a special~~the combined flood hazard area; or

4. [No change]

C. [No change]

33.662.120 Approval Criteria

A.-B. [No change]

C. ~~Special~~Combined flood hazard area. If any portion of the site contains ~~special~~combined flood hazard area, the approval criteria of Chapter 33.631, Sites in ~~Special~~the Combined Flood Hazard Area~~s~~, must be met;

D.-L. [No change]

33.662.310 Review Procedures

A. [No change]

B. Same procedure as was used for Preliminary Plan. The following proposals are processed through the same procedure type as was used for the Preliminary Plan approval:

1.-6. [No change]

7. Deleting any of the following:

a.-c. [No change]

d. ~~Special~~Combined flood hazard area easements or tracts;

e.-f. [No change]

8. Reducing the area or changing the location of any of the following:

a. [No change]

b. ~~Special~~Combined flood hazard area tract; or

c. [No change]

9. [No change]

Commentary

33.664 Review of Land Divisions on Large Sites in Industrial Zones

33.664 Review of Land Divisions on Large Sites in Industrial Zones

664

33.664.120 Approval Criteria

A Preliminary Plan for a land division will be approved if the review body finds that the applicant has shown that all of the following approval criteria have been met. The approval criteria are:

A. The applicant must show that the proposal can meet the following standards and approval criteria at the time of Final Plat. These standards and criteria do not have to be met as part of the Preliminary Plan, but the proposal must show that the standards and criteria can be met using the proposed configuration of blocks and the approaches included in the proposal:

1.-2. [No change]

3. ~~Special~~Combined flood hazard area. If any portion of the site contains ~~special~~combined flood hazard area, the approval criteria of Chapter 33.631, Sites in ~~Special~~the Combined Flood Hazard Area~~s~~, can be met by the proposal;

4.-5. [No change]

B. [No change]

33.664.220 Approval Criteria

These approval standards apply to land divisions where the Preliminary Plan was reviewed under the regulations of this chapter. The Final Plat for a land division will be approved if the review body finds that the applicant has shown that all of the following approval criteria have been met. The approval criteria are:

A. [No change]

B. Conformance with requirements of this Title. Where lot lines are proposed as part of the Final Plat process:

1. The following must be met for the portion of the site where lot lines are proposed:

a.-b [No change]

c. ~~Special~~Combined flood hazard area. If any portion of the site contains ~~special~~combined flood hazard area, the approval criteria of Chapter 33.631, Sites in ~~Special~~the Combined Flood Hazard Area~~s~~, must be met;

d.-i [No change]

3. [No change]

4.-5. [No change]

C.-D [No change]

Commentary

E. Dedications, Tracts, and Easements.

1. [No change]

2. Tracts and easements.

   a. [No change]

   b. All environmental resource tracts, ~~special~~combined flood hazard area tracts, and landslide hazard tracts for the entire site must be met with the first Final Plat.

F.-G. [No change]

Commentary

33.675 Replats

33.675.300 Approval Criteria

A replat will be approved if the review body finds that the applicant has shown that all of the approval criteria have been met:

A. Lots. The replatted lots must meet the standards of Chapters 33.605 through 33.615, with the following exceptions:

1. Lot dimension standards.

   a. Lots and adjusted lots that do not meet the minimum lot area required for new lots are exempt from the minimum lot area requirement if they do not move further out of conformance with the minimum lot area required for new lots, and they meet the following:

      (1) [No change]

      (2) No portion of the lot or adjusted lot is in the ~~special~~combined flood hazard area; and

      (3) [No change]

   b. [No change]

   c. Minimum lot width. Lots and adjusted lots that do not meet the minimum lot width required for new lots are exempt from the minimum lot width requirement if they do not move further out of conformance with the minimum lot width required for new lots, and they meet the following:

      (1) [No change]

      (2) No portion of the lot or adjusted lot is in the ~~special~~combined flood hazard area; and

      (3) [No change]

2.-5. [No change]

B.-E. [No change]

Commentary

33.677 Property Line Adjustments

33.677 Property Line Adjustments

33.677.300 Standards

The site of a Property Line Adjustment is the two properties affected by the relocation of the common property line. A request for a Property Line Adjustment will be approved if all of the following are met:

A. [No change]

B. **Regular lot lines.** In the R10 through RM4, and RMP zones, the adjusted property line must be a straight line or up to 20 percent shorter or 20 percent longer than the existing lot line. Lines that are adjusted to follow an established zoning line or the boundary of the ~~special~~combined flood hazard area or floodway are exempt from this requirement. In addition, if both properties are part of a site with an institutional use on it, this standard does not apply.

Commentary

33.730 Quasi-Judicial Procedures

33.730 Quasi-Judicial Procedures

33.730.060 Application Requirements

A.-C. [No change]

D. Required information for land divisions. Unless stated elsewhere in this Title, a complete application for a land division consists of the materials listed below. The Director of BDS may waive items listed if they are not applicable to the specific review. The applicant is responsible for the accuracy of all information submitted with the request. At least one copy of each plan/map submitted with the application must be 8 ½ by 11 inches in size, and be suitable for reproduction.

1. Preliminary Plan for all sites except those taking advantage of Chapter 33.664, Review of Large Sites in I Zones. An application for Preliminary Plan for all sites except those taking advantage of Chapter 33.644, Review of Large Sites in I Zones, must include all of the following:

   a.-b. [No change]

   c. Vicinity map. Three copies of a vicinity map. The map must cover an area extending at least 800 feet in each direction from the land division site, and show the following existing conditions for both the site and the vicinity:
      - Zoning and Comprehensive Plan designations;
      - Streets;
      - Transit, pedestrian, and bicycle facilities and connections; and
      - Water bodies, wetlands, ~~special~~combined flood hazard areas, floodways, and potential landslide hazard areas; and
      - Location of utilities and services;

   d. Copies of the proposed land division, drawn to scale and of a format, material, and number acceptable to the Director of BDS. The required information may be grouped on several maps. The location of items not required to be surveyed must be accurately shown on the maps. The proposed land division maps must include the following information:

      (1) [No change]

      (2) Existing conditions map. The following existing site conditions must be shown:

      Surveyed information:
      - Ground elevations shown by contour lines at 5-foot vertical intervals for slopes greater than 10 percent, and at 2-foot vertical intervals for ground slopes of 10 percent or less;
      - Existing development, including dimensions and distances to property lines. Structures and facilities to remain must be identified;

Commentary

- All trees completely or partially on the site that are 6 inches or more in diameter. Trees more than 25 feet inside a tract within which all trees will be preserved do not have to be surveyed. On sites where the proposal is to preserve tree canopy under Option 5 or 6 of the Tree Preservation Standards in 33.630.100.A.5 or 6, the trees do not have to be surveyed;
- Location and dimensions of existing driveways, curb cuts, and sidewalks on and abutting the site;
- Seeps and springs, wetlands, watercourses, and all water bodies including the ordinary high water line and top of bank; if there is a seep or spring on the site, a wetland delineation is required to determine the edge of the seep or spring. This delineation must be performed by an environmental scientist;
- The centerline of existing drainageways, including ditches, swales, and other areas subject to wet weather inundation; and
- Location of flood hazard areas, including elevations of the ~~special~~combined flood hazard area and floodway boundaries. Sites that contain a water body not shown on the ~~special~~combined flood hazard area maps must identify the location of the ~~special~~combined flood hazard areas;

Additional information:

- Zoning and Comprehensive Plan designations; and
- Location, dimensions, and purpose of existing easements on and abutting the site;

(3) Proposed improvements map. The following proposed improvements must be shown:

- Enough information to determine that minimum lot width requirements are met for each proposed lot including footprint of structures and locations of driveways if necessary;
- Distances of all known proposed development to proposed lot lines;
- Proposed pedestrian connections;
- If proposed lots are within a ~~special~~combined flood hazard area or landslide hazard area, proposed building locations, and
- If Preliminary Plan phasing is proposed; boundaries of sequence of the proposed phasing.
- Existing and proposed services and utilities; and

Commentary

- Preliminary Stormwater Plan that meets the requirements of the Stormwater Management Manual and the BES Sewer Design Manual. This plan must show the capacity, type, and location, as well as the land area required, of the stormwater management system and stormwater disposal facilities proposed. The plan must also provide information on the feasibility of the stormwater management system being proposed;

(4) [No change]

e.-k. [No change]

2.-4. [No change]

Commentary

33.854 Planned Development Review

33.854 Planned Development Review

33.854.340 Proposals Without a Land Division

A.-B. [No change]

C. Combined ~~F~~flood hazard area~~s~~.

1. RF through R2.5 zones. In the RF through R2.5 zones, all proposed building locations must be outside of the combined flood hazard area.

2. RM2 through RX, C, E, I, and IR zones. In the RM2 through RX, C, E, I, and IR zones, all proposed building locations must be outside of the combined flood hazard area where possible. Where it is not possible to have all building locations outside of the combined flood hazard area, all proposed building locations must be configured to reduce the impact of flooding and to provide the greatest protection for development from flooding. Proposed building locations must be clustered on the highest ground and near the highest point of access, and they must be configured in a manner that will minimize obstruction of floodwaters

D.-G. [No change]

33.854.500 Types of Changes

There are three types of changes; major, minor, and administrative

A. Major change. A major change is one that will have significant impacts on the development in the PD, or on the site surrounding the PD. Major changes include:

1.-5. [No change]

6. Deleting or changing the purpose of combined flood hazard or landslide hazard easements; or

7.-8. [No change]

D.-G. [No change]

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About City of Portland Bureau of Planning and Sustainability
The Bureau of Planning and Sustainability (BPS) develops creative and practical solutions to enhance Portland's livability, preserve distinctive places, and plan for a resilient future.

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