Commentary

Chapter 33.475 is a new chapter and is not underlined for ease of reading.

New Chapter 33.475 River Overlay Zones

This new chapter establishes the development regulations for sites within the Willamette Greenway boundary in the Central Reach, except for sites within the South Waterfront Subdistrict and sites zoned industrial. The greenway regulations for the South Waterfront Subdistrict are found in 33.510.253. In the future, as river planning for the North and South reaches is completed, Chapter 475 will be updated specifically for those areas and will replace Chapter 440 Greenway Overlay Zones in its entirety. Industrially zoned sites in the Central Reach will be included in the update of the industrial North Reach because Central Reach sites zoned industrial share common characteristics with those in the North Reach.

The river overlay zones replace the Greenway overlay zones’ terminology of 33.440. In the Central Reach, the applicable river overlay zones are River General and River Environmental.
33.475 River Overlay Zones

Sections:

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- 33.475.020 River Overlay Zones
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- 33.475.040 When These Regulations Apply
- 33.475.050 Supplemental Permit Application Requirements

River General Overlay Zone
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- 33.475.430 Prohibitions
- 33.475.440 Development Standards
- 33.475.450 Corrections to Violations of River Environmental Overlay Zone Development Standards

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- 33.475.500 Removal or Remediation of Hazardous Substances

Map 475-1 Central Reach River Overlay Boundary
Map 475-2 Willamette River Top of Bank
Map 475-3 Governor Tom McCall Waterfront Park and Eastbank Crescent
Commentary

33.475.010. A. Purpose
The River General and River Environmental overlay zones exist or are proposed within the Greenway Boundary within the Central Reach. The River General overlay zone covers entire sites and includes development standards for the river setback, landscaping and lighting. There are no use restrictions outside of the river setback area in the River General overlay zone. Instead the base zones govern the allowed uses including urban scale residential, commercial, mixed-use development and open space/recreation uses that bring people to the riverfront, meeting the purpose of the River General overlay zone.

The River Environmental overlay zone is a new overlay zone that overlaps the River General overlay zone. The River Environmental overlay zone is applied to high or medium ranked riparian corridors and wildlife habitat as identified in the Central Reach Natural Resources Protection Plan (2017). The Protection Plan describes and maps the location, extent and relative condition of natural resources that provide riparian corridors and wildlife habitat functions in the Central Reach. The river, riverbank and riparian areas within at least 50 feet of the top of bank are ranked high or medium. The width of the riparian area may be wider than 50 feet from the top of bank depending on the natural resources present, including vegetated floodplains and riparian vegetation. The River Environmental overlay zone does not apply to low-ranked natural resources, for example developed floodplains located more than 50 feet from top of bank. This is consistent with best available science, including Metro’s Title 13 Nature in Neighborhoods Program and City of Portland’s Natural Resources Inventory (adopted as a part of the 200035 Comprehensive Plan), which documented that the absolute minimum width of a protected riparian corridor around rivers, streams and wetlands should be 50 feet. Federal regulations and maps related to the floodway and floodplain may change in the near future and result in necessary changes to the requirements of this section.

33.475.020. B. Map Symbols
This subsection provides the map symbols for River General and River Environmental overlay zones. The River General overlay zone has a map symbol g* to differentiate it from the River General overlay zones that exist in the other reaches and outside of the boundary of these regulations in the Central Reach.

There are code section spaces between the River g* and River e regulations that are placeholders for the other river overlay zones that will be included in this chapter in the future. In the North and South reaches, there are the River Industrial and River Recreational overlay zones. When the City updates the Willamette Greenway Plan for these reaches, the regulations of 33.440 will be replaced by 33.475. The final 33.475 will include the following sections:

- 33.475.100 River Industrial Overlay Zone (future - not included)
- 33.475.200 River General Overlay Zone (included)
- 33.475.300 River Recreational Overlay Zone (future - not included)
- 33.475.400 River Environmental Overlay Zone (included)
- 33.475.500 Clean Up of Contaminated Sites (included)

The River Environmental overlay zone will always be applied along with one of the other river overlay zones. It is not a freestanding overlay zone.
33.475.010 Purpose
The River Overlay zones generally promote the protection, conservation, restoration, enhancement and maintenance of the economic, natural, scenic, and recreational qualities of lands along the central reach of the Willamette River. This purpose is achieved by applying regulations that control development of land, change of use and intensification of use. The regulations reflect the desired character of the central reach of the Willamette River—a character that includes:

- A healthy river and watershed;
- A thriving riverfront with regional gathering spaces, active and passive recreational uses, maritime and commercial activities, and a welcoming mixed-use community; and
- Access to, along and in the river.

The River Overlay Zones also implement the City’s responsibilities under ORS 390.310 to 390.368.

33.475.020 River Overlay Zones

A. Purpose. The River Overlay zones implement the land use pattern identified in the Central City 2035 Plan (2017). There are two River Overlay zones each with their own purpose:

1. River General. The River General overlay zone allows for uses and development that are consistent with the base zoning and allows for public use and enjoyment of the riverfront.

2. 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 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 have no net loss of natural resource features or functions over time. The River Environmental overlay zone applies to specific natural resource areas identified in a detailed study titled Willamette River Central Reach Natural Resources Protection Plan (2017). This overlay zone always applies in combination with one of the other River Overlay zones.

B. Map symbols. The River Overlay Zones are shown on the official zoning maps with the following symbols:

<table>
<thead>
<tr>
<th>Overlay Zone</th>
<th>Map Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>River General</td>
<td>g*</td>
</tr>
<tr>
<td>River Environmental</td>
<td>e</td>
</tr>
</tbody>
</table>
Commentary

33.475.030 and 33.475.040 Where and When These Regulations Apply
These sections clarify where and when the regulations in this chapter apply to uses and development that occur on the land and in the water. Map 475-1 depicts the area within which the river overlay zones and regulations of this chapter apply in the Central Reach minus South Waterfront (see 33.510.253) and sites zoned industrial. The latter will continue to meet the regulations of 33.440 Greenway Overlay Zones until such time as new regulations are adopted and those new regulations apply.

33.475.040.B.2 Exemptions
Some development and activities that occur within the River Environmental overlay zone will be exempt from regulation. These activities exempt from the regulations are important for the continued operation of existing facilities. Examples include the operation, maintenance, repair and replacement of existing structures and improvements, alterations that do not change the footprint of a building, and placement of a certain number of piles and dolphins. The majority of these exemptions mirror the levels of development and alteration that are currently exempt from the regulations of the Environmental overlay zones or are exempt from Greenway Review.
33.475.030 Where These Regulations Apply
The regulations of this chapter apply to the land and the water within the Central Reach portion of the Willamette Greenway Plan boundary shown on Map 475-1 and designated on the Official Zoning Maps with the River General (g*) and the River Environmental (e) overlay zones. The regulations of this chapter do not apply to the River General (g) overlay zone located within the Greenway Overlay zone boundary shown on Map 440-1. See Chapter 33.440, Greenway Overlay zones for regulations that apply to the River General (g) overlay zone within the Greenway Overlay zone boundary.

33.475.040 When These Regulations Apply

A. River General overlay zone. The regulations in Sections 33.475.200 through 33.475.260 apply to any changes to land or development in the River General overlay zone including rights-of-way.

B. River Environmental overlay zone. The regulations in 33.475.400 through 33.475.450 apply in the River Environmental overlay zone as follows:

1. Unless exempted by Paragraph B.2., the regulations apply to:
   a. Development;
   b. Planting, removing, cutting, mowing, clearing, burning or poisoning trees or vegetation;
   c. Changing topography, grading, excavation or filling; and
   b. Resource enhancement.

2. Exemptions. The following items are exempt from the River Environmental overlay zone regulations:
   a. Change of ownership;
   b. Temporary emergency procedures necessary for the protection of life, health, safety, or property;
   c. Changes to the interior of a building where there are no exterior alterations;
   d. Operation, maintenance, alterations, repair, and replacement of existing structures, exterior improvements, irrigation system, stormwater facilities, non-potable water systems, roads, utilities, public trails and paths, public viewpoints, public interpretive facilities, and erosion control measures. Alterations, repair and replacement is not exempt whenever total square footage, building coverage or utility size is increased;
33.475.040.B.2.e.
Under the current greenway regulations all dredging, channel maintenance and removal of gravel/materials from the river is exempt from Greenway review. This narrows that exemption because dredging in or near shallow water and beaches could have significant detrimental impacts on the habitat that the shallow water provides. Beaches and shallow water play important roles in the life cycle of aquatic species, including salmon, and impacts to these areas should be avoided. The exemption language allows dredging in the main federal navigation channel and dredging in waters more than 35 feet deep without having to meet development standards or go through River Review. Shallow water is identified as water between the ordinary high water mark (OHWM) and 20 feet below the OHWM. Using 35 feet as the trigger for review is appropriate because the area between 20 and 35 feet deep represents an area of concern where the impacts of dredging could affect the habitat in the shallow water areas.

Maintenance dredging that occurs outside the main river channel and has been approved by the U.S. Army Corps of Engineers will continue to be exempt from the River Environmental overlay zone regulations.

33.475.040.B.2.f
The River General overlay zone requires removal of structures and debris prior to planting vegetation. If the structures or debris are located above the ordinary high water mark (OHWM), then removal is exempt from the regulations of 33.475.400. If the structures or debris are located below the OHWM, then the regulations of 33.475.400 must be met.

33.475.040.B.2.l
Removal of non-native vegetation with handheld equipment and thinning of small trees allows for basic maintenance to ensure survivability of native vegetation within the River Environmental overlay zone. Disturbance areas must be replanted to meet the landscaping standards of Table 475-1. Because the River Environmental overlay zone may extend landward of the river setback, outside of the river setback, subarea 3 landscaping standards apply. This will ensure a consistent approach to planting trees throughout the River Environmental overlay zone.

It is possible that after the thinning of trees and removal of non-native vegetation, the remaining vegetation already meets the landscaping standards of Table 475-1. In this situation, no additional planting is required.
e. Dredging, channel maintenance, and the removal of materials from the river as follows:

(1) Dredging, channel maintenance, and the removal of material within the federal navigation channel.

(2) 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.

(3) The placement of dredged materials within the River Environmental overlay zone is not exempt.

f. Removal of structures and debris located above the ordinary high water mark of the Willamette River, streams or drainageways or located within 30 feet of a wetland;

g. Installation of temporary erosion control measures;

h. Alterations to buildings that do not change the building footprint and do not require adjustments to site-related development standards;

i. Continued maintenance of existing gardens, lawns, and other planted areas, including the installation of new plants except those listed on the Nuisance Plants List;

j. Changes to existing disturbance areas to accommodate outdoor activities such as events, play areas and gardens as long as plantings do not include plants on the Nuisance Plants List and no trees 1.5 or more inches in diameter are removed;

k. Development located on an existing dock, wharf, or pier. A dock, wharf, or pier includes the gangway that provides access to the dock, wharf or pier;

l. Removal or pruning of trees that are not more than 1.5 inches in diameter and other vegetation that is not listed as native on the Portland Plant List. The removal or pruning must be done with handheld equipment. Temporary disturbance area located within and riverward of the river setback must be replanted to meet the relevant subarea standards of Table 475-1, and temporary disturbance area located outside and landward of the river setback must be replanted to meet the subarea 3 standard of Table 475-1.
**Commentary**

33.475.040.B.2.m
This allowance permits the use of a lightweight utility vehicle as needed for efficient vegetation management without creating significant soil compaction. The ground pressure of no more than 7.5 psi was chosen based on a typical lightweight utility vehicle's wheel to ground pressure. Small augers for drilling planting holes are typical types of equipment that would be allowed, provided the wheel to ground pressure is no more than 7.5 psi. For a comparable ground pressure, a typical human footprint has a ground pressure of 8.7 to 11.6 psi.

33.475.040.B.2.p
Typically, when ground disturbance is exempt from the River Environmental overlay zone requirements, temporary disturbances must be replanted to meet the landscaping standards of Table 475-1. However, when the exemption specifies that the temporary disturbance be less than 100 square feet in size, the landscaping standards of Table 475-1 cannot be met if the applicant chooses to plant a medium or large canopy tree. Therefore, for temporary disturbances required to be less than 100 square feet in size the applicant can replant the area with shrubs and seed with grasses and forbs; no trees are required.

33.475.040.B.2.q
Typically, when ground disturbance is exempt from the River Environmental overlay zone requirements, temporary disturbances must be replanted to meet the landscaping standards of Table 475-1. However, when the exemption specifies that the temporary disturbance be less than 100 square feet in size, the landscaping standards of Table 475-1 cannot be met if the applicant chooses to plant a medium or large canopy tree. Therefore, for temporary disturbances required to be less than 100 square feet in size the applicant can replant the area with shrubs and seed with grasses and forbs; no trees are required.
m. 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;

n. Public street and sidewalk improvements meeting all of the following:
   (1) Improvements must be within an existing public right-of-way used by truck or automobile traffic; and
   (2) Streets and sidewalks must not exceed the minimum width standards of the Bureau of Transportation Engineering.

o. Groundwater monitoring wells constructed to the standards of the Oregon Water Resources Department and water quality monitoring stations when access is by foot only;

p. Installation of security cameras provided that no more than 100 square feet of ground surface is disturbed landward of top of bank, no ground is disturbed riverward of the top of bank, no native trees are removed, and disturbed area is planted with the following (top of bank is shown on Map 475-2):
   (1) Three shrubs per 100 square feet; and
   (2) Grass and forb seed mix at a ratio of 30 pounds per acre restored to pre-construction conditions;

q. Utility service using a single utility pole or where no more than 100 square feet of ground surface is disturbed landward of the top of bank, no ground is disturbed riverward of top of bank, and disturbance area is planted with the following (top of bank is shown on Map 475-2):
   (1) Three shrubs per 100 square feet; and
   (2) Grass and forb seed mix at a ratio of 30 pounds per acre;

r. Utilities installed above or below developed portions of the public right-of-way, and stormwater management facilities within the public right-of-way provided that no ground is disturbed riverward of top of bank (top of bank is shown on Map 475-2);

s. Installation of fencing in the following situations:
   (1) Fencing on an existing paved surface;
   (2) Fencing around stormwater facilities that meet the Stormwater Management Manual; or
   (3) Temporary fencing to protect resource enhancement project planting areas, prevent access to hazardous material spill areas or contaminated sites, or to close off or control the use of illegal trails. The fence must be removed within five years;
Commentary

33.475.040.B.2.t
Signage includes signs installed on land or in the water. Examples of signs in the water include navigation guides, speed limits, swimming buoys or hazard markers.

33.475.040.C Removal or Remediation of Hazardous Substances
The requirements of 33.475.500 only apply in areas where the removal or remediation actions are implemented. Outside of the removal or remediation action areas, all other procedures and regulations of this chapter, including the landscaping standards, must be met.
t. Installation of signage provided no trees over 1.5 inches in diameter are removed; and

u. Removal of trash, provided that native vegetation is not removed or damaged. This includes removal of trash from the river bed and from the water. Removal of trash does not include the removal or remediation of hazardous substances.

C. Removal or Remediation of Hazardous Substances. The regulations in 33.475.500 apply to actions to remove or remediate hazardous substances that have been approved or selected under Oregon or federal cleanup law. The regulations in 33.475.500 only apply to the portions of the site where the removal or remediation actions will occur; other portions of the site outside of the removal or remediation areas must meet all other applicable regulations and procedural requirements of this chapter. Remedial actions within public rights of way and actions not approved or selected by a state or federal cleanup authority must meet all other applicable regulations and procedural requirements of this chapter and may not use 33.475.500. The applicant conducting the removal or remediation action may choose to meet the regulations of 33.475.500 or all other applicable regulations of this chapter.

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 plan. 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. Location of all base zone and overlay zone lines on the site;
   b. Location of the top of bank, river setback line and the landscaping sub areas;
   c. Outline of any existing development, including existing river bank stabilization treatments, stormwater treatment facilities, environmental enhancement or mitigation areas, and trails and paths;
   d. Extent of the 100-year floodplain;
   e. The location, size including trunk and canopy crown diameter, and species of trees that are 1.5 inches or greater in diameter that are within the area where ground disturbance or vegetation removal will occur, or that are within 50 feet of the area where ground disturbance and vegetation removal will occur;
f. Vegetation other than trees within the area where ground disturbance or vegetation removal will occur, and vegetation other than trees within 50 feet of the area where ground disturbance and vegetation removal will occur. Vegetation may be shown as the area of cover with a list and percent cover of plant species present; and

g. 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.

2. A proposed development or exterior alterations plan including:

   a. Outline of the proposed project area, including:
     
     (1) limits of the temporary and permanent disturbance areas, equipment staging and maneuvering areas, ingress and egress areas, and areas to be left undisturbed;
     
     (2) areas of ground disturbance, stockpiling or grading;
     
     (3) outfalls and river bank stabilization treatments;
     
     (4) trails and paths;
     
     (5) areas of vegetation to be left undisturbed including the root protection zone for trees;
     
     (6) environmental enhancement or mitigation areas,

   b. Location and size (cubic yards) of fill to be placed within the 100-year floodplain;

   c. Location and description of all proposed erosion control measures;

   d. Location and description of all proposed stormwater management facilities;

   e. Location of proposed fencing and identification of where the fencing is temporary and where it is permanent;

   f. Location of exterior lighting; and

   g. A landscaping plan indicating the size, species, and location of all vegetation to be planted.

   **B. Photos of the site.** Submission of photographs of the site are not required but are encouraged to supplement the existing conditions site plan.
**Commentary**

### 33.475.210 River Setback

OAR 660-015-0005 and Statewide Planning Goal 15 require that a setback line be established to keep structures separated from the river. The setback is 50 feet from the top of bank of the Willamette River in the Central Reach. However, the requirement does not apply to "water-related or water-dependent uses". The setback does not apply to development such as buildings and structures that are river-dependent and river-related development. The setback also does not apply to the major public trails, viewing areas located at designated viewpoints, view corridors, hazardous material clean up or to natural resource enhancement or mitigation. One of the main goals of the River Plan/Central Reach is to provide enough space within the river setback for public recreation, natural resource protection and enhancement and other river-related development and activities in the city’s most urban section of riverfront. An expanded setback in the Central Reach helps fulfill the stated goals and policies of the Central City 2035 Plan for the Willamette River.

The setback is based on the location of the top of bank. A new top of bank map is included, which is based on Light Detection and Ranging (LIDAR) data. It is intended that applicants use the top of bank as mapped by the City or provide a surveyed top of bank based on the definition, Chapter 33.910, and measurements, Chapter 33.930.

Best available science, including Metro’s Title 13 Nature in Neighborhoods Program and City of Portland’s Natural Resources Inventory, have documented that the absolute minimum area for protection of riparian corridors around rivers, streams and wetlands is 50 feet. A 50-foot setback that includes trails and other development does not meet the minimum requirement for protection of riparian corridors. However, due to the extent of existing development that already encroaches into the riparian corridor, as well as other Central City goals that encourage activation of and access to the Willamette River, a 50-foot setback is the maximum practical for the Central City. In other reaches of the Willamette River a wider setback that is more protective of the riparian corridor may be appropriate.

### 33.475.210.C

When the river bank is laid back to reduce the steepness and enhance riparian and in-water habitat, the location of the setback remains in its existing location unless laying the bank back creates a top-of-bank that is landward of the original setback. In that situation the new setback is 5 feet landward from the new top-of-bank. See examples below.

**Example 1:** The new top of bank is riverward of the original setback.

**Example 2:** The new top of bank is landward of the original setback, so a new setback is established 5 feet from top of bank.
River General Overlay Zone

33.475.200 Use Regulations
There are no special use restrictions in the River General overlay zone.

33.475.210 River Setback

A. **Purpose.** The purpose of the river setback is to keep structures separated from the river in areas where the land is not being reserved for river-dependent and river-related uses. Separating structures from the river facilitates protection, maintenance, restoration, preservation and enhancement of the natural, scenic, historic and recreational qualities of the Willamette River in the Central Reach by reserving space for the conservation and enhancement of natural vegetation and the opportunity for public access. In addition, OAR 660-015-0005 requires the establishment of a setback line.

B. **General.** The requirements of this section focus on whether the development is river-dependent or river-related. The focus is not on the primary use of the land. For example, in the River General overlay zone, a marine transportation terminal is a river-dependent primary use, but not all development associated with the terminal is river-dependent. The dock is river-dependent, but the parking lot and offices are not.

C. **The river setback.** The river setback extends from the top of the bank to a point 50 feet landward of the top of bank. See Figure 475-1. Top of bank is shown on Map 475-2 or is determined as described in 33.910.030, Definitions, and 33.930.150, Measuring Top of Bank. Where alteration to the river bank carried out to meet 33.475.440.H results in the top of bank shifting landward, the applicant may choose to measure the setback from the original top of bank. When this occurs, a survey of the original top of bank line and new top of bank line must be submitted for verification that the top of bank has been measured according to the standard in 33.930.150, Measuring Top of Bank, and then recorded with the County recorder. In all cases the river setback line must be at least 5 feet landward of the new top of bank line.

![Figure 475-1](image-url)
Commentary

One of the main goals of the River Plan/Central Reach is to provide flexibility for property owners in the Central City to expand and redevelop on site. This standard allows non-river-dependent and non-river-related development to encroach up to 5 feet into the river setback as long as the setback is enlarged an amount equal to the square footage of the encroachment. The regulations also stipulate that at no point can development encroach closer than 45 feet from top of bank.
D. River setback standards.

1. Development landward of the river setback. Development, exterior alterations, excavations, and fills landward of the river setback are not required to be river-dependent or river-related.

2. Development within or riverward of the river setback. Development, exterior alterations, excavations, and fills within or riverward of the river setback must be river-dependent or river-related. Development, exterior alterations, excavations, and fills that are not river-dependent or river-related are allowed within or riverward of the river setback only if it meets 33.475.210.E, Encroachment into the setback, or is approved through a Greenway Goal Exception.

E. Encroachment into the setback. Development that is not river-dependent or river-related may encroach up to 5 feet into the river setback provided that the setback is increased by an area equivalent in size to the encroachment area. The area that is increased must be located adjacent to the original setback. See Figure 475-2.

Figure 475-2
Encroachment into the River Setback
Commentary

33.475.215 Marine Passenger Docks
As stated in 33.910.030, the river-related definition is updated to add certain uses and development associated with a marine passenger dock (and a marine passenger terminal) with a primary purpose to load and unload passengers from marine vessels. Passenger waiting and queuing areas, security checkpoints, and machine shops associated with marine passenger docks and marine passenger terminals can locate in the river setback.

Section 33.475.215 limits building coverage to 5,000 square feet for river-related development associated with marine passenger docks within the river setback. Allowed river-related development could be located in multiple stories as long as the building footprint within the river setback does not exceed 5,000 square feet. Staff looked at the queuing area at the Salmon Springs dock, the average square footage for similar uses associated with an aviation passenger terminal and the square footage for other related uses provided by an interested property owner to calculate the square footage limitation. The elements that are essential to the loading and unloading of passengers are the queuing and security areas (and thus river-related). Some amount of passenger waiting area (with seating) is appropriate within the setback, especially for seniors and those with special needs. If a larger waiting area is needed, it can locate contiguous to the river setback. Limiting the footprint of this development in the river setback to essential river-related development will help address other Willamette River goals and objectives including the conservation and enhancement of natural, scenic and historic resources, recreation or public access.

33.475.220.B. Required Landscaping
New development must comply with this standard, which is intended to increase vegetation along the Willamette River to improve multiple ecosystem functions, increase habitat and provide other environmental benefits. Legally nonconforming development can maintain their nonconforming landscaping or may choose to come further into conformance; but may not become more nonconforming. If the owner of a legal nonconforming development alters their site, they are subject to Chapter 33.258. Alterations costing more than $154,000 will require that 10% of project value be dedicated to coming more into conformance with existing zoning codes. Landscaping is one option that counts towards becoming more conforming.

This requirement does not apply to Governor Tom McCall Waterfront Park because the park is in the center of Portland's urban center, serves the entire region as a recreational destination and has multiple and varied uses and activities including large scale events. There is a master plan for the park that includes improvements and landscaping that will accommodate the current and future uses and activities at the park.

The landscaping requirement also does not apply to the mapped portion of the "Eastbank Crescent Beach": a naturally occurring beach near the Hawthorne Bridge on the east side of the Willamette River. If the Eastbank Crescent is improved as a public beach and swimming area, landscaping will be determined as part of a public planning process for that area.
33.475.215 Marine Passenger Docks and Terminals

A. **Purpose.** River-related development provides goods or services that are directly associated with river-dependent land or waterway use. River-related development is typically allowed within the river setback, however certain river-related development associated with a marine passenger dock, while river-related in nature, does not need to be fully located within the river setback. In order to ensure that these particular types of river-related development do not overwhelm or dominate within the river setback, the total amount of footprint allowed within the setback is limited. The limitation will ensure that the river setback can accommodate other river-related or river-dependent development and provide opportunities for recreation, public access, and the conservation and enhancement of natural, scenic and historic resources.

B. **Standard.** Passenger waiting and queuing areas, security checkpoints, and machine shops associated with marine passenger docks for subregional travel or marine passenger terminals for regional travel are limited to a 5,000 square foot footprint within or riverward of the river setback.

33.475.220 Landscaping

The following regulations apply in the River General overlay zone. Adjustments are prohibited.

A. **Purpose.** The landscaping regulations are intended to increase vegetation along the Willamette River. Adding a diversity of vegetation within the river setback will improve multiple ecosystem functions, increase fish and wildlife habitat, provide shade, cool the air, and create visual diversity. The regulations are also intended to accommodate safe and enjoyable public access to and along the Willamette River.

B. **Required landscaping.**

1. Governor Tom McCall Waterfront Park and the Eastbank Crescent beach, shown on Map 475-3, are exempt from this Section.

2. Required landscaping for all other areas. For areas not exempt from this section, land within and riverward of the river setback that is not covered with a building or other structure or developed with a trail or viewing area must be landscaped to meet Table 475-1, Landscaping Planting Density. Subareas are shown on Figure 475-3 and described below. There are three planting densities allowed within each subarea. The applicant may choose which planting density standard to apply within each subarea, and more than one planting density may occur on a site. For example, the applicant may choose planting density 1 for all the subareas, or planting density 2 for subarea 1, planting density 3 for subarea 2, and planting density 1 for subarea 3.
33.475.220.B.2.b
Resources enhancement areas and mitigation areas have planting standards that require a higher density of tree planting than the landscaping requirements. When the standards for enhancement and mitigation areas are met, the planting density will automatically meet the landscaping requirements. Outside of the areas used for resource enhancement or mitigation, the landscaping standards must be met.

33.475.220.B.2.c Exceptions
On contaminated sites, the Oregon Department of Environmental Quality works with the property owners and other jurisdictions to determine the appropriate removal or remediation actions to clean up the site. The areas where the removal or remediation actions are implemented do not need to meet the landscaping standards. Outside of the removal or remediation areas, the landscaping standards must be met.

Within utility easements, the roots of trees and shrubs may impact the underground utilities. Future maintenance may require removal of vegetation. Grass and forbs are required to minimize erosion and provide some natural resources functions.

Within scenic (s) overlay zones trees and shrubs can grow and fully or partially block the protected view. Trees are not allowed to be planted in the s overlay. Shrubs may be planted and depending on the topography of the site and the species of shrub may have no impact on the view. Shrubs are encouraged because they provide multiple riparian corridor functions and wildlife habitat. Land within the s overlay must be seeded with grasses and forbs to minimize erosion and provide some natural resources functions.
a. Subareas:

(1) Subarea 1. Subarea 1 extends from the ordinary high water mark to the top of bank of the Willamette River.

(2) Subarea 2. Subarea 2 extends from the top of bank to a point 25 feet landward of the top of bank of the Willamette River.

(3) Subarea 3. Subarea 3 extends from a point 25 feet landward of the top of bank to a point 50 feet landward of the top of bank of the Willamette River (top of bank is shown on Map 475-2).

b. Vegetation planted to meet the resource enhancement standards of 33.475.440. H or the mitigation standards of 33.475.440.L may be counted towards meeting the landscaping standard.

c. Exceptions.

(1) Landscaping is not required within portions of sites where contamination removal or remediation actions meet the standards of 33.475.500;

(2) Trees and shrubs are not required within utility easements but the area must be seeded with a grass and forb seed mix at a ratio of 30 pounds per acre;

(3) Trees and shrubs are not required within a scenic (s) overlay zones but the area must be seeded with a grass and forb seed mix at a ratio of 30 pounds per acre. Trees may not be planted within a scenic (s) overlay zones; or
Commentary

33.475.220.B.2.c(4)
Where the riverbank between the ordinary high water mark and the top of bank is steep and armored with rip rap or where the rip rap is very thick, vegetation cannot survive. Rather than plant the armored bank, the equivalent size of landscaped area can be provided elsewhere on-site provided that area is outside of the river setback but within the river overlay zones. While on-site landscaping located within 100-200 feet of the Willamette River or within the river's floodplain provides riparian corridor functions and wildlife habitat, on-site landscaping located more than 100-200 feet from the river does provides wildlife habitat.

The required river landscaping that is planted more than 50 feet from top of bank can be planted in multiple locations as long as the total area equals that which would have been required to be planted in subarea 1.

Landscaping that is required to meet other standards, such as parking lot landscaping, cannot be counted towards meeting the river landscaping standard.

Most of the Central Reach sites that have river frontage are already developed. Incorporating landscaping landward of the river setback at an equivalent size to the subarea 1 area that would have been landscaped may not be feasible. There is an option to pay a fee-in-lieu of landscaping.
Chapter 33.475, River Overlay Zones

(4) If the area to be landscaped within 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 the area with an average slope of 30 percent or steeper is armored with rip rap, or the area within subarea 1 has rip rap that is at least four feet deep, then the required subarea 1 landscaping may be planted on an area of the site that is landward of the river setback but within the River overlay zones, or the applicant may pay a revegetation fee-in-lieu as described below. If the landscaping will be provided on-site, the total area outside of subarea 1 to be landscaped must be equivalent in size to the area that would have been required to be landscaped in subarea 1. More than one landscaped area may be provided to achieve the total, but other required landscaping may not count toward the total:

- Revegetation fee-in-lieu use and administration. The revegetation fee is collected by Bureau of Development Services and is administered by the Bureau of Environmental Services (BES). The fees collected are used for revegetation projects on public or private property within the same reach of the Willamette River as the site. The reaches are shown on Map 475-1.

- Calculation of required fee-in-lieu contributions. Applicants must contribute the cost to purchase and plant trees, shrubs and groundcover plants as set out in the next bullet. The cost to purchase and plant trees and plants will be adjusted annually as determined by the Director of BES based on current market prices for materials, labor and maintenance.

- Required fee-in-lieu contribution. The applicant must contribute the cost to purchase, plant and maintain one tree, three shrubs and four ground cover plants per 100 square feet of required planting area before a building permit will be issued. The fee calculation will be rounded up to the next multiple of $10. The minimum area to be used in this calculation is 100 square feet. Calculations that are not a multiple of 100 will be rounded up to the next multiple of 100.
Table 475-1

The intent of Table 475-1 is to allow a mix of tree types, densities and heights. Applicants may choose to install a mix of tree sizes, and planting densities, within each subarea. However, applicants are not required to choose a mix of densities, unless the total area to be planted is greater than 600 square feet. The shrub and grass densities are consistent across the entire setback, only the density of trees may vary depending on the size at maturity of the tree species.

Planting a mix of tree types, densities and heights will provide a diversity of habitat. In addition, a diversity of trees will create unique experiences along the river for the public.

Title 11, Trees, code section 11.60.020.C. Canopy, includes canopy size categories. Tree canopy types are categorized as small, medium, or large based on the estimated canopy size at maturity. The "Portland Tree and Landscaping Manual" suggested plant lists include the size categories recognized for many trees. To determine the size category of a tree not listed in the "Portland Tree and Landscaping Manual" the applicant will provide an objective source of information about the tree's mature height, crown spread, and growth rate. This information can come from published sources, internet sources, or nursery information such as cut sheets.

The canopy size category is calculated according to the following formulas, which incorporate the estimated height and crown spread of a mature specimen and the tree species' growth rate:

1. Small trees have a canopy factor of less than 40, Medium trees have a canopy factor from 40 to 90, and Large trees have a canopy factor greater than 90;

2. Canopy factor = (Mature height of tree) x (Mature canopy spread) x (Growth rate factor) x 0.01;

3. The growth rate factor is 3 for fast-growing trees, 2 for medium growing trees, and 1 for slow-growing trees.
This is a new chapter. For ease of readability the text is not underlined.

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<tr>
<td>Landscaping Subarea 1</td>
<td>One tree, three shrubs, and four other ground cover plants must be planted for every 100 square feet. Trees may be clustered. All plants must be native.</td>
<td>One tree, six shrubs, and eight other ground cover plants must be planted for every 200 square feet. Trees may be clustered. All plants must be native.</td>
<td>One tree, nine shrubs, and 12 other ground cover plants must be planted for every 300 square feet. Trees may be clustered. All plants must be native.</td>
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<tr>
<td>Landscaping Subarea 2</td>
<td>One tree and one of the following two options for every 100 square feet. Trees must be separated from other trees by at least 20 feet on center. Shrub species must not exceed 3 feet in height at maturity. Option 1: Three shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or Option 2: Three shrubs and four other groundcover plants.</td>
<td>One tree and one of the following two options for every 200 square feet. Trees must be separated from other trees by at least 20 feet on center. Shrub species must not exceed 3 feet in height at maturity. Option 1: Six shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or Option 2: Six shrubs and eight other groundcover plants.</td>
<td>One tree and one of the following two options for every 300 square feet. Trees must be separated from other trees by at least 20 feet on center. Shrub species must not exceed 3 feet in height at maturity. Option 1: Nine shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or Option 2: Nine shrubs and 12 other groundcover plants.</td>
</tr>
<tr>
<td>Landscaping Subarea 3</td>
<td>One tree for every 100 square feet and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre. Trees must be separated from other trees by at least 20 feet on center. Shrubs or other ground cover are not required, however if they are included they must meet the standards for Landscaping Subarea 2.</td>
<td>One tree for every 200 square feet and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre. Trees must be separated from other trees by at least 20 feet on center. Shrubs or other ground cover are not required, however if they are included they must meet the standards for Landscaping Subarea 2.</td>
<td>One tree for every 300 square feet and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre. Trees must be separated from other trees by at least 20 feet on center. Shrubs or other ground cover are not required, however if they are included they must meet the standards for Landscaping Subarea 2.</td>
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[1] Tree size is based on Title 11.60.020.C Canopy Size
Commentary

33.475.220.C. Landscaped area site preparation.
The Central Reach’s urban riverfront has been highly altered with hardscaped materials and debris. This standard is intended to help ensure that the site conditions are conducive to plant survival over time when the planting of vegetation is required.

Erosion control measures, which include existing riverbank rip rap, do not need to be removed.

33.475.220.D. Plant Requirements
This subsection details plant requirements. Willow and tree cuttings and branches cut off existing trees, can be planted directly into rip rap.

Within a 600 square foot area, to meet the diversity requirement of at least 2 different species and two different sizes of tree, the applicant would need to plant one of the following options:
- 3 small trees (300 sq. ft.) and 1 large tree (300 sq. ft.);
- 1 small (100 sq. ft.), 1 medium (200 sq. ft.) and 1 large (300 sq. ft.); or
- 2 small (200 sq. ft.) and 2 medium (400 sq. ft.).

As the total landscaping area gets larger, a wider mix of tree sizes can be chosen. For 1,200 sq. ft. there is a wide mix of sizes that could be used to meet the requirement. It is up to the applicant to show how they are meeting the planting density.
C. **Landscaped area site preparation.** Before installing the required landscaping, the following standards must be met:

1. All prohibited and nuisance plants listed on the *Portland Plant List* must be removed within and riverward of the river setback.

2. All structures and debris located within and riverward of the river setback must be removed except for river-dependent and river-related structures, non-conforming development, erosion control measures, flood control facilities, large wood, and bioengineered structures. Examples of bioengineered structures include bundles of plant materials or soil cells wrapped in biodegradable fabrics.

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 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 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. Placement of the growing medium is not allowed when the ground is frozen or saturated; and

5. Temporary erosion control measures are required until permanent stabilization measures are functional. Temporary erosion control measures must be biodegradable or removed after permanent stabilization measures are functional or within 3 years, whichever is sooner.

D. **Plant requirements.** Trees must be a minimum ½-inch caliper, bareroot, or live stakes, unless they are oak or madrone, which may be one gallon size. Shrubs must be a minimum of one gallon size or bareroot. All other species must be a minimum of four-inch pots or equivalent. For planting areas over 600 square feet, at least two different tree species and sizes, three different shrub species, and four different groundcover species must be used.
Commentary

33.475.230 Exterior Lighting

The standards are intended to minimize the adverse health, safety, and livability impacts of exterior lighting on humans, fish and wildlife, including glare, light spill, and encroachment into habitat areas. The standards and exemptions are also intended to continue providing for public safety in public parks and along trails and rights of way, and to support river-dependent uses. These standards are also proposed in the South Waterfront Subdistrict under the River General (g) overlay zone regulations (see 33.253.E.5.h).

This section includes general standards for directionality and shielding of exterior light fixtures that apply throughout the overlay zone. These standards will support policies calling for energy efficiency, reducing light pollution and glare, and reducing light-related hazards to birds. This section also includes standards for exterior lighting on land proximate to the Willamette River. These standards restrict the location, spacing, brightness and spectral character of lighting to reduce impacts on birds, pollinators, and other wildlife and their habitat.
33.475.230 Exterior Lighting

A. 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 major public trails, in parks, along public
     rights-of-way, and on piers and gangways; and
   • Provide flexibility for river-dependent operations associated with docks.

B. General standards. The following standards apply to all exterior lights located within the
   River General overlay zone.
   1. Exterior lights must not project light upward or to the side of the fixture; and
   2. The top and sides of all exterior light fixtures must be shielded with 100 percent
      opaque materials.

C. Additional standards for areas near the Willamette River. The following standards apply
   to all permanent exterior lights located within and riverward of the river setback, and all
   permanent exterior lights located within 25 feet landward of the river setback. Exterior
   lights within Governor Tom McCall Waterfront Park, and exterior lights within public rights-
   of-way are exempt from this Subsection:
   1. Exterior lights are allowed only if the lights are for the following uses or development:
      a. Park and Open Area uses;
      b. The major public trail;
      c. A public viewing area; or
      d. River-dependent or river-related development.
   2. Structures that support exterior light fixtures must be set back at least 5 feet from the
      top of bank of the Willamette River unless the structure that supports the exterior
      light fixture is located on a dock, pier and gangway, and must be setback at least 30
      feet from any other stream, drainageway, wetland or water body (top of bank is
      shown on Map 475-2);
   3. Structures that support exterior light fixtures must be spaced at least 25 feet apart;
   4. Lamps must fall below 3000K or within an S/P ratio range of 1 to 1.2; and
   5. Exterior lights must not project directly into the Willamette River.
33.475.240 Public Viewpoints
Statewide Planning Goal 15 Willamette River Greenway calls for protecting, enhancing, and maintaining the natural, scenic, historical and recreational qualities of lands along the river. The provision allows public viewpoints within the river setback to help support scenic, natural and public recreation goals and policies for the Willamette River. This standard applies to sites that are within the River Overlay zone boundary and are designated in the Central City Scenic Resources Protection Plan.

33.475.250 Nonconforming Uses and Development
Nonconforming uses and development exist where a site met all the regulations at the time it was developed but does not meet the current regulations because of subsequent changes to the Zoning Code. For example, many parking lots were built before Portland required landscaping. Such development can remain as long as there are no changes to the site.

The language allows nonconforming uses and development to continue. Expansion of the use or development may occur provided that it is not within or riverward of the river setback. This means that new overhanging or cantilever structures like decks or bay windows are not allowed. These structures would bring the nonconforming development further out of compliance with river setback regulations. Development may change to allow river-dependent and river-related development by right, consistent with Statewide Planning Goal 15, Willamette River, and other zoning code regulations.

33.475.260 Property Line Adjustments
In the past, property line adjustments have been approved that resulted in eliminating river frontage. The proposed regulations ensure that property line adjustments do not create more than one river overlay zone on the site with the exception of the River Environmental overlay zone, which is intended to coincide with other river overlay zones. The river overlay zones each have a different purpose and set of regulations.
33.475.240 Public Viewpoints

A. **Purpose.** Public viewpoints provide stopping places along major public trails where the public can view and enjoy the natural, scenic, historic, cultural, recreational and economic qualities of the Willamette River.

B. **Viewpoint Requirement.** All sites with a designated viewpoint(s) in the Central City Scenic Resources Protection Plan are required to provide a public viewing area(s). The viewpoint design is addressed through the Central City Fundamental Design Guidelines. In addition, the viewpoint must comply with the Use of Trail, Hours of Use, Trespass and Trail Maintenance and Liability sections of Chapter 33.272, Major Public Trails. The Trails Maintenance and Liability section is applicable when the viewpoint is located along the physically contiguous trail segment.

33.475.250 Nonconforming Uses and Development

Nonconforming uses and development in the River General overlay zone are subject to the regulations and reviews of Chapter 33.258, Nonconforming Situations. The additional regulations stated below apply to development within or riverward of the river setback that is not river-dependent or river-related:

A. The development may continue;

B. The development may be changed to an allowed river-dependent or river-related development by right;

C. The development may be changed to another nonconforming development if within the existing building. If outdoors, it may not be changed to another nonconforming development; and

D. The development may be expanded, but not within or riverward of the river setback. Expansion includes adding additional floor area.

33.475.260 Property Line Adjustments

Property line adjustments may not result in a property that is in more than one river overlay zone, unless the second overlay is the River Environmental overlay zone. Adjustments are prohibited.
Commentary

33.475.420 Review Procedures
The River Environmental overlay zone includes a multi-track system that allows some types of development and activity to be exempt from regulations, allows some development and exterior alteration if it meets standards, and requires some development to go through a land use review. The standards are modelled after the standards listed in Chapter 33.430, Environmental Zones; however, there are some differences specific to the Central Reach.
River Environmental Overlay Zone

33.475.400 Use Regulation
There are no special use restrictions associated specifically with the River Environmental overlay zone. However, any use restrictions that apply as a result of an accompanying River overlay zone also apply within the River Environmental overlay zone.

33.475.410 Environmental Report
The application of the River Environmental overlay zone is based on a detailed study titled Willamette River Central Reach Natural Resources Protection Plan (2017). The report identifies the type, location, extent and relative condition of natural resource features and describes the functional values they provide within the study area. Functional values are the benefits provided by resources. The values for each resource site are described in the inventory section of the report.

33.475.420 Review Procedures
Development and exterior alterations will be reviewed through one of the following tracks:

A. Standards. Several specific types of development and exterior alterations are allowed within the River Environmental overlay zone if the proposal meets certain standards. The standards are intended to encourage sensitive development while providing clear limitations on disturbance, including tree removal, and minimizing impacts on resources and functional values. Adjustments to the standards are prohibited. Modification of the standards may be approved through River Review. When a proposal can meet the standards, the applicant may choose to meet the objective standards of this section or go through the discretionary River Review process. When there are no applicable standards, the proposal must be approved through River Review. Compliance with the standards is determined as part of the building permit or development permit application process. The standards are listed in 33.475.440.

B. Review. River Review is required when the proposed development or exterior alteration is subject to the River Environmental overlay zone regulations and the development or exterior alteration either does not meet the River Environmental overlay zone development standards or there are no River Environmental overlay zone development standards that apply to the proposal. The process and approval criteria for River Review can be found in Chapter 33.865, River Review.
33.475.430  Prohibitions
This section prohibits the packaging and storage of most hazardous substances, the planting and propagation of identified nuisance plants and the dumping of trash or yard debris within the River Environmental overlay zone area. All of these materials and activities negatively impact protection and enhancement of high and medium ranked natural resources.

33.475.440  Standards
Some development and alteration will be allowed within the River Environmental overlay zone without requiring a discretionary review. The types and levels of development and alteration allowed are generally low-impact activities that can be readily mitigated. The standards limit the amount of disturbance that can occur and limit how close the development or alteration can be to the river, a stream or a wetland. Tree removal is limited and mitigation is required.

33.475.440.A Standards for rail rights-of-way
The width of corridor allowed for the development of a rail right-of-way is based on discussions with BDS staff who have reviewed the installation and extension of rail road track in the Central Reach. The width is intended to accommodate standard gauge rail (4 feet 8 inches) with added space for ballast and any equipment that may be necessary for track operations.

33.475.440.B Standards for utility lines
The standards in this paragraph apply to both new utilities and upgrades to existing utilities.
33.475.430 Prohibitions
The following are prohibited within the River Environmental overlay zone:

A. The packaging or storage of hazardous substances except as follows:
   1. Use of consumer quantities of hazardous substances is allowed. Consumer quantities of hazardous substances are packaged and distributed in a form intended or suitable for sale through retail sale outlets for consumption by individuals for purposes of personal use; and
   2. Marine vessel fueling stations are allowed.

B. The planting or propagation of any plant listed on the Nuisance Plant List; and

C. Dumping of trash or yard debris.

33.475.440 Development Standards
Unless exempted by 33.475.040.B.2., the standards in this Section apply to development and exterior alterations in the River Environmental overlay zone. All of the applicable standards must be met. Modification of any of these standards requires approval through River Review.

A. Standards for rail rights of way. The following standards apply to rail rights-of-way:
   1. The disturbance area associated with the development of a rail right-of-way must occur within a corridor that is not more than 20 feet wide. No disturbance is allowed outside of the 20-foot-wide corridor;
   2. Disturbance associated with the rail corridor or development of the rail corridor must not occur riverward of the top of bank of the Willamette River, within the river channel, or within 30 feet of the top of bank of any other stream, wetland, or water body (top of bank is shown on Map 475-2);
   3. Tree removal is allowed as specified in Subsection K.; and
   4. Mitigation is required as specified in Subsection L.

B. Standards for utility lines. The following standards apply to new utility lines and upgrades to existing utility lines, including stormwater conveyance facilities, and private connections to utility lines:
   1. The disturbance area for the installation of a utility line or upgrade to an existing utility line, including utility trenching, must be no more than 15 feet wide;
   2. The disturbance area must not occur riverward of the top of bank of the Willamette River, within the river channel, or within 30 feet of the top of bank of any other stream, wetland, or other water body (top of bank is shown on Map 475-2);
   3. Tree removal is allowed as specified in Subsection K.;
4. The temporary disturbance area must be seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; and

5. Exemption. If a proposed utility line or upgrade to an existing utility line runs through an area that has already been approved as a permanent disturbance area, or allowed by standards of this section, it is exempt from Paragraphs B.1. and B.2.

C. Standards for stormwater outfalls. The following standards apply to the installation of stormwater outfalls:

1. The disturbance area associated with the installation or replacement of a stormwater outfall must not be more than 15 feet wide;

2. When constructed open channels or vegetated swales are proposed, the slope between the stormwater source and the water body must not exceed 15 percent at any point;

3. If an outfall riprap pad is used it must be planted with live stakes of native plant stock, one-half inch in diameter. Stakes must be installed at a density of three stakes per square yard. Detailed specifications for installing live stakes are found in the Erosion Control Manual;

4. Tree removal is allowed as specified in Subsection K.; and

5. Mitigation is required as specified in Subsection L.

D. Standards for placement of piles. The following standards apply to the placement of up to four new single piles or two new multiple-pile dolphins for each 100 feet of shoreline:

1. The placement of the piles or dolphins must be associated with a river-dependent or river-related use;

2. An equal number of piles or dolphins as are placed in the River Environmental overlay zone, plus one, must be removed from the River Environmental overlay zone within the Central Reach. The boundaries of the Central Reach are shown on Map 475-1; and

3. If the applicant does not own the property where the pile or dolphin removal will occur, the applicant must have an easement or deed restriction sufficient to allow the necessary removal.
33.475.440.E. Standards for Trails
In the Central City, major public trails are shown as a star symbol (▲) on the Official Zoning Maps. During site development, a trail easement dedication and potentially the construction of the trail is required. These standards are intended to allow for major public trails to locate within the River Environmental overlay zone, but limit the impacts of the trails, and associated public use on the natural resource functions of the riparian corridor.

If the trail crosses a stream it needs to set back 10 feet from the top-of-bank on both sides of the stream. This is different than standards for other development in this section which require disturbance area to be setback 30 feet from a stream. The reason for the allowance for trails to be located closer to streams is to facilitate completion of a contiguous trail along both sides of the Willamette River in the Central City. Much of the trail along the Willamette River is already constructed and new segments need to connect with the existing. In the North Reach and South Reach, the conditions and circumstances of the major public trails, zoning, land use and existing natural resource may warrant a different standard for stream crossings.

33.475.440.F Standards for Public Viewing Areas
This standard allows for the construction and maintenance of public viewing areas at viewpoints that are designated in the Central City Scenic Resources Protection Plan. Trees, including native trees, may be removed. The area where vegetation is removed must be revegetated with ground cover. Trees cannot be planted in view corridors because they grow and block or partially block the view. Shrubs can be planted along with the ground cover in the view corridors.
E. **Standards for trails.** The following standards apply to the construction of a new major public trail and alterations to an existing major public trail:

1. The trail must be setback at least 10 feet, and disturbance associated with construction of the trail must be setback at least 5 feet, from the top of bank of the Willamette River or a stream (top of bank is shown on Map 475-2);

2. The trail and disturbance associated with construction of the trail must be setback at least 30 feet from the top of bank of a wetland or other water body;

3. The total width of the trail must be no more than 16 feet;

4. The total width of disturbance area must be no more than 24 feet;

5. Tree removal is allowed as specified in Subsection K; and

6. Temporary disturbance area located within and riverward of the river setback must be replanted to meet the relevant subarea standards of Table 475-1, and temporary disturbance located outside and landward of the river setback is replanted to meet the subarea 3 standard of Table 475-1. Trees may not be planted within a scenic (s) overlay zone.

F. **Standards for public viewing areas.** The following standards apply to the construction of a public viewing area:

1. The viewing area must be associated with a viewpoint designated in the *Central City Scenic Resources Protection Plan*;

2. The total disturbance area must be no more than 800 square feet in area;

3. The permanent disturbance area associated with the viewing area must not be more than 500 square feet in area;

4. The total disturbance area must not be located below the top-of-bank of the Willamette River (top of bank is shown on Map 475-2), stream, or any other water body, and must not be located within 30 feet of a wetland;

5. Tree removal is allowed as specified in Subsection K.; and

6. Temporary disturbance area located within and riverward of the river setback must be replanted to meet the relevant subarea standards of Table 475-1, and temporary disturbance located outside and landward of the river setback is replanted to meet the subarea 3 standard of Table 475-1. Trees may not be planted within a scenic (s) overlay zone.
33.475.440.G Standards for View Corridors
This standard allows for removal of trees within the scenic (s) overlay zones. The area where vegetation is removed must be revegetated with ground cover and shrubs.

33.475.430.H Standards for resource enhancement
These standards are intended to ensure that the river bank is less steep than before the enhancement project because a shallow bank provides better resource function than a steep bank. The standards also require that the bank be stabilized with vegetation rather than rock armoring, which has little to no habitat value.

For projects that occur landward of the top of bank, the standards allow disturbance of the ground as long as there is no net increase in soil within the River Environmental overlay zone and the area disturbed is replanted with native vegetation. Resource enhancement projects, by definition, must result in a net increase in functional value and an improvement in the quantity or quality of resources.

33.475.440.I Standards for site investigative work
Typically, when there is ground disturbance exempt from the River Environmental overlay zone requirements, then temporary disturbances must be replanted to meet the landscaping standards of Table 475-1. However, when the exemption specifies that the temporary disturbance be less than 100 square feet in size, then the landscaping standards of Table 475-1 cannot be met if the applicant chooses to plant a medium or large sized tree. Therefore, for temporary disturbances required to be less than 100 square feet in size, the applicant can replant the area with shrubs and seed with grasses and forbs; no trees are required.
G. **Standards for view corridors.** The following standards apply to pruning or removing vegetation in a scenic (s) overlay zone.

1. Tree removal and pruning is allowed as specified in Subsection K.; and

2. Temporary disturbance areas must be replanted with three shrubs per 100 square feet and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre.

H. **Standards for resource enhancement.** The following standards apply to resource enhancement projects:

1. There must be no excavation, fill, or construction activity below ordinary high water mark of any river, stream, wetland or other water body;

2. The riverbank may be re-graded if the slope after grading is shallower than the slope prior to grading and the slope is no greater than 20 percent (20 percent slope represents a rise to run ratio equal to 1:5);

3. Rock armoring must not be used on the surface between the top of bank and the ordinary high water mark of any water body except as required surrounding outfalls (top of bank is shown on Map 475-2);

4. The placement of large wood and bioengineered structures on the bank is allowed to reduce localized erosion and improve bank stabilization. Examples of bioengineered structures include bundles of plant materials or soil cells wrapped in biodegradable fabrics;

5. No structures are proposed landward of the top of bank except trails that meet the regulations of 33.475.440.E, and structures associated with public viewing areas that meet the regulations of 33.475.440.F.;

6. All nuisance plants listed on the *Portland Plant List* must be removed;

7. Tree removal is allowed as specified in Subsection K.; and

8. Temporary disturbance area located within and riverward of the river setback must be replanted to meet the relevant subarea standards of Table 475-1, and temporary disturbance located outside and landward of the river setback is replanted to meet the subarea 3 standard of Table 475-1. Trees may not be planted within a scenic (s) overlay zone.

I. **Standards for site investigative work.** The following standards apply to site investigative work. Site investigative work includes soil tests and test pits, land surveys, and groundwater and water quality monitoring stations.

1. No more than 100 square feet of disturbance area is allowed per test pit or monitoring station;
Commentary

33.475.440.J Standards for development in a City of Portland park
These standards allow the City of Portland Bureau of Parks and Recreation (Parks) to install park amenities in City parks located in the Central Reach. The types of amenities that Parks envisions being installed without River Review include park benches, picnic tables, drinking fountains, bicycle racks, trash cans, playgrounds, memorials, kiosks, etc. The standards limit the amount of additional disturbance that will occur within the River Environmental overlay zone to a total of 2,200 square feet of additional permanent disturbance area. The standards also limit tree removal and require mitigation.

33.475.440.K Standards for tree removal or pruning of vegetation
These standards allow the removal of non-native trees, including those that are listed as nuisance or prohibited on the Portland Plant List. These trees must be replaced with native trees. Under certain circumstances, the standards also allow the removal of native trees up to 12 inches in diameter. The removal of trees is limited to the areas within which the development or activity will occur and replacement is required for trees over 1.5 inches in diameter.

Trees may not be replaced within the scenic overlay zones because they may grow and block views that are intended to be protected.
2. Disturbance associated with site investigative work must be temporary;

3. No trees are removed; and

4. Temporary disturbance area must be planted with three shrubs per 100 square feet and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre.

J. **Standards for other development in a City of Portland park.** The following standards apply to development in a City of Portland park that is not subject to another set of development standards contained in this Section.

1. The total disturbance area must not be more than 2,200 square feet;

2. Disturbance area must not be located below the top-of-bank of the Willamette River (top of bank is shown on Map 475-2), streams, or other water body, or located within 30 feet of a wetland;

3. Tree removal is allowed as specified in Subsection K.; and

4. Mitigation is required as specified in Subsection L.

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

1. 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;

2. The removal or pruning must be conducted with handheld equipment or equipment with a wheel surface-to-ground pressure of no more than 7.5 psi;

3. Temporary disturbance area located within and riverward of the river setback must be replanted to meet the relevant subarea standards of Table 475-1, and temporary disturbance located outside and landward of the river setback is replanted to meet the subarea 3 standard of Table 475-1;

4. The vegetation that is removed or pruned is limited to the following:
   
   a. Vegetation listed on the Nuisance Plant List;

   b. Dead, dying or dangerous trees or portions of trees when they pose an immediate danger, as determined by the City Forester or certified arborist. All sections of wood more than 12 inches in diameter must be placed in the River Environmental overlay zone of the ownership within which the wood was cut unless the City Forester authorizes the removal because the wood is diseased and will threaten the health of other trees;

   c. Vegetation that exceeds the height restriction of a view corridor with special height restrictions designated in the *Central City Scenic Resources Protection Plan*;
d. Trees that are not native trees on the *Portland Plant List*; or

e. Madrone, Garry Oak or Pacific Yew that are less than 6 inches in diameter, or other native trees on the *Portland Plant List* less than 12 inches in diameter may be removed if the removal or pruning is in conjunction with development or exterior improvements approved under the standards of this section as follows:

1. Within a rail right-of-way or within 10 feet of the rail right-of-way;

2. Within a utility line corridor;

3. Within the disturbance area for installation or replacement of stormwater outfalls;

4. Within a major public trail;

5. Within a public viewing areas associated with viewpoints designated in the *Central City Scenic Resources Protection Plan*;

6. Within a scenic (s) overlay;

7. Within a resource enhancement area; or

8. Within the disturbance area associated with development in a City of Portland park.

5. 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. 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;

2. The planting must occur within the River Overlay Zones. Trees must not be planted within a scenic (s) overlay zone. If the vegetation is not planted on the applicant’s site, then the applicant must own the property or have an easement or deed that ensures the vegetated area will not be developed; and

3. The requirements of Section 33.248.090, Mitigation and Restoration Planting must be met; and

b. Vegetation planted to meet the landscaping requirements of 33.475.220 may be counted towards meeting the tree replacement standard.
33.475.440.L Standards for mitigation

Mitigation is required for most development in or alteration of the River Environmental overlay zone. Mitigation must occur in an area that is one and one-half times the size of the area that will be disturbed for the development. This ratio is intended to mitigate for the fact that when mature and established vegetation is removed and replaced with new plantings, there is a loss of resource functional value until the new vegetation becomes established.

Mitigation is usually installed within the River Environmental overlay zone. However, if the land within the River Environmental overlay zone is already planted at a high density, then the mitigation can be done elsewhere on-site provided that the mitigation area is contiguous to the River Environmental overlay zone.
### Table 475 – 2
Tree Replacement in River Environmental Overlay Zone

<table>
<thead>
<tr>
<th>Size of tree to be removed (inches in diameter)</th>
<th>Option A (no. of native trees to be planted)</th>
<th>Option B (combination of native trees and shrubs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 1.5 and up to 6</td>
<td>1</td>
<td>Not applicable</td>
</tr>
<tr>
<td>More than 6 and up to 12</td>
<td>2</td>
<td>Not applicable</td>
</tr>
<tr>
<td>More than 12 and up to 20</td>
<td>3</td>
<td>1 tree and 3 shrubs</td>
</tr>
<tr>
<td>More than 20 and up to 25</td>
<td>5</td>
<td>3 trees and 6 shrubs</td>
</tr>
<tr>
<td>More than 25 and up to 30</td>
<td>7</td>
<td>5 trees and 9 shrubs</td>
</tr>
<tr>
<td>More than 30</td>
<td>10</td>
<td>7 trees and 12 shrubs</td>
</tr>
</tbody>
</table>

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

1. Mitigation must occur at a 1.5:1 ratio of mitigation area to project impact area. Project impact area is the total area within the River Environmental overlay zone where structures will be built, vegetation will be removed, or ground disturbance will occur as a result of the proposal. Mitigation area is not counted as part of the project impact area;

2. Mitigation must occur in the River Environmental overlay zone within the Central Reach. The boundaries of the Central Reach are shown on Map 475-1.;

3. If the mitigation area is not on the site where the project occurs, 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;
Commentary

33.475.440.L.5.
The tree replacement standard specifies the number of trees that must be planted to replace the trees removed. The trees planted can be counted towards meeting the mitigation planting density. Additional tree planting may be required to fulfill the mitigation ratio.

Table 475-3
This table represents the same planting density as the landscaping planting density for subarea 1, described in Table 475-1. It is intended to result in a multi-storied habitat with tree canopy, shrub layer and ground cover that provide a wide range of riparian corridor and wildlife habitat functions. This planting density applies everywhere in the River Environmental overlay zone where mitigation is conducted.

Title 11, Trees, code section 11.60.020.C. Canopy, includes canopy size categories. Tree canopy types are categorized as small, medium, or large based on the estimated canopy size at maturity. The "Portland Tree and Landscaping Manual" suggested plant lists include the size categories recognized for many trees. To determine the size category of a tree not listed in the "Portland Tree and Landscaping Manual" the applicant shall provide an objective source of information about the tree's mature height, crown spread, and growth rate. This information can come from published sources, internet sources, or nursery information such as cut sheets.

The canopy size category is calculated according to the following formulas, which incorporate the estimated height and crown spread of a mature specimen and the tree species' growth rate:

1. Small trees have a canopy factor of less than 40, Medium trees have a canopy factor from 40 to 90, and large trees have a canopy factor greater than 90;
2. Canopy factor = (Mature height of tree) x (Mature canopy spread) x (Growth rate factor) x 0.01;
3. The growth rate factor is 3 for fast-growing trees, 2 for medium growing trees, and 1 for slow-growing trees.
4. Nuisance plants identified on the *Portland Plant List* must be removed within the area to be replanted. Trees removed to meet this Paragraph must be replaced as specified in Subsection J;

5. Plantings required for tree removal, as specified in Subsection J., can be counted towards mitigation if the planting is located within the River Environmental overlay zone or in an area that is contiguous to the River Environmental overlay zone;

6. Required planting density standards are specified in Table 475-3. Trees may be clustered. Trees must not be planted within a view corridor shown on Map 480-1. Plants must be selected from the *Portland Plant List*;

|------------------|----------------|----------------|---------------|
| 100 square feet  | One tree and one of the following two options for every 100 square feet:  
|                  | Option 1: Three shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or  
|                  | Option 2: Three shrub and four other groundcover plants. | One tree and one of the following two options for every 200 square feet:  
|                  | Option 1: Six shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or  
|                  | Option 2: Six shrub and eight other groundcover plants. | One tree and one of the following two options for every 300 square feet:  
|                  | Option 1: Nine shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or  
|                  | Option 2: Nine shrub and 12 other groundcover plants. |

[1] Tree size is based on Title 11.60.020.C Canopy Size

7. For planting areas over 600 square feet, at least two different tree species and sizes, three different shrub species, and four different groundcover species must be used;

8. Trees must be a minimum ½-inch caliper, bareroot or live stake, 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

9. The requirements of Section 33.248.090, Mitigation and Restoration Planting must be met.
Commentary

33.475.440.M
Typically, application of soil, including placing fill in the River Environmental overlay zone, requires River Review. However, the landscaping standards of 33.475.220 require amending the soil prior to installing the required plants. This standard exactly matches the landscaping soil amendment standard to ensure that applying soil amendments as required by the landscaping standard does not require River Review.

33.475.440.N
The intent of this standard is to support public recreational uses within the Willamette River, including public swimming, while minimizing the impacts of structures on in-water habitat. The temporary structure must be located in an Open Space (OS) zone to ensure that it is associated with a park and open space use. The structure may be free-floating, meaning accessed by the water, with an anchor to the river bottom or it may be attached to an existing dock, pier or piling by a rope, chain or a walkway. (A walkway is considered part of the temporary structure and, in combination with the floating portion, should meet the size and location requirements.) The standard limits the impact of the structure on the natural resources by setting a maximum size for the structure, specifying the location within the waterbody and limiting the time when the structure may be in place. The width is based on minimizing impacts of the structure by allowing sunlight to penetrate the sides, which reduces impacts on native fish. The length is intended to allow multiple uses including public swimming, non-motorized boating or fishing. No portions of the structure, including any walkways, may be closer than 50 feet from the ordinary low water mark. This will minimize the impact of the structure on shallow water habitat. And the structure may only be located in the river during the in-water work period, which is July 1 and October 31, which is between peak juvenile migration seasons. The time frame that the structure may be in the river is inclusive of set up and tear down.
M. **Standards for application of soil amendments.** The following standards apply to the application of soil amendments:

1. The depth of the soil amendment must be no more than 12 inches;
2. The soil must not be applied below the ordinary high water mark of the Willamette River, streams, or other water body, or within 30 feet of a wetland;
3. The composition of the growing medium must meet one of the following:
   a. For all planting areas located outside of the 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 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. Placement of soil is not allowed when the ground is frozen or saturated; and
5. Temporary erosion control measures are required until permanent stabilization measures are functional. Temporary erosion control measures must be biodegradable or removed after permanent stabilization measures are functional or within 3 years, whichever is sooner.

N. **Standards for placement of temporary floating structures.** The following standards apply to temporary floating structures:

1. The structure and all work necessary to install and remove the structure is allowed in the river only between July 1 and October 31;
2. The structure must be located within the OS zone;
3. There are no more than 8 structures in the Central Reach at one time;
4. The structure is free-floating or is attached to an existing dock, pier or piling. Free-floating means that the structure is anchored to the river bottom and is not accessible from the riverbank via anything other than the water;
5. The dimensions of the entire temporary structure must not be greater than 12 feet by 50 feet;
6. The structure has no walls and no roof;
7. The structure is at least 50 feet away from the riverbank. The 50 feet is measured horizontally from the ordinary low water mark. See Figure 475-4; and
8. The hours of operation are between 6 am and 10 pm.
Commentary

33.475.450 Corrections to Violations of River Environmental Overlay Zone Development Standards

The regulations are intended to facilitate timely remediation for damage to resources and functional values that occur as a result of a violation.
33.475.450 Corrections to Violations of River Environmental Overlay Zone Development Standards

A. Purpose. The purpose of the correction regulations is to ensure the timely restoration of natural resources and functional values that have been degraded due to a violation of the River Environmental overlay zone standards.

These regulations establish a process to determine which review requirements will be applied to remedy a violation that takes place in the River Environmental overlay zone. The type of review required depends on the circumstances of the violation. Section 33.475.450.B details methods for correcting such violations and Title 3 of the City Code details the enforcement penalties.

B. Correction Options. Applicants must choose one of the following options to correct environmental code violations.

1. When these options may be used.
   
a. If all of the following are met, the applicant may choose Option One, Option Two, or Option Three:
      
(1) No more than 12 diameter inches of trees were removed;
(2) No ground disturbance occurred riverward of the top of bank of the Willamette River (top of bank is shown on Map 475-2) or within 30 feet of the top of bank of a stream, wetland or other water body;

(3) The correction will remove all illegal development; and

(4) The correction will replant illegal clearing.

b. If any of the following occurred, the applicant may not use Option One, but may choose either Option Two or Option Three:

(1) More than 12 diameter inches of trees were removed;

(2) A Madrone, Garry Oak, or Pacific Yew larger than 6 inches was removed; or

(3) Disturbance occurred riverward of the top of bank of the Willamette River (top of bank is shown on Map 475-2), or within 30 feet of the top of bank of a stream, wetland or other water body.

c. If the applicant cannot meet Options One or Two, Option Three must be used.

d. If the violation also violates a condition of approval of a land use review, no trees have been removed, and disturbance did not occur riverward of the top of bank of the Willamette River or within 30 feet of the top of bank of a stream, wetland or other water body, the applicant may choose Option One or the process described in Section 33.730.140. The applicant may not choose Options Two or Three.

e. If the violation also violates a condition of approval of a land use review, trees have been removed, and disturbance occurred riverward of the top of bank of the Willamette River or within 30 feet of the top of bank of a stream, wetland or other water body, the applicant must use the process described in Section 33.730.140. The applicant may not choose one of the options in this section.

2. Option One, Remove and Repair. This option results in removal of illegal development and replanting and repair of any damage. All of the requirements of this paragraph must be met. Adjustments and modifications to these requirements are prohibited.

a. All items and materials placed in the area of violation are removed and no new disturbance area is created;

b. Any soil compaction resulting from the violation is tilled or otherwise broken up to a depth of 6 inches prior to planting;

2 Option One, Remove and Repair. This option results in removal of illegal development and replanting and repair of any damage. All of the requirements of this paragraph must be met. Adjustments and modifications to these requirements are prohibited.

a. All items and materials placed in the area of violation are removed and no new disturbance area is created;

b. Any soil compaction resulting from the violation is tilled or otherwise broken up to a depth of 6 inches prior to planting;

c. Violation remediation planting. The area to be planted is the area disturbed by the violation. All of the following must be met:

(1) The area disturbed by the violation activity must be replanted to meet the standards of Table 475-3;
(2) For planting areas over 600 square feet, at least two different tree species and sizes, three different shrub species, and four different groundcover species must be used. All plants must be native;

(3) A second area, equal in size to the area disturbed by the violation activity, must also be replanted to meet the standards of Table 475-3;

(4) Any Nuisance or Prohibited Plants listed on the Portland Plant List must be removed from the planting area and within 10 feet of the planting area;

(5) Trees must be a minimum ½ inch in diameter, bareroot or live stake, unless they are oak, madrone, or conifer, which may be three- to five-gallon size. No more than 10 percent of the trees may be oak or madrone. Trees must not be planted within a Scenic (s) overlay zone. Trees may be clustered. Shrubs must be a minimum of two-gallon size. All other species must be a minimum of four-inch pots;

(6) The requirements of Section 33.248.090, Mitigation and Restoration Planting, must be met; and

(7) For violations involving the removal of trees, two times the number of diameter inches removed must be planted on the site, in addition to other remediation vegetation planted. If any tree removed was a Garry Oak, Madrone, or Pacific Yew, the replacement trees must be of the same species. Planted trees must be a minimum one inch in diameter unless they are oak, Madrone, or conifer, which may be three- to five-gallon size.

3. Option Two, Retain and Mitigate. This option results in legalizing the illegal development and mitigating for any damage. All of the requirements of this subsection must be met. Adjustments and modifications to these standards are prohibited.

   a. The applicable standards of paragraphs 33.475.440.B must be met;

   b. Violation remediation planting. The area to be planted is the area disturbed by the violation. Where development is approved for the area disturbed by the violation, an area of the same size elsewhere on the site must be planted. All of the following must be met:

      (1) The area disturbed by the violation activity must be replanted to meet the standards of Table 475-3;
(2) For planting areas over 600 square feet, at least two different tree species and sizes, three different shrub species, and four different groundcover species are used. Plants must be native and selected from the Portland Plant List.

(3) A second area, equal in size to the area disturbed by the violation activity, must also be replanted to meet the standards of Table 475-3;

(4) Any Nuisance or Prohibited Plants listed on the Portland Plant List must be removed from the planting area and within 10 feet of the planting area;

(5) Trees must be a minimum ½ inch in diameter, bareroot or live stake, unless they are oak, madrone, or conifer, which may be three- to five-gallon size. No more than 10 percent of the trees may be oak or madrone. Trees must not be planted within a scenic (s) overlay zone. Trees may be clustered. Shrubs must be a minimum of two-gallon size. All other species must be a minimum of four-inch pots; and

(6) The requirements of Section 33.248.090, Mitigation and Restoration Planting, must be met; and

c. For violations involving the removal of trees, two times the number of diameter inches removed must be planted on the site, in addition to other remediation vegetation planted. If any tree removed was a Garry Oak, Madrone, or Pacific Yew, the replacement trees must be of the same species. Planted trees must be a minimum one inch in diameter unless they are oak, Madrone, or conifer, which may be three- to five-gallon size.

4. Option Three, River Review. This option requires River Review, using the approval criteria and procedures below:

a. Approval criteria. The applicable approval criteria of Subsection 33.865.120 must be met.

b. Review procedures. Reviews are processed as follows:

(1) Type III. A Type III review is required for any development, exterior alteration, or exterior improvement within a wetland, stream channel, drainageway, or water body.

(2) Type II. All other reviews to correct violations are processed through a Type II procedure.

(3) All River Reviews must provide the information required in Section 33.865.040, Supplemental Application Requirements
Commentary

33.475.500 Removal or Remediation of Hazardous Substances

The regulations in this section apply to removal or remediation of hazardous substances. The goal of these regulations is to ensure that cleanup actions do not impair river-dependent and river-related uses and development, public access and recreation or natural resource protection and enhancement.

The requirements are intended to refine the cleanup design to be in conformance with City requirements and the Oregon Statewide Planning Goals, particularly Goal 15: Willamette River Greenway. Goal 15 requires protection of significant fish and wildlife habitats, protection of natural vegetative fringe along the river, and setbacks from the river for non-water related or non-water dependent uses. The regulations have been written in a way that will provide the person conducting the cleanup and the regulating agency with the flexibility required to design the most appropriate removal or remediation action.

Portions of state or federally approved cleanups may be exempt from procedural requirements of the section. Under Oregon State Law (ORS 465.315(3)) the onsite portion of a state approved cleanup is exempt from the procedural requirements of the Code to obtain local permits if the substantive requirements of the local jurisdiction are met.

The regulations in this section are the City's substantive requirements for clean ups that must be met regardless of whether the cleanup may be exempt from procedural requirements or not. The Bureau of Development Services implements what it calls an "exempt process" for evaluating hazardous substance removal or remediation plans compliance with the City's substantive regulations. Cleanup conducted under state law in a City right-of-way is not exempt and must comply with all applicable City requirements.

Under federal law (42 U.S.C. 9621 (e)(1)), EPA has its own process for determining the extent to which substantive requirements of City Code will be considered in a federally approved cleanup.

33.475.500.E

Statewide Planning Goal 15 requires that structures or buildings be separated from the river. The City’s river setback (called greenway setback outside of this chapter) requires that development in the River General overlay zone in the Central City that is not river-dependent or river-related be set back 50 feet from the top of bank. Structures required as part of remediation actions are considered river-related and allowed within the setback. The standard seeks to ensure that after cleanup actions are complete, the location of structures associated with the remediation will allow for future river-dependent and river-related development, such as development of the major public trails.
Clean Up of Contaminated Sites

33.475.500 Removal or Remediation of Hazardous Substances

A. General. The following regulations are substantive requirements that apply to actions taken to remove or remediate hazardous substances. All of the regulations must be met unless one or more are demonstrated to be impracticable pursuant to subsection G, below.

B. Where these regulations apply. The regulations of this section apply to the portion of the site located within the boundaries of the removal or remediation action.

C. Review procedure.

1. Except as described in paragraph C.2, compliance with these regulations is processed through a Type II procedure.

2. If the action to remove or remediate hazardous substances is subject to this Code but exempt from procedural requirements, the action must comply with the substantive requirements of these regulations to the extent required under state or federal law and the person performing the action must notify the City that the action is exempt. A person conducting a cleanup otherwise exempted from the procedural requirements may choose to obtain a permit.

D. Relationship to other regulations in this chapter. Actions to remove or remediate hazardous substances that are approved or selected under Oregon or federal cleanup law are exempt from the procedural requirements of Chapter 33.475. Any part of an action that is not in itself a remedial or removal action must meet all other applicable regulations and procedural requirements of this chapter.

E. Regulations that apply to actions to remove or remediate hazardous substances. The following regulations apply to proposals for the removal or remediation of hazardous substances:

1. The removal or remedial actions and the final remedy must not preclude the use of the site consistent with the uses allowed by the base zone or an approved conditional use. If the site is within the River Industrial overlay zone or riverward of the river setback, the final remedy must allow the use of the site for river-dependent or river-related activities unless the site is found to be unsuitable for river-dependent or river-related uses. Generally, this means that the final remedy must allow development of major public trails, dredging necessary to establish or maintain navigation to and from riverfront sites, the placement of piles or dolphins, or the development of a marine facility, dock, or wharf or other river-dependent or river-related structure;
Commentary

33.475.500.F.1
The requirements of this subsection are aimed at encouraging the person conducting the cleanup to design a remedy that leaves identified natural resource areas intact as much as possible. The City is aware that this will not be possible in all cases, and therefore requires re-vegetation when ground disturbance and native plant removal cannot be avoided. The revegetation requirements are intended to allow flexibility in the type and size of trees planted.
2. Buildings, structures and equipment required as part of removal or remediation actions must be located and designed taking into account the purpose of the river setback standard which is to keep structures at least 50 feet away from the top of bank of the river, reserve space for public access to the river and development of major public trails, and allow for natural resource enhancement (top of bank is shown on Map 475-2); and

3. Water quality treatment facilities must be located outside of the River Environmental overlay zone.

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. Disturbance of the ground and removal of native vegetation must be avoided outside of the actual soil removal areas. If avoiding disturbance or native vegetation removal is not practicable, disturbance and removal must be minimized.
   
   b. Where ground disturbance or removal of native vegetation cannot be avoided, the area must be replanted. The replanting standards are as follows:
      
      [1] Nuisance and prohibited plants identified on the Portland Plant List must be removed within the area to be replanted and within 10 feet of any plantings;
      
      [2] Planting density. The replanting area must meet one of the following plant and planting density standards specified in Table 475-4. Trees may be clustered. Trees must not be planted within a view corridor designated in the Scenic Resources Protection Plan, shown on Map 480-1.
Table 475-4
This table represents the same planting density as the mitigation planting density, Table 475-3, and the landscaping planting density for subarea 1, Table 475-1.

Title 11, Trees, code section 11.60.020.C. Canopy includes canopy size categories. Tree canopy types are categorized as small, medium, or large based on the estimated canopy size at maturity. The "Portland Tree and Landscaping Manual" suggested plant lists include the size categories recognized for many trees. To determine the size category of a tree not listed in the "Portland Tree and Landscaping Manual", the applicant shall provide an objective source of information about the tree's mature height, crown spread, and growth rate. This information can come from published sources, internet sources, or nursery information such as cut sheets.

The canopy size category is calculated according to the following formulas, which incorporate the estimated height and crown spread of a mature specimen and the tree species' growth rate:
1. Small trees have a canopy factor of less than 40, Medium trees have a canopy factor from 40 to 90, and large trees have a canopy factor greater than 90;
2. Canopy factor = (Mature height of tree) x (Mature canopy spread) x (Growth rate factor) x 0.01;
3. The growth rate factor is 3 for fast-growing trees, 2 for medium growing trees, and 1 for slow-growing trees.
Table 475-4
Planting Density

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>One tree and one of the following two options for every 100 square feet:</td>
<td>One tree and one of the following two options for every 200 square feet:</td>
<td>One tree and one of the following two options for every 300 square feet:</td>
<td></td>
</tr>
<tr>
<td>Option 1: Three shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or</td>
<td>Option 1: Six shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or</td>
<td>Option 1: Nine shrubs and seeded with a grass and forb seed mix at a ratio of 30 pounds per acre; or</td>
<td></td>
</tr>
<tr>
<td>Option 2: Three shrub and four other groundcover plants.</td>
<td>Option 2: Six shrub and eight other groundcover plants.</td>
<td>Option 2: Nine shrub and 12 other groundcover plants.</td>
<td></td>
</tr>
</tbody>
</table>

[1] Tree size is based on Title 11.60.020.C Canopy Size

[3] Plant diversity. For planting areas over 600 square feet, at least two different tree species and sizes, three different shrub species, and four different groundcover species are used;

[4] Plant size. Trees must be a minimum ½-inch caliper or bareroot 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

[5] The requirements of Section 33.248.090, Mitigation and Restoration Planting must be met.

c. Tree replacement. Trees that are 1.5 inches or greater in diameter that are removed must be replaced based on Table 475-5:
Commentary

Table 475-5
The tree replacement information in Table 475-5, Tree Replacement in Hazardous Substance Cleanup Sites, is the same as the tree replacement standards in Table 475-2.

33.475.500.F.2.a
If the river bank will be altered significantly as a result of the removal or remediation of hazardous substances, the City requires that the bank be restored using soil bioengineering instead of engineered inert materials to the extent practicable. The City’s priority is a natural bank that can sustain vegetation for soil stabilization, improve ecological values and provide riparian functionality. However, the City recognizes that there will be cases when bioengineering will not be practicable. If rock armoring is used on the bank, the City requires re-grading to a slope level that will allow vegetation to be maintained, and requires that live willow or dogwood stakes be planted between the rocks to provide a minimum level of vegetative cover.
### Table 475-5
Tree Replacement in Hazardous Substance Cleanup Sites

<table>
<thead>
<tr>
<th>Size of tree to be removed (inches in diameter)</th>
<th>Option A (no. of native trees to be planted)</th>
<th>Option B (combination of native trees and shrubs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 1.5 and up to 12</td>
<td>2</td>
<td>Not applicable</td>
</tr>
<tr>
<td>More than 12 and up to 20</td>
<td>3</td>
<td>1 tree and 3 shrubs</td>
</tr>
<tr>
<td>More than 20 and up to 25</td>
<td>5</td>
<td>3 trees and 6 shrubs</td>
</tr>
<tr>
<td>More than 25 and up to 30</td>
<td>7</td>
<td>5 trees and 9 shrubs</td>
</tr>
<tr>
<td>More than 30</td>
<td>10</td>
<td>7 trees and 12 shrubs</td>
</tr>
</tbody>
</table>

[1] Size. The replacement trees must be a minimum ½-inch diameter or bareroot unless they are oak or madrone, which may be one gallon size. Shrubs must be a minimum of one gallon size or bareroot. All other species must be a minimum of four-inch pots or equivalent.

[2] Type. The replacement trees must be native trees selected from the Portland Plant List;

[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 Central Reach (top of bank is shown on Map 475-2). The person conducting the cleanup must own the property where the trees are planted or have an easement or deed restriction sufficient to ensure the success of the tree planting; and

[4] Replacement trees can be counted toward meeting the requirements of subsubparagraph G.1.b(2).

d. All vehicle areas and construction staging areas installed for purposes of conducting the removal and remediation actions must be removed from the River Environmental overlay zone when they are no longer necessary for remedy construction. All such areas must be removed by the time the project is complete and the areas must be replanted according to the standards of subparagraph G.1.b, above.

2. The following regulations apply to the area between the top of bank and the ordinary high water mark:

a. When there is an alteration to the area between top of bank and the ordinary high water mark that is greater than 500 square feet or includes more than 50 cubic yards or excavation or fill, changes the ground contours, results in the removal of buildings, requires engineering of the river bank or includes in-water work, the following should be met (top of bank is shown on Map 475-2):
The area between the top of bank and the ordinary high water mark where the alteration occurs must be designed using biotechnical techniques including soil bioengineering (top of bank is shown on Map 475-2). Figures 475-5 and 475-6 show examples of biotechnical techniques. In addition to using biotechnical techniques, the following requirements apply:

- Rock armoring or other hard surface armoring methods must not be used between the top of bank and the Ordinary High Water Mark except as needed surrounding outfalls. This is not intended to preclude using rock or other hard surface stabilization methods below the surface if necessary to contain hazardous substances or to preclude the use of rocks or gravel as part of the biotechnical technique;

- The bank must be sloped or terraced in a way that allows the establishment and maintenance of vegetation as the primary soil stabilization method;

- If the site is currently used for public recreation, including access to a beach or the river, the bank must be sloped or terraced in a way that allows for at least one public access way to the beach or river;

- Large wood, including root wads, tree boles and logs, must be used to reduce localized erosion, improve bank stabilization, and improve ecological values and, if the site is currently used for public recreation, support continued use of beaches and the river; and

- At least eighty percent of the area between the top of bank and the ordinary high water mark that is being altered as a result of the remedy must be planted with shrubs. At least one tree must be planted for every 400 square feet of altered area. All of the area that is not planted with shrubs or trees must be fully covered with ground cover plants. All plants must be selected from the Portland Plant List and should be appropriate for the conditions on the site. The requirements of Section 33.248.090, Mitigation and Restoration Planting must be met.

If biotechnical techniques are not practicable, as described in 33.475.500.H, and rock armoring is used on the surface between the top of bank and the Ordinary High Water Mark, then the slope of the bank must be shallow enough to allow a combination of rock and vegetation (top of bank is shown on Map 475-2). At a minimum, live native willow or dogwood stakes should be planted in adequate soil, in the interstices between the rocks at a ratio of three stakes for every square yard of rock armoring.
33.475.500.F.3
If the river bottom, which is the ground below the ordinary high water mark, will be altered significantly as a result of the removal or remediation of hazardous substances, the City requires that the river bottom be restored to support use by fish and people. The City’s priority is a natural river bottom with improved ecological values and allows for public access where possible. However, the City recognizes that there will be cases when this will not be practical. If angular or large rock is necessary, the City requires adding a top layer of small gravel over the large rock.
b. When there is a minor alteration of less than 500 square feet or less than 50 cubic yards of excavation or fill to the area between the top of bank and the ordinary high water mark, the regulations of paragraph G.1, above apply (top of bank is shown on Map 475-2).

3. In the area that is riverward of the Ordinary High Water Mark, the following apply:
   a. Avoid in-water permanent structures that will impact the navigation channel or will preclude river-dependent or river-related development from accessing and utilizing the river for public recreation, transportation, tourism, or the transport, transfer and conveyance of goods and materials to and from the upland site;
   b. Integrate large wood, or other natural wave deflection structures or techniques that mimic the function of large wood, into the near-shore environment. Rock armoring, chemically treated wood, articulated block, and industrial debris is discouraged;
   c. If the area is a beach or is a shallow water depositional area, then the final design should include all of the following:
      (1) At least six inches depth of substrate that is ½-inch rounded gravel or smaller in size should be placed over capping material;
      (2) The submerged slope should be no steeper than 1:7 (rise to run ratio); and
      (3) Public access from major public trails or abutting upland sites to the river should not be precluded.
   d. If the area is not a beach or is not a shallow water depositional area, then the final substrate should be rounded rock no larger than 6 inches (D100=6") with an average gradation size of 3 inches (D50=3"). Angular rock is discouraged.

G. Demonstration of Impracticability. A person conducting a cleanup may be exempted from compliance with any requirement in this section if the person demonstrates that compliance with the requirement is not capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project remedial purposes. The person must still comply with that requirement to the extent practicable and remains subject to all other applicable requirements. To demonstrate impracticability the applicant must submit an engineering analysis, a cost schedule and any other information, such as desired future use of the site, that supports a demonstration that a requirement cannot be fully met.
Commentary

Figures 475-5 and 475-6
The examples that accompany this subsection were developed as part of a river bank design charrette conducted by River Plan staff as part of River Plan/North Reach, and attended by biologists, bank design experts, landscape architects, and City, state and federal agency representatives. Staff updated the figures to reflect types of contamination clean-up that have occurred in the Willamette River in recent years.
Figure 475-5

Example 1: Upland and In-Water Contamination Cleanup

Contamination containment remedy (if required by DEQ/EPA)

Engineered retaining structures

Large woody debris

Habitat elements sized per flow

Ordinary high water

Remove contaminated soil and replace with clean fill

Figure 475-6

Example 2: In-Water Contamination Cleanup

Environmental enhancement

Ordinary high water

Original river bank

Clean fill

Ordinary low water

Engineered cap

Contaminated soil

This is a new chapter. For ease of readability the text is not underlined.
Commentary

Map 475-1
This map depicts the Central Reach portion of the Willamette Greenway Boundary that is subject to the regulations of Chapter 475. Industrially zoned sites in the northeast and southeast portion of the Central Reach in the Central City remain subject to the regulations of the Greenway Overlay Zones Chapter, 33.440. Revised regulations for these sites will be reviewed as part of the update to the Greenway Plan for the North Reach, which predominantly addresses river industrial sites and development. The Greenway overlay zone regulations for the South Waterfront Subdistrict are contained in 33.510.253 and therefore, the South Waterfront Subdistrict is not included on this map and the regulations of this chapter do not apply.
Map 475-2
This map series shows the mapped top of bank for the Central City using Light Detection and Ranging (LIDAR). The top of bank is defined in 33.910 as the largest decrease in slope that is 10 percent or greater between the ordinary high water mark of a water body and a point 50 feet landward from the ordinary high water mark. See Section 33.930.150, Measuring Top of Bank. If there is no decrease in slope that is 10 percent or greater within a distance of 50 feet from the ordinary high water mark, then the top of bank will be the default location described in Section 33.930.150, Measuring Top of Bank.
Central Reach
Top of Bank

Map 475-2

Map 3 of 3

Map Revised xx X, 201X

Legend

Central Reach
River Overlay Boundary
Top of Bank (where mapped)

Scale in Feet
Bureau of Planning and Sustainability
Portland, Oregon

0 800 1,600

Hawthorne Bridge
Memmert Bridge
Wildabe
Ross Island Bridge
Map 475-3
This map depicts Governor Tom McCall Waterfront Park and the public beach at Eastbank Crescent. There are different requirements at these locations, such as landscaping.
Areas Exempt from Landscaping Requirements

Map 475-3

Map Revised Xxxxx X, 201X

Legend

Proposed Central Reach
River Overlay Boundary
Exempt Areas

Scale in Feet
Bureau of Planning and Sustainability
Portland, Oregon

June 2017
Recommended Draft Central City 2035 Plan
Chapter 33.475, River Overlay Zones