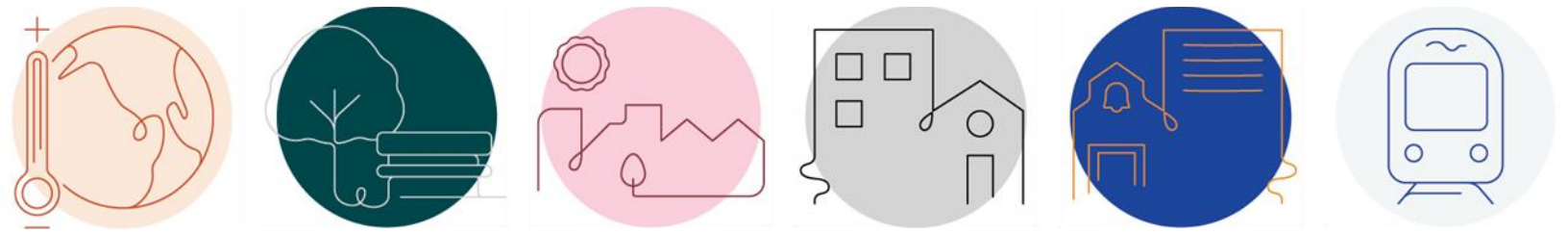
3.3 Plants & Animals



Alki Beach Park. Source: City of Seattle, 2023.

Discussions in this section evaluate, at a broad, programmatic level, the potential impacts of the One Seattle Comprehensive Plan Update proposal and alternatives on plants and animals.

Analyses in this EIS consider all plants and animals that may be affected by the alternatives, with particular emphasis on tree canopy cover and on streams that may receive stormwater runoff from pollution-generating impervious surfaces. This emphasis reflects heightened concern about those two elements of the environment. During the public scoping process, many stakeholders expressed concern about the loss of tree canopy cover in the city. With regard to stormwater, a growing field of research is finding that stormwater runoff contains contaminants that are harmful to fish, including species that are listed as threatened or endangered under the Endangered Species Act (ESA).

Thresholds of significance utilized in this impact analysis include:

- Impacts that would reduce the likelihood that populations of native plant or animal species would persist in or near Seattle~~of survival or recovery of a plant or animal species in the wild~~, compared to the No Action Alternative;
- A substantially increased potential for tree canopy cover loss, compared to the No Action alternative; and
- An appreciable increase in the delivery of stormwater contaminants to fish-bearing streams, compared to the No Action alternative.

Proposals studied in this EIS are focused on a new growth strategy, particularly housing, while employment is fairly constant across alternatives. For the manufacturing industrial centers, employment growth was considered in relation to plants and animals including aquatic and terrestrial species in the Seattle Industrial and Maritime Lands Final EIS, completed September 29, 2022. That Final EIS is hereby incorporated by reference, in particular **Section 3.3 Plants & Animals**.[18]

3.3.1 Affected Environment

The following subsections provide overviews of general concerns relating to plants and animals citywide, with special attention to tree canopy cover and contaminants in stormwater runoff. These overviews are followed by brief descriptions of the tree canopy cover and the presence of fish-bearing streams in the eight analysis subareas and the 130th and 145th Street Station Area.

Citywide

Habitats in Seattle support a wide range of plant and animal communities. The abundance and diversity of species in any given area vary with the degree of urban development. More intensely developed areas (parcels dedicated to commercial and/or industrial uses, for example) generally have little vegetative cover and support a comparatively small number of wildlife species that are adapted to high levels of human activity. Many of the plants and

[18] See project documents, available: https://www.seattle.gov/opcd/ongoing-initiatives/industrial-and-maritime-strategy#projectdocuments.

animals in such areas are not native to the region. More diverse assemblages of plants and animals, including native species, may be found in less-developed areas—parks and open spaces, for example. Trees offer structural diversity that provides habitat for a wide range of species; areas in the city with extensive tree canopy cover are likely to support comparatively diverse plant and animal communities. Parks and undeveloped stream corridors may provide movement corridors for mammals and amphibians.

Many residential areas include trees and other vegetation (native or non-native) interspersed with buildings and impervious surfaces. These conditions generally support plant and animal communities that are intermediate between intensely developed areas and parks and open spaces, in terms of diversity and abundance. At the scale of an individual parcel, as the proportion of a lot that is occupied by buildings and impervious surfaces increases, the amount of vegetative cover—and, by extension, the lot's capacity to help support diverse and abundant communities of plants and animals—typically decreases.

The plant and animal species found in Seattle are widespread in the region.~~; s~~Some of these species are globally abundant; populations of some species are declining. For species associated with certain habitat types (e.g., heavily vegetated residential lots), urban development and redevelopment have the potential to contribute to further declines. Areas in the city limits represent a very small proportion of the total amount of habitat available to any given species. ~~The only~~ ESA-listed Chinook salmon and steelhead ~~or state-listed species known or expected to~~ are present in some streams ~~use habitats~~ in the city ~~are fish (steelhead and Chinook salmon)~~. These and other ESA-listed and state-listed species are also present in marine waters that receive stormwater runoff from the city, including bull trout, rockfish, marbled murrelets, and Southern Resident killer whales.

Tree Canopy Cover

Canopy cover is the percentage of the city's land area that is covered by trees, as seen in an aerial view. Canopy cover is an important management tool for planners to understand the extent and distribution of trees in Seattle. The city's goal, established in 2007, is to have 30% tree canopy cover by 2037.

Trees are critical infrastructure that provide essential benefits, including the following:

- Sequestering carbon (i.e., capturing and storing carbon dioxide from the atmosphere, reducing the input of a key greenhouse gas)
- Providing shade and reducing heat
- Absorbing pollution
- Improving physical and mental health
- Providing habitat for plants and animals
- Intercepting a portion of rainfall, reducing overall stormwater runoff

Trees play a vital role in moderating temperatures in urban areas. Tree canopy provides cooling both through shading and through evapotranspiration. Shading blocks incoming heat energy and prevents impervious surfaces from absorbing it and radiating back into surrounding areas. Evapotranspiration is the process by which plants absorb water through

their roots and release it as vapor through their leaves. This process of converting liquid to gas uses heat from surrounding areas and thus cools the air. In general, areas with more canopy cover have cooler temperatures, compared to areas with less canopy cover. Increasing canopy in low-canopy neighborhoods is a critical aspect of the City's long-term heat preparedness strategy (Seattle Office of Sustainability & Environment 2022).

In 2022, the Seattle Office of Sustainability & Environment completed a citywide review of tree canopy cover. The study used lidar data to determine the extent of tree canopy cover in 2016 and 2021 and to identify areas where cover increased or decreased during that 5-year period. The study also identified parcels that were redeveloped during that period, to allow an assessment of the amount of canopy change that might be attributable to housing projects versus other causes. Sites were considered redeveloped if they included any new housing units.

Key findings of the canopy cover assessment included the following:

- Canopy cover decreased by 255 acres between 2016 and 2021—an area roughly the size of Green Lake. As canopy cover decreases, the benefits identified above are diminished.
- The city is below its goal for canopy cover. Total cover in 2021 was 28%, compared to a goal of 30%.
- Loss is happening inequitably. Neighborhoods impacted by racial and economic injustice started with less canopy and lost more than the citywide average.
- The greatest net losses occurred in parks and natural areas and on residential parcels where development projects did not occur.
- Climate change poses serious challenges for trees, while also making trees more essential. Climate change brings new pests and diseases, along with increased watering and maintenance needs. At the same time, trees are critical climate infrastructure, protecting us from extreme heat and improving air quality.

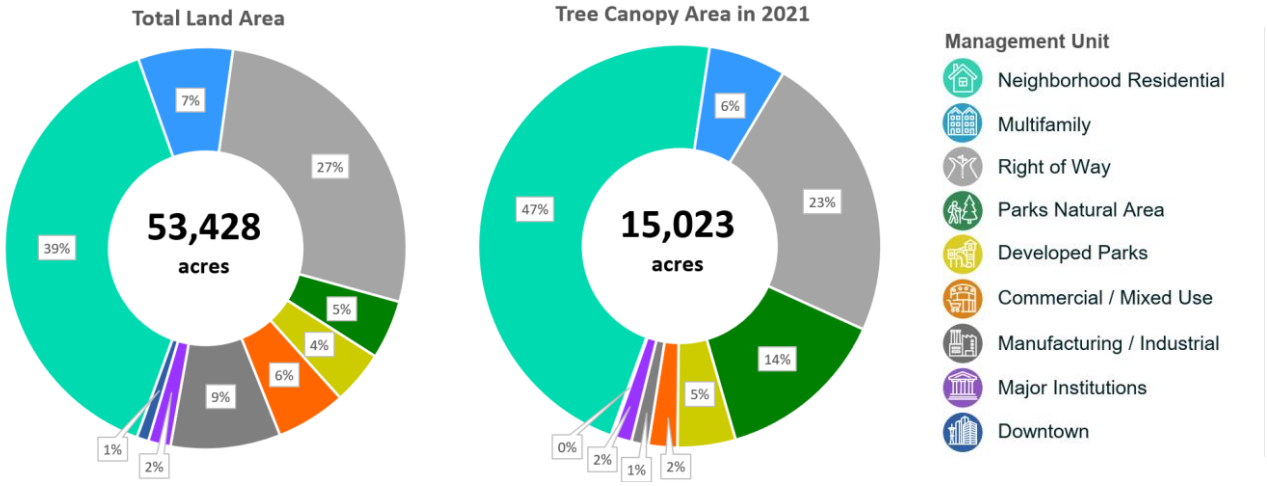
Many factors contributed to citywide losses of tree canopy cover during the study period. Examples include:

- Natural mortality: in any urban forest, a certain portion of trees are likely to die or be removed as they become hazardous. As trees age, they are more likely to lose large branches, become hazardous, or succumb to pests, disease, or drought stress.
- Climate change: hotter, drier summers exacerbate drought stress.
- Forest management: in some parks and natural areas, aging deciduous trees are dying or being removed to allow for the establishment of conifers that provide more ecosystem benefits. Invasive species are also making it difficult for new trees to establish themselves.
- Public safety: in some areas, aging or unhealthy trees pose a risk to residents or park users and must be removed.
- Competing uses: trees are removed due to resident preferences, residential and commercial development projects, and infrastructure changes such as transportation and utilities.

These losses were partially offset by gains as existing trees grew taller and broader. Trees less than 8 feet tall were excluded from the analysis, so most newly planted trees were not factored into the calculation of tree canopy gains.

The tree canopy cover assessment divided the city into nine management units, based on land uses. The different management units have different proportions of tree canopy cover (**Exhibit 3.3-1**). For example, only 5% of the city is in the Parks and Natural Areas management unit, but 14% of the city's tree canopy cover is in that management unit. Conversely, the management units that support more high-intensity land uses (Commercial/Mixed Use, Manufacturing/Industrial, Major Institutions, Downtown) represent more than 17% of the city's total land area but provide only 5% of the tree canopy cover. The Neighborhood Residential management unit encompasses the largest proportion of the city's total land area, and it provides an even larger proportion of the city's tree canopy cover (**Exhibit 3.3-1**).

Exhibit 3.3-1. Land Area and Tree Canopy Cover, by Management Unit

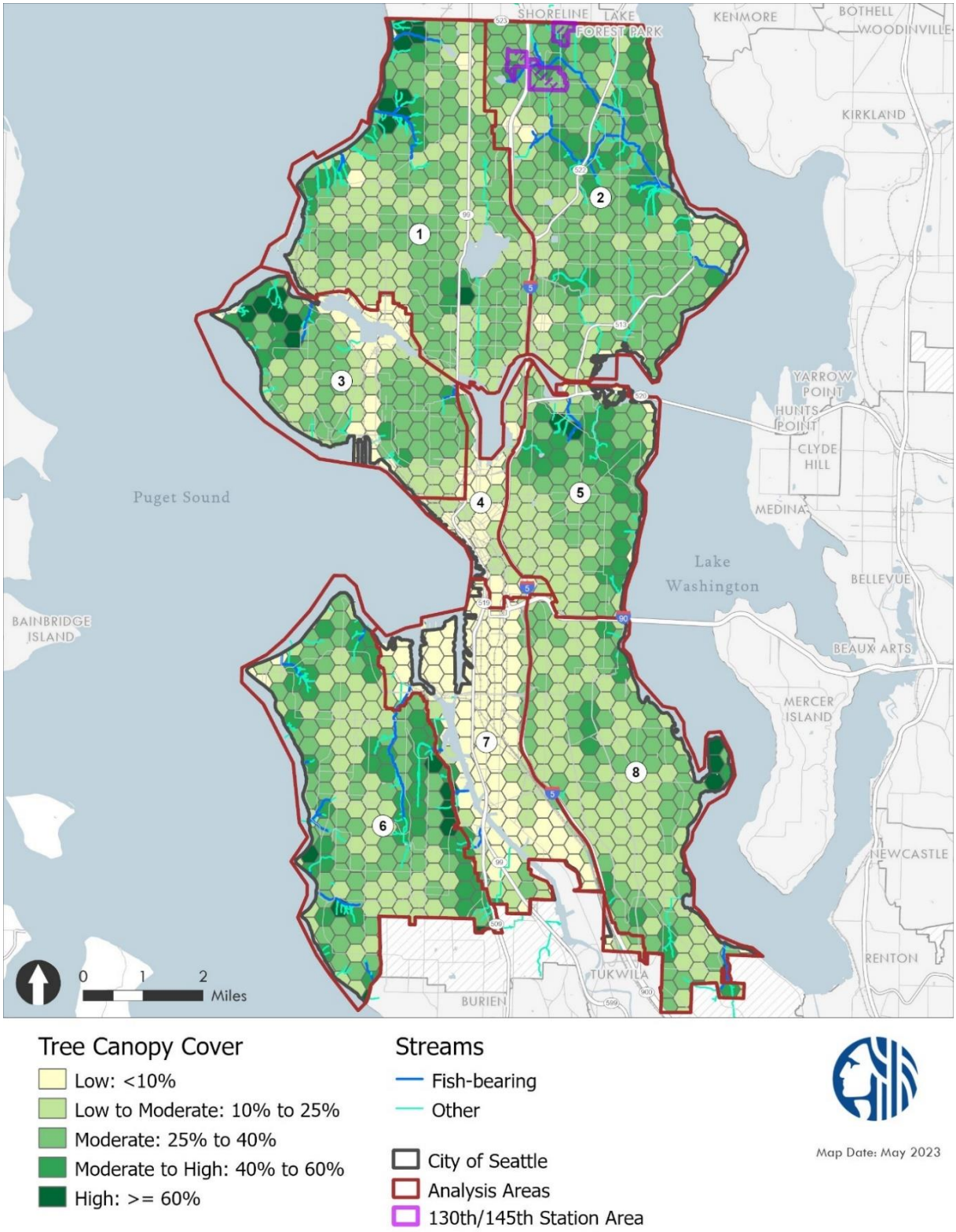


Source: Seattle Office of Sustainability & Development, 2022.

Trees in public rights-of-way play an important role in contributing to canopy cover citywide. Rights-of-way make up 27% of the city's land area, and trees in this management unit contribute 23% toward the city's canopy cover—second only to the Neighborhood Residential management unit (**Exhibit 3.3-1**). Given the constraints of limited space and soil volume that planting strips can provide, trees in this management unit face extra challenges. Soil quality can also be a challenge, particularly in areas that have been used for parking or other activities that compact soil (Seattle Office of Sustainability & Development 2022). These challenges mean that frequent maintenance and care for existing trees in rights-of-way is essential. Most trees in the Right of Way management unit (around 84%) are privately managed by adjacent landowners; the remainder are managed by the City (Seattle Office of Sustainability & Development 2022).

Broadly speaking, the areas with the greatest proportion of tree canopy cover are in and near parks and natural areas, particularly those near the shorelines of Lake Washington and Puget Sound (**Exhibit 3.3-2**). Forested areas are also present in ravines and along the steep slopes of the city's major hills, such as Magnolia, Queen Anne Hill, Beacon Hill, Boeing Hill, and West Seattle. Tree canopy is largely absent from Downtown and major industrial areas along the Duwamish Waterway and in Interbay.

Exhibit 3.3-2. Existing Tree Canopy Cover in Seattle



Sources: Seattle Office of Sustainability & Development, 2022; Washington Department of Natural Resources, 2023.

Between 2016 and 2021, tree canopy cover decreased in all management units except Downtown, where it remained essentially unchanged (**Exhibit 3.3-3**). The greatest acreage of canopy loss—more than three-quarters of the total loss—occurred in the Parks and Natural Areas and Neighborhood Residential management units. Notably, most canopy loss was not associated with development activities; only 14% of the canopy loss occurred on parcels that underwent development during that period (**Exhibit 3.3-3**). Of the approximately 35 acres (14% of 256 acres) of canopy loss that occurred on parcels that underwent development, almost all (31 acres) happened on parcels in the Neighborhood Residential or Multifamily management units. In 2023 (i.e., after the tree canopy study was completed), the city's tree ordinance was updated (see **Section 3.3.3**). It is anticipated that these updates will decrease the rate of canopy loss associated with residential and commercial development.

Exhibit 3.3-3. Total Area and Proportion of Tree Canopy Loss on Parcels That Underwent Development, by Management Unit

Management Unit	Tree Canopy Loss, 2016-2021 (acres)	Percentage of That Loss Occurring on Parcels That Underwent Development
Neighborhood Residential	87	19%
Multifamily	19	75%
Right of Way	10	1%
Parks and Natural Areas	111	0%
Developed Parks	5	0%
Commercial/Mixed Use	6	63%
Manufacturing/Industrial	6	7%
Major Institutions	12	0%
Downtown	0	0%
Total	**256**	**14%**

Source: Seattle Office of Sustainability & Development, 2022.

Of the 511 acres that underwent development during the study period, 291 acres (57%) were on parcels in the Multifamily or Neighborhood Residential management units. However, those two management units saw 88% of the total tree canopy loss on parcels that underwent development (31 of 35 acres). Most of the remaining 12% of development-related canopy loss happened on parcels in the Commercial/Mixed Use management unit (Seattle Office of Sustainability & Development 2022).

The disproportionate amount of development-related canopy loss on Multifamily and Neighborhood Residential parcels may be a product of the greater amount of tree canopy cover in those management units. In 2021, the total canopy cover for areas in the combined Multifamily and Neighborhood Residential management units was approximately 32%; canopy cover for areas in the Commercial/Mixed Use management unit was 11% (Seattle Office of Sustainability & Development 2022). Parcel size may also play a role. On average, Multifamily

and Neighborhood Residential are smaller than Commercial/Mixed Use parcels. Logistical constraints make it difficult to avoid impacts to trees when developing a small parcel.

Notably, more than 80% of the canopy loss that occurred in the Neighborhood Residential management unit happened on parcels where development did not take place (**Exhibit 3.3-3**). This may indicate that much of the canopy loss in the Neighborhood Residential management unit resulted from natural mortality or from actions (e.g., pruning, tree removal) unrelated to development activities.

The City aims to prioritize urban forestry efforts in low-canopy areas. Many of these areas also have disadvantaged populations, as indicated by race, language, origin, socioeconomic conditions, and health issues. The 2022 City of Seattle Tree Canopy Assessment also found that, in 2016, areas with disadvantaged populations had 16% less canopy cover than other areas. The disparity was exacerbated by canopy loss between 2016 and 2021. By 2021, areas with disadvantaged populations had 20% less canopy cover than other areas.

Residential areas with a combination of disadvantaged populations and low canopy cover are primarily in Area 4 (Belltown, International District, South Lake Union), Area 6 (South Delridge and Highland Park neighborhoods), Area 7 (South Park and Georgetown neighborhoods), and Area 8 (Beacon Hill, Brighton, and Rainier Beach neighborhoods). Additional neighborhoods with that combination include Atlantic (Area 5), Bitter Lake (Area 1), and Greenwood (Area 1).

Stormwater Runoff

Since the 1990s, biologists studying salmon in urban streams have documented alarmingly high numbers of coho salmon dying before being able to spawn (e.g., McCarthy et al. 2008). Studies in several Seattle-area streams (including Longfellow, Thornton, Piper's, Taylor, and Fauntleroy creeks) have found rates of pre-spawning mortality in excess of 86% (Scholtz et al. 2011). More recent research has found 6PPD-quinone, a contaminant originating in vehicle tires and found in runoff from roadways, to be a major contributor to pre-spawning mortality in coho salmon (Tian et al. 2021). Other contaminants, such as metals and polycyclic aromatic hydrocarbons, are also associated with adverse effects on salmonids and their prey. Contaminants in stormwater runoff have also been found to have harmful effects on ESA-listed Chinook salmon and steelhead (National Marine Fisheries Service 2022).

Some types of stormwater treatment facilities, such as bioretention facilities, prevent the acute lethal effects of stormwater on salmonids (Spromberg et al. 2015). Other types of facilities, such as compost-amended bioswales, are also effective at removing a variety of contaminants from runoff, including metals and polycyclic aromatic hydrocarbons (Fardel et al. 2020; McIntyre et al. 2015). However, residual contaminants in stormwater runoff can still harm fish, even after the water has been treated to reduce pollutant loads. In addition, the capacity of treatment facilities may be exceeded during major storm events, and untreated stormwater may bypass the facilities.

Based on the above, the discharge of stormwater runoff to fish-bearing streams has the potential to harm fish, including ESA-listed species. Terrestrial wildlife may also be affected by

contaminants in stormwater runoff that enters surface waters, either through direct exposure (e.g., drinking) or by consuming contaminated fish. ~~As noted above, the only ESA-listed or state-listed species known or expected to use habitats in the city are fish.~~ Directing runoff to treatment facilities reduces the risk of harm, but it may not eliminate that risk altogether.

Stormwater runoff also has the potential to affect stream flows. During storm events, rainwater rapidly runs off from impervious surfaces and into pipes and other systems that deliver the water directly to streams. This results in high-volume, rapid peak flows that damage stream habitat and contribute to erosion and sedimentation. These impacts can be reduced by directing stormwater to facilities that detain runoff and allow it to enter streams more gradually.

Section 3.1.1 in **Earth & Water Quality** identifies the streams that receive stormwater runoff from impervious surfaces (including pollution-generating surfaces) in the city. The following subsections provide information about the known or expected presence of fish in these streams. Discussions in this EIS emphasize salmonids—anadromous salmonids in particular—because these species are a management concern due to habitat degradation and population declines.

Note that stormwater runoff can enter ~~fish-bearing streams~~ surface waters that are a considerable distance away. Pipes and ditches can convey runoff for several miles, discharging contaminated water to a stream in a different area. Conversely, stormwater from many parts of the city is piped to King County's West Point Wastewater Treatment Plant in Discovery Park. Treated effluent from the plant is discharged to Puget Sound approximately 3,600 feet offshore of West Point and is extremely unlikely to contribute to pre-spawning mortality in salmonids.

Areas

The following subsections provide a general overview of tree canopy cover in each of the eight analysis subareas and the 130th and 145th Street Station Area. Discussions also identify areas of notably heavy tree canopy cover, as well as streams with documented or potential fish use.

Area 1

Northwest Seattle includes some of the most densely forested areas in the city. Parks (e.g., Golden Gardens Park, Carkeek Park), greenspaces, and residential areas along the bluffs bordering Puget Sound include several areas with more than 60% canopy cover (**Exhibit 3.3-2**). Woodland Park also includes some areas with relatively high canopy cover. Neighborhoods with moderate to high canopy cover (generally 25 to 60%) include Broadview, Bitter Lake, Blue Ridge, North Beach, Phinney Ridge, Green Lake, Fremont, and Wallingford.

Mapping provided by the Northwest Indian Fisheries Commission (NWIFC) indicates that Piper's Creek in Carkeek Park supports coho salmon and ESA-listed Chinook salmon (NWIFC 2023). Using a topography-based model, the Washington Department of Natural Resources (WDNR) identified two additional potentially fish-bearing streams in this area, both of which

are unnamed tributaries to Puget Sound (WDNR 2023). One drains westward from Bitter Lake, and the other drains northward from North Beach Park.

Area 2

Most of northeast Seattle has a relatively high proportion of tree canopy cover (generally more than 30%; **Exhibit 3.3-2**). The areas with the greatest canopy cover are in parks (e.g., Matthews Beach Park), greenspaces, and residential areas near Thornton Creek and its tributaries and along Lake Washington. Additional areas of comparatively high canopy cover include Northacres Park and Ravenna Park. Nearly all neighborhoods in Area 2 have moderate to high canopy cover. The exceptions are the neighborhoods with substantial commercial centers (e.g., Northgate, Roosevelt, University District), as well as Magnuson Park.

Almost all of northeast Seattle is in the Thornton Creek watershed. According to NWIFC (2023), Thornton Creek and its tributaries provide spawning habitat for ESA-listed Chinook salmon as well as coho and sockeye salmon. Cutthroat trout and ESA-listed steelhead have also been documented in the watershed. Chinook, coho, and sockeye salmon also have the potential to be present in Yesler Creek, a tributary to Union Bay near the western edge of the Laurelhurst neighborhood. These species are also present in Lake Washington, which receives stormwater runoff from parts of Area 2.

WDNR (2023) identifies two additional potentially fish-bearing streams in this area. One is an unnamed tributary that flows from Haller Lake to the north branch of Thornton Creek, and the other is an unnamed tributary that enters Lake Washington immediately south of Magnuson Park.

130th/145th Study Area

The 130th/145th Study Area consists of two units: an approximately 65-acre area near the intersection of 15th Ave NE and NE 145th Street and an approximately 218-acre area spanning I-5 near the Sound Transit light rail station at NE 130th Street. Both units include areas of comparatively high canopy cover near Northacres Park (NE 130th Street unit) and along the north branch of Thornton Creek near Jackson Park Golf Course (both units).

Reaches of the north branch of Thornton Creek in this area have the potential to provide habitat for Chinook, coho, and sockeye salmon. Steelhead and cutthroat trout have been documented in these reaches (NWIFC 2023).

Area 3

The West subarea includes two neighborhoods with relatively high levels of tree canopy cover (Magnolia and Queen Anne), separated by the Interbay industrial area (**Exhibit 3.3-2**). The areas with the greatest canopy cover are Magnolia bluff, Discovery Park, Kiwanis Memorial Preserve Park, Kinnear Park, and greenbelts along the western and northern slopes of Queen Anne Hill.

NWIFC (2023) does not identify any fish-bearing streams in Area 3. WDNR (2023) identifies two potentially fish-bearing streams, both of which are tributaries to the Ship Canal. One is Wolfe Creek (a small stream that flows north from Kiwanis Memorial Preserve Park), and the other is an unnamed tributary that originates on the northern slopes of Queen Anne Hill near Mayfair Park. Chinook, coho, and sockeye salmon are present in the Ship Canal, which receives stormwater runoff from parts of Area 3.

Area 4

The Downtown/South Lake Union subarea does not contain any areas with more than 10% tree canopy cover. Several species of salmonids (Chinook, coho, and sockeye salmon, steelhead, cutthroat trout) have been documented in Lake Union, which receives stormwater runoff from parts of this area (NWIFC 2023). No streams with documented or potential fish use have been identified in this area (NWIFC 2023; WDNR 2023).

Area 5

Areas with relatively high levels of tree canopy cover include Volunteer Park, Interlaken Park, Washington Park Arboretum, Frink Park, Leschi Park, and residential areas along the shores of Lake Washington. Areas dominated by commercial/mixed uses and multifamily housing (primarily west of 23rd Avenue and south of Volunteer Park) generally have less canopy cover than the rest of the subarea.

NWIFC (2023) does not identify any fish-bearing streams in Area 5. WDNR (2023) identifies one potentially fish-bearing stream in the area: an unnamed tributary to Union Bay, originating in Interlaken Park. According to NWIFC (2023), Chinook, coho, and sockeye salmon, steelhead, cutthroat trout have been documented in Lake Washington (including Union Bay and Portage Bay), which receives stormwater runoff from parts of this area.

Area 6

Areas with relatively high proportions of tree canopy cover include parks, greenspaces, and residential areas along Puget Sound and on hillslopes west of the Duwamish Waterway (**Exhibit 3.3-2**). Areas with the greatest density of canopy cover include Lincoln Park, Fauntleroy Park, the West Duwamish greenspace, and the Arroyo Heights natural area. Neighborhoods with moderate to high canopy cover include North Admiral, Riverview, Fauntleroy, Arbor Heights, and Highland Park. Areas with lower canopy cover include commercial and residential areas near the West Seattle Junction, along California Ave SW, and in the High Point and South Delridge neighborhoods.

According to NWIFC (2023), Longfellow Creek supports spawning by coho salmon. Cutthroat trout have also been documented in the stream, and Chinook salmon, chum, salmon, and steelhead could potentially use habitats in the Longfellow Creek system. With the exception of

cutthroat trout, all of these species could potentially use habitats in Puget Creek, a small stream that enters the Duwamish Waterway near the Duwamish Longhouse and Cultural Center.

The two other Area 6 streams with documented fish use are Fauntleroy Creek (coho salmon and cutthroat trout) and a small stream that enters the Duwamish Waterway near the 1st Avenue South Bridge (coho salmon). Species present in the Duwamish Waterway (which receives stormwater runoff from parts of Area 6) include Chinook, chum, coho, pink, and sockeye salmon, steelhead, and cutthroat trout.

WDNR (2023) identifies six additional potentially fish-bearing streams in Area 6:

- Fairmont Creek (a small stream that originates in the North Admiral neighborhood and drains to Elliott Bay)
- An unnamed tributary that enters the Duwamish Waterway approximately 0.5 mile north of the 1st Avenue South Bridge
- An unnamed tributary that enters Puget Sound at Seola Park in the southwestern corner of the city
- An unnamed tributary that enters Puget Sound at Lowman Beach Park north of Lincoln Park
- An unnamed tributary that enters Puget Sound approximately 0.5 mile south of Mee-Kwa-Mooks Park
- An unnamed tributary that originates in Schmitz Preserve Park and drains to Puget Sound

Area 7

The Duwamish Manufacturing Industrial Center subarea contains almost no areas with more than 10% tree canopy cover. The exceptions are in residential areas. Some Neighborhood Residential and Multifamily areas in the Georgetown neighborhood have approximately 15% canopy cover. Ares with greater canopy cover—25 to 30%—occur in residential areas in the South Park neighborhood.

Several streams that originate in Area 6 briefly pass through Area 7 before discharging to the Duwamish Waterway. These are Longfellow Creek, Puget Creek, and the two unnamed tributaries that enter the waterway near and approximately 0.5 mile north of the 1st Avenue South Bridge. Runoff from most of Area 7 discharges to the Duwamish Waterway. Some is piped several miles north to King County's West Point Wastewater Treatment Plant in Discovery Park.

Area 8

Much of southeast Seattle is characterized by areas with comparatively low canopy cover (**Exhibit 3.3-2**). In contrast to other parts of the city, this is true even in residential areas. The exceptions are the residential areas bordering Lake Washington, where canopy cover is moderate to high. Away from Lake Washington, areas with relatively high canopy cover are largely limited to greenspaces and parks associated with ravines and the steep slopes of Beacon Hill.

NWIFC (2023) does not identify any fish-bearing streams in Area 8, while WDNR (2023) classifies Taylor Creek as potentially fish-bearing. Monitoring studies have confirmed that the lowermost reaches of Taylor Creek (between Rainier Avenue South and Lake Washington) provide rearing habitat for juvenile Chinook and coho salmon from other stream systems (Tabor and Moore 2020). The same study found juvenile Chinook and coho salmon in a recently daylighted reach of Mapes Creek downstream of Seward Park Avenue South.

3.3.2 Impacts

Under any of the alternatives, the potential for adverse effects on plants and animals would be avoided, minimized, documented, and mitigated ~~to the greatest extent possible~~ through regulatory reviews and permitting processes that apply to individual projects (see **Section 3.3.3**). None of the alternatives propose any modifications to those processes. For these reasons, all ~~five~~ alternatives would have the same potential for adverse effects on special-status plants and animals citywide and in the various analysis subareas. The action alternatives would include policies to maintain and enhance tree canopy in rights of way and city property and to expand tree canopy throughout the community, prioritizing residential and mixed-use areas with the least current tree canopy. These policies could lead to beneficial effects for some species.

In addition, given that habitats in the city limits represent a very small proportion of the total amount of habitat available to any species, differences in the availability or distribution of habitats in the city would be unlikely to result in any appreciable impacts on ~~regional~~ populations of plants or animals in areas in and near Seattle. Based on these considerations, none of the alternatives would be expected to result in impacts that would reduce the likelihood that populations of native plant or animal species would persist in or near Seattle~~of survival or recovery of a plant or animal species in the wild~~.

Development and redevelopment projects would, however, have the potential for localized impacts on plant and animal communities. Projects that entail vegetation clearing would likely reduce the diversity and/or abundance of plants and animals on and near the affected parcels. These impacts would be expected to diminish over time as vegetation regrows in temporarily disturbed areas. Projects that increase the area of individual parcels occupied by buildings and impervious surfaces would be expected to result in long-term (but localized) reductions in the diversity and/or abundance of plant and animal communities in the affected areas.

Development and redevelopment projects have the potential to affect species and habitats in adjacent parks and natural areas. For example, replacing single-story houses with taller structures may increase shading of nearby vegetation. Also, clearing of vegetation on private parcels may diminish the habitat value of vegetation in adjoining areas of parks or natural areas. The extent of these potential impacts is limited because most parks and natural areas are bordered by public rights-of-way instead of private parcels. In addition, residential areas near most parks and natural areas have lower height limits than elsewhere. The potential for adverse impacts is further limited by regulations that encourage tree retention and require

replacement of trees that are removed from private parcels. Finally, the potential for such impacts to result in long-term reductions in tree canopy would be limited by policies and goals in the One Seattle Plan, including policies for updating forest management plans, decisions, and actions in response to changes and trends in tree canopy cover (see **Section 3.3.3**).

Development and redevelopment projects in or near riparian zones and other areas of relatively undisturbed habitat may degrade habitat quality or disrupt the behavior of terrestrial wildlife that use those areas as travel corridors. The potential for substantial adverse effects is low, however, because most such areas are classified as environmentally critical areas and protected during project reviews.

In addition to providing protection for plants and animals in general, existing regulations, policies, and practices encourage the retention and expansion of tree canopy and the minimization of contaminants delivered to surface waters, including fish-bearing streams. Applicable regulations include those restricting the removal of trees on private property (SMC Chapter 25.11, Tree Protection), limiting disturbance and requiring mitigation in Environmentally Critical Areas (SMC Chapter 25.09 and 23.60A), regulating street trees, requiring landscaping and tree planting, and implementing stormwater requirements (see **Section 3.3.3** for more details).

Even though several of these regulatory requirements directly or indirectly limit tree removal, the results of the 2022 City of Seattle Tree Canopy Assessment demonstrate that the regulations in effect at that time did not prevent development and redevelopment projects from contributing to tree canopy loss. After that study was completed, however, the City updated its regulations to implement stronger tree planting requirements and to require street trees to be planted as part of development in Neighborhood Residential zones. With the current regulations, it is expected that a substantial amount of development-related loss of tree canopy would be reversed over time as replacement trees grow larger. Since some tree placement would occur off-site through the fee-in-lieu option, this could also result in a shifting of canopy cover onto public property and the right-of-way where the City might have more control over tree establishment and maintenance. See **Section 3.3.3** for additional discussion of the mitigative potential of Seattle's current regulations. Based on the potential for reductions in canopy cover, projects that entail tree clearing could slow progress toward achieving the City's canopy cover goal.

Impacts Common to All Alternatives

The One Seattle Comprehensive Plan Update proposal and alternatives address where residential and commercial development will happen within the city limits. Based on the results of the citywide review of tree canopy cover, development projects on parcels in the Neighborhood Residential or Multifamily management units are likely to result in more loss of tree canopy, compared to development on parcels in other management units (see **Section 3.3.1**). This is particularly true of parcels with lower-density residential designations, where existing canopy cover is higher than elsewhere (**Exhibit 3.3-1**). As such, strategies that convert

parcels with lower-density residential designations to higher-density designations could result in localized reductions in ~~reduce the total amount of~~ tree canopy cover ~~in the city~~.

The findings of the 2022 Tree Canopy Assessment indicate that canopy loss on parcels that underwent development between 2016 and 2021 represented a very small proportion of the total tree canopy in the city—less than 0.25 percent (35 acres out of more than 15,000 acres). The proportion of the city's overall tree canopy vulnerable to development-related canopy loss in any given 5-year period is not likely to differ substantially from that percentage. This expectation is based on the practical and economic constraints that limit the number of parcels that can be developed or redeveloped in any given year, combined with policies and regulations designed to reduce the rate of canopy loss associated with residential and commercial development.

In addition, as discussed above, a substantial portion of development-related reductions in canopy cover would be reversed over time as replacement trees grow, and the potential for any such reductions would be limited by regulations that protect existing trees and require replacement of trees that are removed from private parcels. Even with these considerations, however, development and redevelopment projects may result in temporal loss of the benefits provided by tree canopy. That is to say, when established trees are replaced by newly planted trees, it may take many years for the planted trees to gain sufficient canopy area and volume to replace the functions of the trees they replace. This loss would be offset over time by the growth and development of trees that have already been planted to replace trees removed for past development projects.

summarizes the amount of area that would be assigned to various place types under the alternatives. The values in this exhibit are drawn from **Exhibit 2.4-3**, **Exhibit 2.4-8**, **Exhibit 2.4-14**, **Exhibit 2.4-17**~~, and~~ **Exhibit 2.4-20**, and **Exhibit 2.4-26** in **Chapter 2**. Analyses in this section are based on the expectation that reducing the amount of area dedicated to lower-density residential uses (and, by the same token, increasing the amount of area available for conversion to higher-density uses) would lead to an elevated risk of impacts to vegetation (including loss of tree canopy) on redeveloped parcels and in nearby road rights-of-way. ~~In other words, a higher value in the "New place types" row in **Exhibit 3.3-4** indicates a higher potential for development-related impacts to vegetation.~~

~~Exhibit 3.3-. Comparison of Impacts from Each Alternative~~

	~~Size in Acres (Approx)~~				
~~Place Type~~	~~Alt. 1~~	~~Alt. 2~~	~~Alt. 3~~	~~Alt. 4~~	~~Alt. 5~~
~~Existing Centers and Villages[1]~~	~~10,131~~	~~10,131~~	~~10,131~~	~~10,131~~	~~11,528~~
~~New place types[2]~~	~~0~~	~~2,923~~	~~32,581~~	~~20,420~~	~~32,294~~
~~Place types not changing in alternative[3]~~	~~33,633~~	~~30,768~~	~~1,052~~	~~13,213~~	~~0~~
~~Manufacturing/Industrial~~	~~5,896~~	~~5,896~~	~~5,896~~	~~5,896~~	~~5,896~~
~~Place types not changing in all alternatives[4]~~	~~3,854~~	~~3,854~~	~~3,854~~	~~3,854~~	~~3,854~~

~~Notes:~~
~~1 Includes areas designated as urban centers or urban villages (under Alternative 1, No Action) or as regional centers or urban centers (under the action alternatives).~~

~~2 Includes areas that would be classified as neighborhood centers, urban neighborhoods, or corridors under the action alternatives. It is assumed for this analysis that most such areas are currently zoned for single-family residential or other low-density uses and would remain so under Alternative 1, No Action.~~
~~3 Includes areas classified as "Outside Subareas" in **Exhibit 2.4-3**, **Exhibit 2.4-8**, **Exhibit 2.4-14**, **Exhibit 2.4-17**, and **Exhibit 2.4-20**.~~
~~4 Consists of areas classified as "Outside Subareas" common to all alternatives in **Exhibit 2.4-3**, **Exhibit 2.4-8**, **Exhibit 2.4-14**, **Exhibit 2.4-17**, and **Exhibit 2.4-20**.~~
~~Sources: City of Seattle, 2024; BERK, 2024.~~

~~Under Alternative 5, in addition to the areas in the "new place types" category, approximately 1,400 more acres would fall in the "existing centers and villages" category, compared to the other alternatives (**Exhibit 3.3-4**). Most parcels in the areas that would be converted to the "existing centers and villages" category are currently zoned for lower-density residential uses. Therefore, it is assumed for this analysis that the converted areas would face a higher potential for development-related impacts to vegetation under Alternative 5, compared to the other alternatives.~~

For this Final EIS, analysts also estimated the acreage of land potentially developed for residential purposes under each alternative. This approach is based on the anticipated distribution of new housing units in each place type. Considering different place types and likely densities, analysts estimated the square footage of land likely to be developed per new housing unit in each place type. By multiplying that area by the anticipated number of new housing units in each place type, the total area that may be affected by residential development projects during the 20-year planning period can be estimated. These estimates are presented in **Exhibit 3.3-4**. See **Appendix G** for a more detailed presentation of this analysis.

Exhibit 3.3-4. Estimated Area (Acres) That May Be Affected by Residential Development under Each Alternative

Place Type	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Preferred
Center (Existing or New)[1]	984	1,401	984	1,215	1,458	1,252
Outside Subareas (Continued Development)[2]	501	254	176	332	116	97
Urban Neighborhood[3]	0	0	1,330	0	525	1,249
Corridor[4]	0	0	0	455	246	159
Urban Neighborhood—Other Multifamily	0	0	0	0	0	13
Total	**1,485**	**1,655**	**2,490**	**2,002**	**2,345**	**2,770**

Notes: This exhibit is new since the Draft EIS.
[1] Under Alternative 1, this includes areas classified as urban centers, urban villages, manufacturing-industrial centers, and Growth Area (maritime industrial). Under the action alternatives, this includes areas classified as regional centers, urban centers, and neighborhood centers.

[2] Includes areas classified as "Outside Subareas" common to all alternatives in **Exhibit 2.4-3**, **Exhibit 2.4-8**, **Exhibit 2.4-14**, **Exhibit 2.4-17**, **Exhibit 2.4-20**, and **Exhibit 2.4-26**. No change to place type is proposed in these areas, but growth would continue to occur throughout the 20-year planning period. Under the Preferred Alternative, all lands in the city would be assigned a new place type, and no areas are classified as "Outside Subareas." The estimated development area for this place type under the Preferred Alternative reflects growth assigned to sites that were classified as "Outside Subareas" under Alternatives 1-5, regardless of their assigned place type under the Preferred Alternative.
[3] Under Alternatives 3 and 5, this consists of areas classified as urban neighborhood. Under the Preferred Alternative, this consists of areas classified as urban neighborhood—neighborhood residential.
[4] Under Alternatives 4 and 5, this consists of areas classified as corridor. Under the Preferred Alternative, this consists of areas classified as urban neighborhood—frequent transit corridor.
Sources: City of Seattle, 2025; Parametrix, 2025; BERK, 2025.

The amount of vegetation that would be affected by development in the areas identified in would depend on the condition of the parcels undergoing development. The locations of those parcels cannot be predicted, nor can the condition of the vegetation they may support when development occurs in the future. The evaluation of each alternative's potential to affect vegetation is based on the assumption that, as the total area of residential development increases, so would the risk of impacts to vegetation. In other words, the Total values in indicate the alternatives' relative potential to affect vegetation, including tree canopy cover.

~~The total number of demolitions under each alternative is summarized in **Exhibit 3.8-44**. These numbers can provide a high-level indication of the amount of land that would be redeveloped over a 20 year period, particularly in existing Neighborhood Residential zones where the number of units per lot area does not vary substantially. Alternatives 3 and 5 would result in the largest number of demolitions which would tend to result in more area of redevelopment.~~

Since Alternative 1 and the Preferred Alternative have both place type and zoning level information, a further comparison is shared below regarding how Neighborhood Residential Zones would change between the two alternatives. See **Exhibit 3.3-5** and **Exhibit 3.3-6**. Most of the Neighborhood Residential Zone would be within an urban neighborhood designation (88%). While there is a potential for additional housing types per HB 1110 and alteration of existing vegetation and tree canopy, there is also an opportunity to retain tree canopy with amended zoning standards as described in **Section 3.6.2**. Another 5% of Neighborhood Residential Zone would be designated as urban neighborhood—frequent transit corridor, and there is a greater potential for intensification and change to existing vegetation and tree canopy. Another 8% each would be designated either neighborhood center or urban center with greater intensity that may also result in change to existing vegetation and tree canopy. Where intensification occurs and there is change to existing vegetation and tree canopy landscape standards and tree canopy regulations would apply.

Exhibit 3.3-5. NR Zone Site Acreage by Preferred Alternative Place Type

Existing	Preferred Alternative						
No Action Zone	Place Type	Regional Center—Metro	Regional Center—Urban	Urban Center	Neighborhood Center	Corridor	Urban Neighborhood
NR1	Outside Subareas	0	0	0	0	3	571
NR2	Outside Subareas	0	1	132	30	234	4,116
NR2	Hub Urban Village	0	0	0	0	0	0
NR3	Outside Subareas	21	0	425	585	499	9,135
NR3	Residential Urban Village	0	0	41	0	0	0
NR3	Hub Urban Village	0	0	1	0	0	0
Total (Rezoned Parcels Only)		**21**	**1**	**599**	**616**	**737**	**13,823**
Percent of total		**0.1%**	**0.0%**	**4%**	**4%**	**5%**	**88%**

Note: This exhibit is new since the Draft EIS.
Sources: City of Seattle, 2024; BERK, 2025.

Exhibit 3.3-6. NR Zone Preferred Alternative Housing Growth by Place Type

Existing	Preferred Alternative						
No Action Zone	Place Type	Regional Center—Metro	Regional Center—Urban	Urban Center	Neighborhood Center	Corridor	Urban Neighborhood
NR1	Outside Subareas	0	0	0	0	49	582
NR2	Outside Subareas	0	0	1,388	441	2,765	5,128
NR2	Hub Urban Village	0	0	0	0	0	0
NR3	Outside Subareas	647	0	3,350	6,763	5,695	15,222
NR3	Residential Urban Village	0	0	30	0	0	0
NR3	Hub Urban Village	0	0	1	0	0	0
Total (Rezoned Parcels Only)		**647**	**0**	**4,768**	**7,204**	**8,508**	**20,932**
Percent of total		**2%**	**0%**	**11%**	**17%**	**20%**	**50%**

Note: This exhibit is new since the Draft EIS.
Sources: City of Seattle, 2024; BERK, 2025.

Canopy cover loss could also occur due to non-residential development. However, the amount of tree loss due to non-residential development is not likely to vary substantially between the alternatives as total job growth would not vary between the alternatives and because urban development associated with new jobs would tend to occur in existing commercial and industrial areas under all the alternatives.

Development or redevelopment projects may create or replace impervious surfaces, including some pollution-generating impervious surfaces. If runoff from these surfaces enters fish-

bearing streams, contaminants in the runoff may harm or kill fish. Contaminants in runoff that enters surface waters may also be harmful to terrestrial wildlife. Stormwater contaminants that enter Puget Sound and other marine areas are almost immediately diluted to concentrations too low to have any discernible effects on species in that environment.

As discussed in **Section 3.1.2** in **Earth & Water Quality**, on-site stormwater management would likely be required for development or redevelopment projects within the city limits. Implementation of required stormwater management would occur under any of the alternatives and would prevent or minimize the delivery of contaminants to ~~fish-bearing streams~~surface waters. This, in turn, would avoid or minimize the potential for adverse impacts on ~~aquatic species~~ fish, wildlife, and their habitats.

The locations, design, and performance standards of stormwater facility improvements would be determined on a project-by-project basis and cannot be predicted for a programmatic review such as this. For this analysis, it is assumed that the potential for stormwater contaminants to be delivered to streams would be proportional to the amount of area available for conversion to higher-density uses. This assumption is based on the reasoning that a greater amount of area available for redevelopment projects would translate into a greater potential that there may be some projects for which it is not possible to avoid adverse impacts on water quality altogether.

Encouraging residential and commercial development within the urban environment of Seattle could indirectly benefit plants and animals by easing development pressure in less-developed areas outside the city. Tree canopy assessments such as i-Tree show that, compared to urban areas, suburban and rural areas generally have more tree canopy and lower levels of human activity. Development projects in such areas typically entail the conversion of vegetated or minimally disturbed areas to impervious surfaces and areas with elevated levels of human activity. In contrast, most currently undeveloped properties in Seattle are in protected areas (e.g., parks, greenspaces) and are unlikely to be developed during the timeframe of this analysis.

Equity & Climate Vulnerability Considerations

As discussed in **Section 3.3.1**, areas with disadvantaged populations tend to have less canopy cover than other areas. In addition, these areas lost more canopy cover, on average, compared to other neighborhoods, during the 5-year study period of the City's tree canopy assessment. For these reasons, alternatives with a higher likelihood of contributing to canopy cover loss in areas with a combination of disadvantaged populations and low canopy cover would have an elevated risk of adverse effects on disadvantaged populations. Many areas with extensive multifamily development (e.g., apartment complexes) have this combination. Therefore, alternatives that concentrate growth in areas where extensive multifamily development is already present may have a higher likelihood of contributing to canopy cover loss in areas with disadvantaged populations.

Conversely, changes that allow lower-cost housing options in areas that are currently zoned for low-density development could allow more disadvantaged populations to live in areas with

higher canopy cover and access to large parks. Also, with the requirement for street trees to be planted as part of development in Neighborhood Residential zones, new development could result in more tree canopy in public rights-of-way. In contrast to trees on private parcels, the benefits of trees in public rights-of-way are available to more people, including those from disadvantaged populations. Finally, disadvantaged communities would be expected to benefit from policies that prioritize the protection, maintenance, and expansion of tree canopy in residential and mixed-use areas where tree canopy is currently low. These factors would offset some of the potential adverse effects that might arise from concentrating growth in areas where extensive multifamily development is already present.

As discussed in **Section 3.3.1**, trees play a vital role in moderating temperatures in urban areas. Alternatives with a higher likelihood of contributing to canopy cover loss in areas with low canopy cover would have an elevated risk of exacerbating local heat island[19] impacts. Alternatives that concentrate growth in areas where extensive multifamily development is already present may have a higher likelihood of exacerbating climate vulnerability.

Impacts of Alternative 1: No Action

Under Alternative 1, 80,000 new housing units would be added in Seattle by 2044 to meet regionally set growth targets. More than 66,000 (83%) of these would be in areas with high-density designations (e.g., urban centers, urban villages, industrial areas). Several of these areas also have a combination of disadvantaged populations and low canopy cover, including the following:

- **Area 1:** The Aurora Avenue North corridor north of N 85th Street
- **Area 2:** Northgate, Lake City
- None in Area 3
- **Area 4:** Downtown core, South Lake Union
- **Area 5:** Yesler Terrace, Judkins Park
- **Area 6:** Highland Park/White Center
- **Area 7:** South Park
- **Area 8:** North Beacon Hill, Holly Park, Dunlap

Continued redevelopment in these areas could have the effect of reducing tree canopy cover where it is needed most, both in terms of livability and of climate resiliency.

In portions of urban centers and urban villages where the existing canopy cover is relatively high, redevelopment projects may not have substantial adverse effects on livability. However, projects that entail clearing on canopy-rich parcels could impede progress toward the City's canopy cover goal. Currently, few areas with relatively high canopy cover are found in areas designated as urban centers or urban villages; this would likely continue to be the case under Alternative 1.

[19] A heat island is an area that experiences higher temperatures than other areas due to concentrations of buildings, roads, and other infrastructure that absorbs and re-emit the sun's heat more than natural landscapes such as forests and water bodies. The heat island effect can result in daytime temperatures up to 7° Fahrenheit higher than temperatures in outlying areas.

Alternative 1 would result in fewer new housing units than any of the other alternatives. In addition, and in contrast to the action alternatives, Alternative 1 would not reduce the amount of area dedicated to lower-density residential uses~~and it would have the smallest amount of area available for conversion to higher-density uses (**Exhibit 3.3-4**)~~. This would be the case both at the citywide scale and within seven of the eight analysis subareas. The exception is Area 4 (Downtown/South Lake Union), where essentially the same number of housing units would be added under all ~~five~~ six alternatives. For these reasons, the place type-based analysis indicates that Alternative 1 ~~would be expected to result in~~ may have a lower potential for development-related impacts to vegetation (including tree canopy) ~~cover loss~~ than any of the action alternatives, both citywide and in the individual analysis subareas.

Similarly, based on the estimated area that may be affected by residential development projects during the 20-year planning period (**Exhibit 3.3-4**), Alternative 1 would have a lower potential for development-related impacts to vegetation, compared to the action alternatives.

Compared to the action alternatives, Alternative 1 would result in less growth in the city overall but would tend to focus that growth in areas where extensive multifamily development is already present. As a result, Alternative 1 would have a moderate risk of contributing to adverse effects on disadvantaged populations or exacerbating climate vulnerability compared to the action alternatives.

Compared to the action alternatives, Alternative 1 would result in less growth in the city overall but would tend to focus that growth in areas where extensive multifamily development is already present. As a result, Alternative 1 would have a moderate risk of contributing to adverse effects on disadvantaged populations or exacerbating climate vulnerability compared to the action alternatives.

Based on the anticipated amount of area available for conversion to higher-density uses~~likely to be redeveloped~~, Alternative 1 would also have a lower potential of leading to increased delivery of stormwater contaminants to streams, compared to the other alternatives.

130th/145th Station Area

The 130th/145th Station Area does not include any neighborhoods where areas with a high-density designation under Alternative 1 would overlap areas with a combination of disadvantaged populations and low canopy cover. In addition, no areas with relatively high canopy cover are found in areas that would continue to be designated as urban centers or urban villages in the 130th/145th Station Area under Alternative 1.

No areas currently zoned primarily for single-family residential uses in the 130th/145th Station Area would be converted to higher-density designations under Alternative 1. As such, Alternative 1 would have a lower potential of leading to increased delivery of stormwater contaminants to streams in this area, compared to the other alternatives.

Impacts of Alternative 2: Focused

Under Alternative 2, 100,000 new housing units would be added in Seattle by 2044—20,000 more than under Alternative 1. Almost 91,000 of the new housing units would be in areas with high-density designations (regional centers, urban centers, industrial areas, neighborhood centers). As under Alternative 1, several of these areas also have a combination of disadvantaged populations and low canopy cover. Development or redevelopment projects in neighborhood centers established under Alternative 2 could contribute to tree canopy loss in the following areas with a combination of disadvantaged populations and low canopy cover:

- **Area 1:** Greenwood Ave N and N 145th Street
- None in Areas 2, 3, 4, or 5
- **Area 6:** 35th Ave SW and SW Morgan Street, 35th Ave SW and SW Barton Street
- **Area 7:** Georgetown
- **Area 8:** Rainier Ave S and S Graham Street, Beacon Ave S and S Columbian Way (west of Beacon Ave S)

Canopy loss in these areas would be in addition to the canopy loss in the regional centers and urban centers identified in the analysis of Alternative 1. Not all areas with a combination of disadvantaged populations and low canopy cover would experience increased density (and resultant impacts on tree canopy) associated with the establishment of neighborhood centers. Examples include portions of the Licton Springs, High Point, Mid Beacon Hill, and South Beacon Hill neighborhoods.

Development or redevelopment projects in neighborhood centers established under Alternative 2 could also contribute to tree canopy loss in areas with relatively high proportions of existing canopy cover, potentially impeding progress toward the City's canopy cover goal. Such losses may occur in the following neighborhood centers (underlining indicates areas that also have disadvantaged populations):

- **Area 1:** Holman Rd NW and 3rd Ave NW (north of Holman Rd NW), N 56th Street and Keystone Place N
- **Area 2:** 15th Ave NE and NE 145th Street, 8th Ave NE and Roosevelt Way NE, 15th Ave NE and NE 125th Street, Roosevelt Way NE and NE 90th Street, 40th Ave NE and NE 55th Street, 40th Ave NE and NE 55th Street, Princeton Ave NE and Sand Point Way NE, 25th Ave NE and NE 65th Street, 35th Ave NE and NE 75th Street, 35th Ave NE and NE 85th Street, Sand Point Way NE and NE 45th Street
- **Area 3:** 34th Ave W and W Emerson Street, 33rd Ave W and W McGraw Street
- (None in Area 4)
- **Area 5:** 10th Ave E and E Boston Street, 24th Ave E and E Calhoun Street, 29th Ave E and E Madison Street, 42nd Ave E and E Madison Street, 34th Ave and E Union Street
- **Area 6:** Delridge Way SW and SW Dakota Street, Delridge Way SW and SW Brandon Street, Delridge Way SW and SW Orchard Street

- (none in Area 7)
- **Area 8:** Beacon Ave S and S Columbian Way (east of Beacon Ave S)

The amount of land in place types dedicated to relatively high-density residential uses would be ~~Under Alternative 2,~~ about 3,000 acres greater under Alternative 2 than under Alternative 1, indicating a higher potential for development-related impacts to vegetation (including tree canopy) under this alternative. This difference is the smallest ~~of currently lower-density parcels may be converted to higher-density uses (neighborhood centers), the smallest area of conversion~~ among the action alternatives. Growth would be focused in neighborhood centers. ~~Among the action alternatives,~~ This place-type-based analysis indicates that Alternative 2 would ~~thus~~ have ~~the~~ a lower~~st~~ potential for development-related impacts to vegetation (including loss of tree canopy cover) citywide, compared to the other action alternatives.

Similarly, analysis of the estimated area that may be affected by residential development projects during the 20-year planning period (**Exhibit 3.3-4**) also indicates that Alternative 2 would have a lower potential for development-related impacts to vegetation, compared to the other action alternatives.

Many of the neighborhood centers added under Alternative 2 would be near existing centers and villages or include neighborhood business districts, where extensive multifamily development is already present. However, the focused-growth strategy would limit the number of such areas where additional growth would occur. As a result, Alternative 2 would have a ~~relatively~~ higher risk of contributing to adverse effects on disadvantaged populations or exacerbating climate vulnerability than Alternative 3.

Based on the amount of area where development or redevelopment may result in losses of vegetated areas, Alternative 2 would also likely have the lowest potential, among the action alternatives, for short-term and long-term decreases in the diversity and/or abundance of plant and animal communities in areas where development or redevelopment projects occur.

The differences between Alternative 2 and the other action alternatives would not be distributed evenly across all analysis subareas. These differences in distribution are most noticeable when Alternative 2 is compared to Alternatives 3 and 4, all of which would add the same number of new housing units (100,000) in the city. Compared to those two alternatives, Alternative 2 would add 5,000 to 5,500 fewer households in Areas 2, 6, and 8 (combined), and it would add 5,000 to 5,500 more households in the other analysis subareas (combined). Increasing the number of households in any given area would be expected to result in an elevated potential for adverse impacts on plants and animals in that area. As such, compared to Alternatives 3 and 4, Alternative 2 would have a lower risk of adverse effects in Areas 2, 6, and 8, and a higher risk of adverse effects in Areas 1, 3, 5, and 7. Area 4 ~~has~~ would have the same growth in all the alternatives.

The differences in the geographic distribution of potential impacts are not as noticeable in comparison to Alternative 5 and the Preferred Alternative because those ~~A~~alternatives ~~5~~ would add 20,000 more housing units citywide than Alternative 2 would. In all eight analysis

subareas, the risk of adverse effects under Alternative 2 would be less than or ~~essentially equal~~ in between those ~~to that~~ of Alternative 5 and the Preferred Alternative.

Based on the anticipated amount of area available for conversion to higher-density uses~~likely to be redeveloped~~, Alternative 2 would have a lower potential of leading to increased delivery of stormwater contaminants to streams, ~~than~~ compared to the other action alternatives, but it would have a slightly higher potential than Alternative 1.

130th/145th Station Area

None of the Alternative 2 neighborhood centers in the 130th/145th Station Area would overlap areas with a combination of disadvantaged populations and low canopy cover. All three of the neighborhood centers that would be established in the 130th/145th Station Area under Alternative 2 would partially overlap areas with moderately high canopy cover.

Approximately 117 acres in the 130th/145th Station Area (52 acres in the NE 130th Street unit and the full 65-acre area of the NE 145th Street unit) would be designated as neighborhood centers. Current zoning in much of the area that would be redesignated under Alternative 2 encourages high-density uses, such as commercial and multifamily residential. Areas that are currently zoned primarily for single-family residential uses and that would be converted to higher-density designations under Alternative 2 make up approximately one-half of the 117-acre area that would be designated as neighborhood centers. As such, Alternative 2 would have a higher potential than Alternative 1~~,~~ of leading to increased delivery of stormwater contaminants to streams in this ~~A~~area ~~1~~, but a lower potential than the other action alternatives.

Impacts of Alternative 3: Broad

Under Alternative 3, as under Alternative 2, 100,000 new housing units would be added in Seattle by 2044, and the vast majority (more than 89,000) would be in areas with high-density designations (regional centers, urban centers, industrial areas, urban neighborhood areas). Compared to Alternative 1~~2~~, a substantially larger area would be in place types dedicated to relatively high-density residential uses~~of currently lower-density parcels~~—approximately 32,500 acres.~~—~~ This would be a much larger increase than under Alternative 2, and the affected ~~may be converted to higher-density uses in urban neighborhood areas (**Exhibit 3.3-4**). Such~~ parcels would be distributed throughout the city.

This place-type-based analysis indicates that ~~Based on the amount of area where currently low-density parcels may be converted to higher-density uses,~~ Alternative 3 would ~~be expected to~~ have the higher potential for development-related impacts to vegetation citywide ~~loss of tree canopy~~ (and, by extension, a higher potential to impede progress toward the City's canopy cover goal), ~~than~~ compared to Alternatives 2 and 4, and a potential similar to those of Alternative 5 and the Preferred Alternative.

Analysis of the estimated area that may be affected by residential development projects during the 20-year planning period (Exhibit 3.3-4) produces similar results: the total area affected under Alternative 3 (and, as such, the potential for development-related impacts to vegetation) would be greater than under Alternatives 2, 4, and 5, and it would be less than under the Preferred Alternative.

Compared to the other alternatives, Alternative 3 would direct a higher share of housing growth to areas currently dominated by low-density residential development. Such areas would be assigned to the urban neighborhood place type or would be outside areas designated for high-density development. Based on the expectation that tree canopy cover in such areas is greater than in areas where high-density development is already present, Alternative 3 may have a higher potential for vegetation impacts—including loss of tree canopy—compared to the other action alternatives.

While distributing growth throughout the city (particularly in lower-density areas) would ~~affect more~~ result in a comparatively high potential for tree canopy loss~~cover than the other alternatives~~, this approach would also minimize the amount of growth in areas where extensive multifamily development is already present. As a result, compared to the other action alternatives, Alternative 3 would have the lowest risk of contributing to adverse effects on disadvantaged populations or exacerbating climate vulnerability.

Based on the amount of area where development or redevelopment may result in losses of vegetated areas, Alternative 3 would ~~have the second-highest potential (second~~ be similar to Alternative 5 and the Preferred Alternative, ~~) for~~ in terms of the potential for localized short-term and long-term decreases in the diversity and/or abundance of plant and animal communities. As discussed above, Alternative 3 would have a higher risk than Alternative 2 of adverse effects in Areas 2, 6, and 8, and a lower risk of adverse effects in Areas 1, 3, ~~4,~~ 5, and 7.

Based on the anticipated amount of area available for conversion to higher-density uses~~likely to be redeveloped~~, Alternative 3 would have the second-highest potential (second to Alternative 5) for leading to increased delivery of stormwater contaminants to streams.

130th/145th Station Area

Under Alternative 3, a station area plan would not be implemented. Growth would occur based on the citywide place types assigned to the station vicinity. Based on the widespread distribution of areas where currently lower-density parcels may be converted to higher-density uses, the impacts of Alternative 3 the 130th/145th Station Area would be as described for the citywide analysis, above.

Approximately 200 acres of parcels that are currently zoned primarily for single-family residential uses in the 130th/145th Station Area would be converted to higher-density residential designations (i.e., urban neighborhood) under Alternative 3. This includes roughly 20 acres in the NE 145th Street unit and roughly 180 acres in the NE 130th Street unit.

Alternative 3 would thus have the highest potential of leading to increased delivery of stormwater contaminants to streams in this area, compared to the other alternatives.

Impacts of Alternative 4: Corridor

Under Alternative 4, as under Alternatives 2 and 3, 100,000 new housing units would be added in Seattle by 2044; approximately 88,000 of these would be in areas with high-density designations (regional centers, urban centers, industrial areas, corridor areas). Compared to Alternative 1, ~~The area of currently lower-density parcels that may be converted to higher-density uses in corridor areas would be~~ approximately 20,500 more acres would be in place types dedicated to relatively high-density residential uses, representing a greater increase ~~—more~~ than under Alternative 2 ~~(3,000 acres)~~ and ~~less~~ a smaller increase than under Alternative 3 ~~(32,500 acres) (**Exhibit 3.3-4**)~~. This place-type-based analysis indicates that the potential for development-related impacts to vegetation (including loss of tree canopy cover) citywide under Alternative 4 would be intermediate between those of Alternatives 2 and 3.

The distribution of the areas ~~likely to~~ that may experience development-related canopy cover loss would be less focused than under Alternative 2 and less widespread than under Alternative 3. As a result, in areas with relatively high proportions of existing canopy cover, the impacts of Alternative 4 would also likely lie between those of Alternatives 2 and 3. Among the action alternatives, Alternative 4 would thus result in a moderate potential for loss of tree canopy cover.

Analysis of the estimated area that may be affected by residential development projects during the 20-year planning period (**Exhibit 3.3-4**) produces similar results: the total area affected under Alternative 4 (and, as such, the potential for development-related impacts to vegetation citywide) would be greater than under Alternatives 1 and 2, and it would be less than Alternatives 3 and 5 and the Preferred Alternative.

Alternative 4 would emphasize growth in corridors ~~which~~ that include arterial streets where multifamily development is present ~~and~~ as well as in surrounding areas where it is less common. The distribution of these neighborhood residential-corridor areas would be more widespread than the neighborhood centers of Alternative 2. As a result, Alternative 4 would have a higher risk of contributing to adverse effects on disadvantaged populations or exacerbating climate vulnerability than Alternative 3 and a lower risk than Alternative 2.

Based on the amount of area where development or redevelopment may result in losses of vegetated areas, the potential for localized short-term and long-term decreases in the diversity and/or abundance of plant and animal communities under Alternative 4 would be intermediate between those of Alternative 2 and Alternative 3. As discussed in the analysis of Alternative 2, Alternative 4 would have a higher risk than Alternative 2 of adverse effects in Areas 2, 6, and 8, and a lower risk of adverse effects in Areas 1, 3, ~~4,~~ 5, and 7.

Based on the anticipated amount of area available for conversion to higher-density uses~~likely to be redeveloped~~, Alternative 4 would have a higher potential than Alternative 2 of leading to

increased delivery of stormwater contaminants to streams, and a lower potential than Alternative 3.

130th/145th Station Area

Alternative 4 does not include implementation of a station area plan; and the corridor-focused alternative would apply similar place types as for other areas of the city. As described for the citywide analysis above, the impacts of Alternative 4 the 130th/145th Station Area would likely be greater than those anticipated for Alternative 2 and less than those anticipated for Alternative 3.

Similar to Alternative 3, Alternative 4 would convert approximately 200 acres of parcels that are currently zoned primarily for single-family residential uses in the 130th/145th Station Area to higher-density designations. As such, Alternative 4 would be expected to have the same potential as Alternative 3 of leading to increased delivery of stormwater contaminants to streams in this area.

Impacts of Alternative 5: Combined

Alternative 5 would implement a growth strategy that combines elements of the strategies from Alternative 2 (neighborhood centers), Alternative 3 (widespread redevelopment in urban neighborhood), and Alternative 4 (emphasis on redevelopment along major transportation corridors in urban neighborhood areas). Under Alternative 5, 120,000 new housing units would be added in Seattle by 2044—20,000 more than under any of the other action aAlternatives 2 through 4. More than 113,000 (94%) of these would be in areas with high-density designations. Alternative 5 would also include the creation of a new urban center near NE 130th Street and the expansion of the existing urban centers in the Greenwood-Phinney Ridge, Upper Queen Anne, Admiral, West Seattle Junction, Morgan Junction, and Othello areas. As a result, approximately 1,400 more acres more area would fall in the "Centers/high-density residential" category be assigned to high-density place types (rRegional cCenter, u Urban cCenter) under this alternative, compared to the other alternatives (**Exhibit 3.3-4**).

Compared to Alternative 1Under Alternative 5, approximately 33,700 more acres would be in place types dedicated to relatively high-density residential uses—a slightly greater increase than under Alternative 3.of currently lower-density parcels may be converted to higher-density uses—more than under any of the other alternatives (**Exhibit 3.3-4**).[20] These areas would be distributed throughout the city,. As such, all including areas with relatively high proportions of existing tree canopy cover would be likely to experience additional canopy loss. This place-type-based analysis indicates that Alternative 5 would have the higher potential for development-related impacts to vegetation (and, by extension, a higher potential to impede progress toward the City's canopy cover goal), compared to Alternatives 2 and 4, and a potential similar to those of Alternative 3 and the Preferred Alternative.

[20] This value includes approximately 32,300 areas in the "Place types identified for redevelopment" category, plus approximately 1,400 acres where parcels currently zoned for lower-density uses would be converted to urban centers.

Analysis of the estimated area that may be affected by residential development projects during the 20-year planning period (**Exhibit 3.3-4**) produces similar results: the total area affected under Alternative 5 (and, as such, the potential for development-related impacts to vegetation citywide) would be greater than under Alternatives 2 and 4, and it would be less than under Alternative 3 and the Preferred Alternative.

Compared to Alternative 3 and the Preferred Alternative, Alternative 5 would direct less housing growth to areas currently dominated by low-density residential development. As a result, Alternative 5 may have a lower potential for vegetation impacts—including loss of tree canopy—compared to those two alternatives.

~~Even though Alternative 5 would convert more lower-density parcels to higher-density uses, the potential for development-related canopy cover loss would likely be lower than under Alternative 3. This is because Alternative 5 would focus more development in neighborhood centers and corridors, rather than distributing it in urban neighborhoods throughout the city. Development or redevelopment projects in neighborhood centers and corridors would be expected to result in less canopy cover loss than would projects in areas classified as urban neighborhoods. Alternative 5 would thus have a lower likelihood than Alternative 3 of impeding progress toward the City's canopy cover goal, but a higher likelihood than Alternative 2 or Alternative 4.~~

~~Given the highest number of homes produced and the broadest range of areas affected, Alternative 5 would tend to have the highest potential for loss of tree canopy.~~

Because it would add more new housing units citywide—including in areas where extensive multifamily development is already present—~~Based on the citywide distribution of these areas, combined with the greater number of housing units that would be added under this alternative,~~ Alternative 5 ~~c~~would also have a higher risk of changes in canopy cover that contribute to adverse effects on disadvantaged populations or exacerbating climate vulnerability, compared to ~~the other action a~~Alternatives 1 through 4 or the Preferred Alternative.

Based on the amount of area where development or redevelopment may result in losses of vegetated areas, the potential for localized short-term and long-term decreases in the diversity and/or abundance of plant and animal communities under Alternative 5 would be greater than that of Alternative 3. In nearly all analysis subareas, the risk of adverse effects would be higher under Alternative 5 than under ~~any of the other a~~Alternatives 1 through 4. The exceptions would be Areas ~~2,~~ 3, ~~and~~ 4, and 5, where the number of housing units added under Alternative 5 (and, by extension, the potential for localized impacts on plants and animals) would be approximately equivalent to that of Alternative 2.

Based on the anticipated amount of area available for conversion to higher-density uses~~likely to be redeveloped~~, Alternative 5 would have a higher potential of leading to increased delivery of stormwater contaminants to streams, compared to ~~the other a~~Alternatives 1 through 4.

130th/145th Station Area

~~As described for~~ Similar to the citywide analysis ~~above~~, Alternative 5 would have more impacts in the 130th/145th Station Area than ~~any of the other a~~Alternatives 1 through 4. Neither the urban center at NE 130th Street nor the neighborhood center at 15th Ave NE and NE 145th Street would overlap any areas with a combination of disadvantaged populations and low canopy cover. However, both of these areas would partially overlap areas with moderately high canopy cover.

Similar to Alternatives 3 and 4, Alternative 5 would convert approximately 200 acres of parcels that are currently zoned primarily for single-family residential uses to higher-density designations. However, the housing target for these areas would be higher than under any of the other alternatives. As a result, more redevelopment projects would be expected to occur in these areas under Alternative 5 than under ~~the other a~~Alternatives 1 through 4, and Alternative 5 would thus have a higher potential of leading to increased delivery of stormwater contaminants to streams in this area, compared to ~~the other~~ those alternatives.

Impacts of Preferred Alternative

Note: The impacts analysis for the Preferred Alternative was added since the Draft EIS.

Similar in many ways to Alternative 5, the Preferred Alternative would incorporate ideas developed in all of the other alternatives. As with Alternative 5, 120,000 new housing units would be added in Seattle by 2044. The Preferred Alternative includes some refinements to the boundaries of urban centers and urban villages. In addition, one area (in South Park) classified as an urban village or urban center under Alternatives 1 through 5 would instead be a neighborhood center under the Preferred Alternative. Also, a small area of Manufacturing/Industrial land would instead be part of the Georgetown Neighborhood Center.

Compared to Alternative 1, approximately 33,600 more acres would be in place types dedicated to relatively high-density residential uses—an increase similar to that under Alternative 5. These areas would be distributed throughout the city, including areas with relatively high proportions of existing tree canopy cover. This place-type-based analysis indicates that the Preferred Alternative would have the higher potential for development-related impacts to vegetation (and, by extension, a higher potential to impede progress toward the City's canopy cover goal), compared to Alternatives 2 and 4, and a potential similar to those of Alternatives 3 and 5.

Analysis of the estimated area that may be affected by residential development projects during the 20-year planning period (**Exhibit 3.3-4**) produces similar results: the total area affected under the Preferred Alternative (and, as such, the potential for development-related impacts to vegetation citywide) would be greater than under any of the other alternatives.

Compared to Alternative 3, the Preferred Alternative would direct less housing growth to areas currently dominated by low-density residential development. As a result, the Preferred

Alternative may have a lower potential for vegetation impacts than that alternative but a higher potential than the other action alternatives.

In contrast to the other action alternatives, the Preferred Alternative includes proposed zoning. This allows a comparison of the amount of area zoned for different degrees of development density under this alternative and Alternative 1, No Action.

Under Alternative 1, approximately 15,800 acres would be in Neighborhood Residential-zoned areas outside of urban centers, urban villages, and other high-density zones. Under the Preferred Alternative, approximately 1,900 acres (12%) of this area would be zoned for higher-density uses (i.e., regional center, urban center, neighborhood center, frequent transit corridor). The remaining 88% would be zoned as Urban Neighborhood. See **Exhibit 3.3-5**. While Urban Neighborhood-zoned parcels would make up 88% of the lands previously zoned for low-density uses, only about 50% of the housing units anticipated under the Preferred Alternative would be located in these areas. In contrast to the analyses of place type changes and estimated area potentially affected by residential development projects, these findings suggest that, under the Preferred Alternative, a comparatively small number of parcels that currently support low-density residential development would be converted to higher-density uses. This indicates that the Preferred Alternative would have a comparatively low potential for impacts to vegetation, including tree canopy. The Preferred Alternative, like Alternative 5, would add more new housing units than Alternatives 1 through 4—including in areas where extensive multifamily development is already present. However, similar to Alternative 3, a substantial portion of the area potentially affected by residential projects would be in the Neighborhood Residential place type, where existing levels of multifamily development are comparatively low. Based on a comparison of the estimated amount of area affected by residential projects in areas where extensive multifamily development is already present, the Preferred Alternative would have a lower risk than Alternative 5 of contributing to adverse effects on disadvantaged populations or exacerbating climate vulnerability, and a higher risk than Alternatives 1 through 4.

Based on the amount of area where development or redevelopment may result in losses of vegetated areas, the potential for localized short-term and long-term decreases in the diversity and/or abundance of plant and animal communities under the Preferred Alternative would be greater than the other alternatives. Compared to Alternative 5 (under which an equal number of housing units would be added), the Preferred Alternative would add approximately 6,500 more housing units in Areas 1, 3, and 5, resulting in a greater potential for localized impacts on plants and animals in those analysis subareas.

Based on the anticipated amount of area available for conversion to higher-density uses, the Preferred Alternative would have a higher potential of leading to increased delivery of stormwater contaminants to streams, compared to any of the other alternatives.

130th/145th Station Area

Compared to Alternative 5, fewer new housing units would be added in this area, indicating that the Preferred Alternative would have a lower potential for impacts to vegetation. As with Alternative 5, neither the urban center at NE 130th Street nor the neighborhood center at 15th Ave NE and NE 145th Street would overlap any areas with a combination of disadvantaged populations and low canopy cover. However, both of these areas would partially overlap areas with moderately high canopy cover.

Similar to Alternative 5, the Preferred Alternative would convert approximately 200 acres of parcels that are currently zoned primarily for single-family residential uses to higher-density designations. As a result, the Preferred Alternative's potential for leading to increased delivery of stormwater contaminants to streams in this area would be similar to that of Alternative 5.

3.3.3 Mitigation Measures

Incorporated Plan Features

The action alternatives amend the Comprehensive Plan to address a new climate element including climate resilience strategies that include reducing heat islands and increasing tree canopy. ~~In addition,~~ In addition, the action alternatives include policies to maintain and enhance tree canopy. Examples of plan polices that would contribute to achieving the City's goal of at least 30% tree canopy cover include the following:

Policies that directly address tree canopy:

- LU 2.7: Encourage the preservation and expansion of the tree canopy throughout the city for the aesthetic, health, and environmental benefits trees provide, considering first the residential and mixed-use areas with the least tree canopy in order to more equitably distribute the benefits to residents.
- CE 12.3: Regularly update the tree canopy analysis to monitor changes and trends in the amount, distribution, and condition of the urban forest and use this information to shape urban forestry management plans, decisions, and actions.
- CE 12.6: Preserve, restore, maintain, and enhance tree canopy on City property and rights-of-way.
- CE 12.8: Encourage the protection, maintenance, and expansion of tree canopy throughout the community, prioritizing residential and mixed-use areas with the least current tree canopy to equitably distribute benefits.

Other policies that likely to contribute to the protection and maintenance of tree canopy:

- CE 9.3: Expand tree canopy and greenspace, especially in communities that experience disproportionate impacts of extreme heat and smoke events.

- P 1.17: Maintain and expand cooperative agreements with Seattle Public Schools and other public or private agencies to provide or expand access to open spaces they control and increase the tree canopy and green space they provide.
- P 5.1: Protect, restore, and expand urban forests and tree canopy on City-owned land, including rights-of-way, prioritizing frontline communities.
- T 4.10: Enhance the public street tree canopy and landscaping in the street right-of-way.

Maximizing tree canopy cover—particularly in areas with disadvantaged populations—would support the City's goal of developing a growth strategy that results in more equitable outcomes and reduces harm. By reducing the urban heat island effect, tree canopy cover enhances climate resiliency.

Diagrams in **Section 3.6 Land Use Patterns & Urban Form** and supporting appendices provide examples of how housing goals can be met while providing adequate space for preserved trees.

Regulations & Commitments

Under any of the alternatives, development projects would be designed and built in accordance with applicable federal, state, and local statutes and regulations (**Exhibit 3.3-7**). Many of these involve review and permitting processes to ensure impacts to the environment (including environmentally critical areas important to plants and animals) are avoided, minimized, documented, and mitigated ~~to the greatest extent possible~~. The procedures associated with these regulations also create opportunities for public notice and comment on projects before implementation. Regulations and commitments that address stormwater runoff are identified in **Section 3.1.3** in **Earth & Water Quality**.

Exhibit 3.3-7. Federal, State, and Local Regulations, Permits, and Processes Related to the Protection of Plants and Animals

Authority	Agencies with Jurisdiction	Requirements
Federal		
Migratory Bird Treaty Act	U.S. Fish and Wildlife Service (USFWS)	Prohibits the taking, killing, or possession of migratory birds or any parts, nests, or eggs of such birds, except as authorized by USFWS.
Bald and Golden Eagle Protection Act	USFWS	Prohibits the taking (including disturbance) of eagles or their nests, except as authorized by USFWS.
Clean Water Act Section 404	U.S. Army Corps of Engineers	Requires authorization for excavating, land clearing, or discharging dredged or fill material into waters of the United States, including wetlands.
Marine Mammal Protection Act	National Marine Fisheries Service (NMFS)	Prohibits injury or harm (including disturbance) to marine mammals, except as authorized by NMFS.
Endangered Species Act Section 7 Consultation	NMFS and/or USFWS	Requires federal agencies to ensure that actions they authorize (e.g., through issuance of a permit), fund, or carry out are not likely to jeopardize the continued existence of any endangered or threatened

Authority	Agencies with Jurisdiction	Requirements
		species or result in the destruction or adverse modification of critical habitat for those species.
Magnuson-Stevens Fishery Management and Conservation Act Consultation	NMFS	Requires a federal agency to consult with NMFS on a proposed activity authorized, funded, or undertaken by the agency, if the activity may adversely affect essential fish habitat (EFH) for federally managed commercially harvestable fish.
Washington State		
State Environmental Policy Act	Various	Requires state and local agencies to review proposals and identify environmental impacts; permits and approvals can be conditioned or denied, to mitigate or avoid the impacts identified through SEPA review.
State Hydraulic Code	Washington Department of Fish and Wildlife (WDFW)	Regulates activities that use, divert, obstruct, or change the natural flow or bed of waters (marine or fresh); project proponents must obtain a Hydraulic Project Approval, which ensures the work is done in a manner that protects fish life.
Clean Water Act Section 401	Washington State Department of Ecology	Requires certification for any projects that may result in a discharge into waters of the United States to ensure that the discharge complies with applicable state water quality requirements.
City of Seattle		
Environmentally Critical Areas Ordinance	City of Seattle Department of Construction & Inspections (SDCI)	Protects and regulates activities on or adjacent to critical areas; critical areas include geologic hazard areas, flood-prone areas, wetlands, and fish and wildlife habitat conservation areas (which include streams, riparian corridors, wildlife habitats mapped or designated by WDFW, corridors connecting priority habitats, and areas that support species of local importance).
Shoreline Master Program	SDCI	Regulates activities in and near major water bodies (e.g., rivers, large lakes, marine waters), establishes requirements for maintaining native vegetation.
Tree Protection Ordinance	SDCI	Limits the number, size, and type of trees that may be removed from private property and establishes requirements for replacing trees that are cut down.
City of Seattle SEPA Plants and Animals Policy	SDCI	Allows DPD to grant, condition, or deny construction and use permit applications for public or private proposals subject to SEPA review, with the goal of minimizing or preventing loss of wildlife habitat.
Land Use Regulations	SDCI	Specifies Green Factor requirements and street tree requirements for development in the Multifamily and Commercial zones and establishes tree requirements for development in Neighborhood Residential zones.

Source: Parametrix, 2023.

In March 2023, Mayor Harrell issued an Executive Order that addresses trees on City-owned property, identifying six measures for increasing the city's urban tree canopy:

- Create a One Seattle Tree Fund, collected from fee-in-lieu payments from developers and private property owners. The fund will target new tree plantings in areas with low canopy

cover, specifically historically underserved communities, along with parks and publicly owned rights-of-way.

- Expand public-private partnerships to support new, innovative funding mechanisms to maintain and expand urban forest on public lands and in publicly owned rights-of-way.
- Replace every healthy, site-appropriate tree removed from City-owned property within city limits with a minimum of three trees; replace every tree on City-owned property within city limits that has died or is otherwise hazardous or invasive with a minimum of two trees.
- Remediate unhealthy trees and trees creating conflicts.
- Steward City-managed forested watersheds outside of urban areas for the long-term provision of ecosystem services to the communities we serve, based on principles of diversity, equity, and inclusion and best available scientific knowledge.
- Report on urban area tree canopy expansion and protection progress through the annual Urban Forestry Progress Report.

Also, in May 2023, the Seattle City Council passed an ordinance that updates the existing Tree Protection Code and addresses urban forest on private property. The ordinance includes the following actions:

- Lower the size thresholds and provide stronger protections for trees subject to regulation.
- Increase planting requirements.
- Fund tree planting programs and address the lack of trees in historically underserved communities through establishment of a payment-in-lieu program to provide flexibility for homebuilders.
- Provide for development standard modifications through incentives to help avoid impacts to trees when possible.
- Create clear standards for tree protection during the review process.
- Expedite the permitting process.
- Establish a more simple and clear naming convention for tree categories.
- Restrict removal of heritage trees.
- Require the planting of street trees in urban neighborhood zones on parcels that are redeveloped.

Taken together, these policies and regulations are expected to minimize the potential for tree canopy loss in several ways. Enhanced restrictions on tree removal will reduce related canopy loss on private parcels, and tree replacement requirements will ensure that a substantial portion such losses are reversed over time. Moreover, requirements for tree planting in road rights-of-way may create opportunities for additional tree canopy development in areas that currently lack street trees.

The potential for canopy losses to affect disadvantaged populations will be reduced through the payment-in-lieu program. Revenue generated through that program will be used to plant and maintain new trees with a priority in census tracts with tree canopy cover of 25 percent or less

and on planting in public places. Given that areas with disadvantaged populations tend to have less canopy cover than other areas, the emphasis on planting in areas with low canopy cover will generate benefits for those populations.

Tree planting through the payment-in-lieu program may also provide some ecological and social benefits that would not be realized through on-site tree replacement. The program will allow the City to identify sites where restoration or creation of forest canopy will generate public benefits. For example, it will be possible to plant and maintain stands of trees in public places. Trees growing in groups or stands provide shade and habitat more effectively than single, isolated trees. In addition, when trees are planted in public places, benefits related to physical and mental health are more widely available. Moreover, the commitment of public resources to maintaining planted trees increases the likelihood of long-term survival. Such planning and coordination is not possible when individual trees are replaced on private parcels. By creating the opportunity for coordinated and consolidated planting and maintenance of trees, the payment-in-lieu program opens the door to strategic efforts that maximize the public benefits of trees.

Finally, the City was recently awarded $12.9 million in grant funding, to restore forested places near schools, parks, and low-income housing. The projects implemented through this funding will be designed to offset the effects of climate change, improve access to nature, and support green careers for young people.

Other Potential Mitigation Measures

Measures that may increase and enhance tree canopy cover include the following:

- Add an amenity area requirement in Neighborhood Zones, encouraging space for trees. (As of ~~Spring~~ early 2025~~4~~, the City anticipates adopting new zoning standards in Neighborhood Residential zones to allow for middle housing types).
- Utilize an adaptive management policy to collect, monitor, analyze, and learn from the results of code application and to assess the Tree Protection Code's effectiveness in achieving the goals of retaining or replanting trees and increasing canopy cover while allowing for more housing options. This policy fits with the City's goal of conducting citywide tree cover assessments every 5 years, which can inform adaptive management.
- Encourage attached units rather than detached units, which could result in more plantable area by eliminating small corridors between buildings. This option may be feasible in areas that would be classified as neighborhood center, urban neighborhood, or corridor under the action alternatives.
- Increase funding for City-led tree planting and maintenance in parks and rights-of-way, particularly in areas identified as heat islands.
- Expand existing programs such as Trees for Neighborhoods, which provides trees and support for people who want to plant trees on their property or in the adjacent right-of-way.

- Develop a comprehensive plan for investment in the equitable distribution and resilience of the urban forest.
- Investigate technologies such as flexible pavement, soil cells, expanded tree pits, and appropriate soil types in City-owned rights-of-way.
- Pursue creative approaches for maximizing green infrastructure in appropriate locations in City-owned rights-of-way—for example, installing planted bike lane and curb line buffer strips between curbs and sidewalks, or replacing parking spots and curb bulbs to support park-scale street trees.
- Collaborate with Seattle Public Schools and organizations such as Green Schoolyards America to increase tree cover on school grounds.

Potential measures for avoiding, minimizing, and mitigating development-related impacts on water quality are identified in **Section 3.1.3** in **Earth & Water Quality.** Possible additional measures for reducing the risk of delivering contaminants to ~~fish-bearing streams~~ surface waters include the following:

- Retrofit existing stormwater facilities to increase storage capacity and improve water quality treatment.
- Adopt stormwater detention standards that require new parcel development to detain larger volumes of stormwater runoff on-site and in a manner that mimics predeveloped stormwater patterns.
- Set lower development size thresholds to require more parcel projects to install on-site stormwater management.
- Set lower limits for the maximum percentage of a new development that could be covered with impervious surfaces.
- Encourage expanded use of soil amendments to facilitate stormwater infiltration (i.e., low-impact development practices) where technically feasible.
- Sponsor or encourage public education about the threats posed to fish by contaminants in stormwater runoff.
- Provide a stronger program for maintaining stormwater treatment and detention facilities.

3.3.4 Significant Unavoidable Adverse Impacts

Under any of the alternatives, population growth in Seattle will drive development and redevelopment of residential and commercial properties. As discussed above, differences in the availability or distribution of habitats in the city would be unlikely to result in any appreciable impacts on ~~regional~~ populations of plants or animals in or near Seattle. Based on this consideration, combined with the existing statutory and regulatory requirements that provide protection for plants and animals, none of the alternatives would be expected to result in impacts that would reduce the likelihood that populations of native plant or animal species would persist in or near Seattle~~of survival or recovery of a plant or animal species in the wild~~.

Similarly, none of the action alternatives would be expected to have significant, unavoidable adverse impacts on aquatic species and habitats. On-site stormwater management would likely be required for development or redevelopment projects within the city limits (see **Section 3.1.4** in **Earth & Water Quality**). Implementation of required stormwater management would occur under any of the alternatives. For these reasons, none of the action alternatives would be expected to result in an appreciable increase (compared to the No Action alternative) in the delivery of stormwater contaminants to ~~fish-bearing streams~~surface waters. This, in turn, would avoid or minimize the potential for adverse impacts on fish, wildlife, and their habitats.

Also, none of the action alternatives would be expected to have significant, unavoidable adverse impacts on tree canopy cover. As discussed in **Section 3.3.3**, the City's current tree protection regulations minimize the potential for development-related loss of tree canopy cover and require mitigation for such tree loss. In addition, the potential for canopy loss due to other factors would be the same under all alternatives.

Finally, as discussed in the analysis of impacts common to all alternatives, encouraging residential and commercial development within the urban environment of Seattle could indirectly benefit tree canopy cover regionally by easing development pressure in less-developed areas outside the city. Increasing density in the city—particularly given the City's requirements for tree protection and replacement—would have fewer adverse impacts than would the conversion of undeveloped parcels in suburban areas to low-density residential uses.

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