BIRDS CONNECT SEATTLE

May 6, 2024

Office of Planning and Community Development
Seattle City Hall
600 4th Ave
Seattle, WA 98104
Submitted via email to OneSeattleCompPlan@seattle.gov & PCD_CompPlan_EIS@seattle.gov

RE: Birds Connect Seattle comments on One Seattle Plan (Comprehensive Plan Update) draft for public review

Dear Office of Planning and Community Development,

Hello from Birds Connect Seattle, Seattle's local bird conservation organization since 1916. We envision cities that value and integrate nature, protect habitat, and minimize hazards to birds. The draft One Seattle Plan is an exciting, once-in-a-decade opportunity for Seattle to evaluate and improve its progress toward a just city where people and birds can thrive.

High-level summary of our comments on the draft One Seattle Plan:

We appreciate and recommend maintaining these sections, goals, and policies specifically:

- Integration of climate mitigation, adaptation, and resilience throughout the plan;
- Incorporation of landscaping techniques to improve environmental health (e.g., LU 2.6)
- Planning for green jobs and a sustainable economy (e.g., ED G7)
- Greater integration of tree canopy policies throughout the plan (e.g., LU 2.7, LU 4.8,
- Addition of nature-based solutions and ecological restoration as important tools for addressing climate impacts and environmental hazards (e.g., CE 10.3, CE 10.4, CE 11.2, CE 11.4);
- Addition of goals and policies for Tribal consultation and supporting Indigenous communities. (e.g., CI G4 and related policies; CE 13.7, CE 14.3, P 4.6)
- Consideration for wildlife and nature appreciation in parks and recreation planning (e.g., PG3, P 1.13, P 2.4)

We recommend strengthening the draft One Seattle Plan by:

- Acknowledging the global extinction crisis and establishing equitable biodiversity conservation as a goal;
- Integrating and increasing ambition and specificity of goals and policies related to biodiversity conservation throughout the plan; and
- Expanding conception and expectations of sustainable operations and building design to include wildlife safety.

Please see our specific feedback and recommendations on the following pages. **Note: DEIS comments begin on page 11.**

Our specific observations, feedback, and recommendations on the draft One Seattle Plan are:

OBSERVATION 1. The draft One Seattle Plan does not acknowledge that we are in the midst of a global extinction crisis on the same scale as climate change. Both crises pose existential threats to human futures and must be urgently addressed together. Goals and policies for holistic stewardship of Seattle's urban biodiversity are entirely absent from the draft Comprehensive Plan.

While the draft update reflects the City's evolving and improving understanding and responsibility for managing for and mitigating impacts of climate change, it does not reflect a similar understanding of the City's role in addressing biodiversity loss.

RECOMMENDATION 1: Revise the "Climate and Sustainability" element to become the "Climate, Biodiversity, and Sustainability" element.

We recommend elevating and integrating biodiversity conservation in the same way climate change has been elevated and integrated. We recommend adding "Biodiversity" in the element title and adding a new "Equitable Biodiversity Conservation" section, with discussion, goal, and policies. We submit the following draft language for your consideration:

EQUITABLE BIODIVERSITY CONSERVATION

DISCUSSION

Seattle's biodiversity provides services and benefits to people.
We love living and working in Seattle. The landscape is beautiful. The culture is vibrant. And the diversity of life we can experience every day is wild. Orca off Alki, Bald Eagles over Ballard, Long-toed Salamanders at Camp Long, our neighborhoods and waterways are peopled with more than people: at least 3,000 species of plants, fungi, birds, and other wildlife have been documented to-date within Seattle's municipal boundaries (iNaturalist Community, 2024).

The plants, fungi, and animals we share our neighborhoods with make up our urban biodiversity. This biodiversity underpins the function of our urban ecosystem and provides foundational services to the people who live in and visit Seattle—including food production, air purification, pest control, reduced need for cooling and heating, opportunities for recreation, and more. Nature also promotes human health and wellbeing (see Hartig et al., 2014 for a review).

For many of us in Seattle, our daily contact with nature occurs right in our neighborhoods. The degree to which the nature of our neighborhoods can provide us with physical and psychological benefits depends on many attributes, including location, tree canopy, general quality, and amenities like bathrooms and benches (Konijnendijk et al., 2013). Experiences in environments with higher levels of biodiversity also play a role in reducing stress and promoting feelings of restoration and wellbeing (Fuller et al., 2007; Wood et al., 2018, Schebella et al., 2019, Houlden, Jani & Hong, 2021, Hammoud et al. 2024).

The benefits of Seattle's biodiversity are not equitably distributed and may be declining.
The benefits of nature, biodiversity, and ecosystem services are not equitably distributed across Seattle. Generally, more affluent neighborhoods and those with predominantly white residents have greater vegetation cover, tree canopy cover, and biodiversity (Schell et al., 2020). This did

not happen by accident. Redlining and other racist policies determined not only where people can live, work, and play, but also how vegetation is planted and maintained. This, in turn, affects the distribution and movement of other living things in the city. We have the opportunity and responsibility to address these inequities.

Like all ecosystems, cities change. In the last decade, we experienced the greatest average annual population growth since the Klondike Gold Rush. We've set new weather records for high temperatures, days without precipitation, and smoke storms. Our urban biodiversity is changing, too. Some species, like Yellow-faced Bumblebees are becoming more common. But populations of many others are in decline, including 52 percent of bird species that regularly occur in King County (Rosenburg et al., 2019, supplemental data). The capacity of Seattle's natural systems to support a wide diversity of life may be deteriorating.

We urgently need an integrated policy to halt both climate change and biodiversity loss. Climate change and biodiversity loss are the two most urgent environmental challenges of our times (Pörtner et al., 2021).

Biodiversity loss, which has potential consequences for humanity that rival climate change (Cardinale et al., 2012), yet has received much less attention by the City of Seattle. We have no citywide strategy for managing biodiversity. We have no city ordinances or resolutions with "biodiversity loss" in the title. Our Climate Action Strategy does not reference biodiversity or wildlife. And while the current version of the Comprehensive Plan (November 2020) contains goals and policies for protecting and restoring the natural environment, biodiversity is not defined or used as a concept.

The scientific community is calling for decision makers to integrate climate change and biodiversity on policy agendas (Roberts, O'Leary & Hawkins, 2020; Pettorelli et al., 2021; Pörtner et al., 2021). With "environmental stewardship" as a core value of the 2024 Comprehensive Plan update, the City of Seattle intends to begin building an integrative policy framework for addressing both climate change and biodiversity loss.

GOAL

Seattle's biodiversity is valued, conserved, restored, and wisely used, maintaining ecosystem services, sustaining healthy ecosystems, and delivering benefits essential for all people. (Adapted from Secretariat of the Convention on Biological Diversity, 2020)

POLICIES

1. Recognize, fund, and support Indigenous-led environmental conservation and nature stewardship.
2. Fund and support learning-focused urban experiments with Indigenous communities for climate action, nature stewardship, and appreciation.
3. Integrate biodiversity values into planning processes and reporting systems.
4. Aggressively seek new financing mechanisms for conservation, natural space management, urban forestry, etc.
5. Ensure equity in actions to address climate change, biodiversity loss, and the use of benefits of biodiversity, including:

    - Accounting for the needs of children, youth, and future generations.
    - Sharing the benefits and burdens of biodiversity in a way that is equitable, transparent, and accountable.
    - Collaborating with communities to co-create and implement plans for climate action and biodiversity conservation that are in accessible languages, provide for public participation, and that prioritize removing the barriers faced by Black, Indigenous, and People of Color, children, people with disabilities, and other systemically under-resourced people.
6. Protect, maintain, and enhance biodiversity in natural areas, parks, and open spaces.
7. Explicitly plan for open spaces and natural habitats during new development.
8. Use a variety of arrangements of built and open space to meet a diversity of ecological requirements.
9. Encourage enhancement of habitat quality within the entire matrix of urban land uses, including private property.
10. Reduce urban hazards to biodiversity, including pesticides, reflective glass, plastic pollution, and from harmful impacts of human-associated species like free-ranging, outdoor cats.
11. Embrace the novelty of urban habitats and species composition to create ecosystems that meet the needs of people, biodiversity, and are adaptive to climate change.
12. Celebrate urban biodiversity to foster connections between people and the natural heritage of their local ecosystems.
13. Determine the status and trends of biodiversity within Seattle's jurisdiction, including:
    - Documenting the richness and distribution of currently existing biodiversity.
    - Identifying rare or limited habitat types, such as native prairies, oak woodlands, bogs and other wetlands, intertidal and marine habitats, etc.
    - Identifying existing and potential habitat corridors that facilitate safe movement of organisms between natural areas, parks, open spaces, and other habitat areas.
    - Selecting established indicators of urban biodiversity, such as the City Biodiversity Index.
    - Monitoring and evaluating changes in Seattle's biodiversity indicators over time.
13. Confront and address human-nature conflict in cities, including:
    - Examining both the services and disservices of biodiversity to understand how, when, where, and why urban biodiversity can be viewed as unpleasant, dangerous, or destructive.
    - Cataloging effective solutions to conflicts.
    - Planning, designing, and communicating to address conflicts or reduce fears.
14. Create resilient landscapes by:
    - Considering the needs of biodiversity early in urban planning and development projects, rather than as "add-ons" if space or budget allow.
    - Monitoring and managing climate related impacts on biodiversity, including new pests and pathogens.
    - Testing and evaluating new designs of nature-based solutions across urban typologies, together with their financing models and policy mechanisms.
15. Reconnect people with biodiversity in cities through community science and engagement programs.

16. Evaluate government-provided incentives and eliminate or reform those that are harmful to biodiversity.
17. Reform industrial, economic, and business practices to reduce negative impacts on biodiversity.
18. Encourage all people to take measurable steps toward just and sustainable consumption levels and lifestyles, taking into account individual, cultural, and socioeconomic conditions.

[the above adapted from United Nations Environment Programme, 2021; Secretariat of the Convention on Biological Diversity, 2020; Marzluff & Rodewald, 2008; and Oke et al., 2021]

OBSERVATION 2: Goals and policies for tree canopy, shorelines, environmentally critical areas, and other important urban habitat features are weak and lack solid foundation on which to evaluate progress or success.

RECOMMENDATION 2: Increase ambition and specificity of goals and policies related to urban biodiversity. Specific recommendations follow.

LAND USE ELEMENT

Urban Design

- **We recommend LU 2.1 be revised to read:** "Encourage the protection, restoration, and celebration of Seattle's natural features and landforms such as bluffs, beaches, streams, and forests and trees."

Multifamily Zones

Development on multifamily zones takes a heavy toll on the trees that grow there. The 2021 Tree Canopy Assessment found that on average 50% of tree canopy was lost on multifamily lots that had undergone development. Multifamily zones also already tend to have less canopy cover and many of these zones are in Environmental Justice Priority Areas where tree canopy loss has been experienced disproportionately. The updated version of SMC 25.11 passed in 2023 allows developers to hardscape up to 85% of the developable lot area in multifamily zone, leaving little room for trees. Planning for tree preservation and planting in these zones is critical for meeting the city's climate resilience and environmental equity goals.

- **We recommend revising policy LU 10.4 (p 48) to read:** "Design multifamily zones to be appealing residential communities with high-quality housing and development standards that promote livability and a sense of community, including equitable tree canopy, appropriately scaled landscaping, street amenities, and, in appropriate locations, limited commercial uses that serve the neighborhood's residents."

Historic Preservation and Cultural Resources

The wild things we share our city with are links to Seattle's past and important cultural resources. Yet the Historic Preservation and Cultural Resources section does not specifically identify natural heritage as a subject of preservation.

- **We recommend revising the first sentence of the discussion on page 58 to read:** "Historic preservation recognizes and protects aspects of our shared cultural heritage—buildings, districts, designed landscapes, natural features, and areas long used by Indigenous communities—that link to Seattle's past."
- **Add a policy under Goal LU G16 (p. 59) to read**: "Support the preservation and celebration of natural landscapes, features, and species, that contribute to Seattle's unique sense of place and connect us to its past."

Environmentally Critical Areas

Regulations for environmentally critical areas should not just seek to protect ecological functions and values of wetlands and fish and wildlife conservation areas, they should also seek to *enhance* them. Our regulations should also protect the health and safety of both people and wildlife.

- **We recommend that LU G17 (pp. 60-61) be revised to read:**

  "Environmentally critical areas regulations seek to:

  - protect and enhance the ecological functions and values of wetlands and fish and wildlife conservation areas;
  - prevent erosion on steep slopes;
  - protect public health, safety, and welfare in areas subject to landslides, liquefaction, floods, or peat settlement;
  - inform the public by identifying seismic and volcanic hazard areas; and
  - minimize harm to people, wildlife, property, public resources, or the environment"
- **We recommend adding a new policy under the Fish and Wildlife Conservation Areas section (p 62) to read:** "Seek to increase both the number and area of fish and wildlife conservation areas."

TRANSPORTATION ELEMENT

Streets Designed for Everyone

Changing how we design and use the public right of way is an exciting opportunity to achieve multiple benefits—increased tree canopy, greater urban food production, improved access between parks for people, and increased wildlife supporting capacity in the city to name a few. Birds Connect Seattle and partners at the Capitol Hill EcoDistrict have been developing this concept for years through the Nature of Your Neighborhood Project (see natureofyourneighborhood.org).

- **We recommend adding a new policy under goal TG 2 (p. 68) to read:** "Identify streets and other public rights-of-way that could potentially serve as corridors between parks and open spaces to prioritize vegetation and amenity enhancements to improve people's access to public space and to facilitate movement of wildlife."
- **We recommend revising policy T 2.17 (p. 69) to read:** "Create vibrant public spaces in and near the right-of-way that foster social interaction, promote access to walking,

bicycling, and transit options, support birds and other wildlife, and enhance the public realm.

ECONOMIC DEVELOPMENT ELEMENT

Build and Invest in the Green Economy

We support living-wage green jobs and a just transition to a decarbonized economy.

- **We recommend revising policy ED 7.1 (p. 136) to read:** "Establish partnerships to build workforce capacity to advance completion of city-wide decarbonization and climate adaptation efforts, including through electrification, construction, conservation, urban forestry, and other new green technology programs."
- **We recommend revising policy ED 7.**3 (p. 136) to read: "Support business partnerships and models which are centered on climate mitigation, climate adaptation, biodiversity conservation, and/or a shift toward sustainable operational models within established industries, including incubator and accelerator funding of new sustainable businesses."

CLIMATE AND ENVIRONMENT: HEALTHY RESILIENT COMMUNITIES AND ENVIRONMENT ELEMENT

Tree Canopy

Trees are among the most important natural features in urban areas. But the urban forest is more than a tree canopy: it is a layered system including soil, understory plants, and the epiphytes that live on the trees themselves. Seattle's urban forest is amazingly diverse (Jacobson 2006) and in decline (Seattle Office of Sustainability and Environment 2023). Additional investment and attention will be needed to reverse losses and address inequities.

- **We recommend revising the title of this section (p. 149) to read:** "Urban Forest and Tree Canopy".
- CE G12 (p. 150) establishes a goal for tree canopy cover, but its ambition and specificity were reduced from that in our current plan. Why? We also question if determining the maximization of benefits of the urban forest is possible. **We therefore recommend revising CE G12 to read:** "Seattle has a healthy urban forest with a tree canopy that covers at least 30% of the land by 2037, and 40% over time, which meets the needs of people and wildlife. ((~~maximizes the environmental, economic, social, and climate-related benefits of trees.~~))"
- **We recommend revising policy CE 12.1 (p. 150) to read:** "Consider and prioritize the needs of frontline communities in all urban forestry actions."
- **We recommend revising policy CE 12.5 (p. 150) to read**: "Reach out to, educate, and partner with the community to help care for, preserve, and celebrate Seattle's urban forest. ((~~and preserve our tree canopy.~~))"
- Care and maintenance for most street trees is the responsibility of the adjacent property owner. Tree care can be expensive, which creates disincentives for tree planting and preservation. This has contributed to the current inequity in tree canopy cover we observe across the city. **We therefore recommend adding a new policy under CE G12 (p. 150) to read**: "Explore opportunities through subsidies or other

mechanisms to reduce inequities and disincentives associated with the cost of tree care."

- We need measurable goals to ensure we are delivering on canopy and nature access equity goals. We ask you to consider the 3-30-300 rule (Browning et al. 2023). **We recommend adding a new policy under CE G12 (p. 150) to read:** "Strive to equitably distribute the benefits of trees by advancing measurable policies such as the 3-30-300 rule: three (3) significant trees (at least 20' wide crown) from their dwelling, have 30% tree canopy in their neighborhood, and live within 300 meters (3-4 blocks) of a high-quality green space."

PARKS AND OPEN SPACE ELEMENT

Seattle's parks, open spaces, and natural areas are the city's largest reservoirs of urban biodiversity, supporting thousands of species. Our urban biodiversity provides foundational services to people who live, work, and play in Seattle, and consideration for the needs of the biodiversity in our parks and open space must be considered as we plan for expanding public access to open space.

- **We recommend strengthening the final sentence to the first paragraph of the Parks and Open Space Introduction (p. 154)**: "Open spaces also support an amazing diversity of life—thousands of species of plants and animals have been documented in Seattle's natural areas. Our incredible urban biodiversity provides foundational ecosystem and cultural services that help make Seattle a great place to live. ((~~provide valuable wildlife and vegetation habitat that might otherwise be scarce in the city.~~))"

Access to Public Space

Sea-level rise threatens Seattle's beaches and other coastal habitats, especially since most of our shoreline is armored, which prevents habitats from transgressing inland in response to rising seas.

- **We recommend revising policy P1.14 (p. 157) to read:** "Provide sustainable public access to shorelines by improving shoreline street ends, applying shoreline regulations, ((~~and~~)) acquiring waterfront land, removing shoreline armoring, and restoring coastal habitat."
- Human presence and non-consumptive recreation in natural areas can negatively impact wildlife (see Dertien et al. 2021 for a review). **We recommend revising policy P 1.12 (p. 157) to read:** "Provide areas to preserve or restore important natural or ecological features and only allow people to access these spaces by building or expanding trail systems through greenbelts and other natural areas if it will not diminish habitat quality or negatively impact wildlife."
- Has the City of Seattle entered into agreement with local Tribes and Indigenous communities regarding the use of Indigenous ecological knowledge? If not, it may be inappropriate to attempt to integrate Indigenous ecological knowledge in open space design and interpretive elements. **We therefore recommend revising policy P 1.29 (p. 158) to read:** "Recognize and support Tribal leadership in conservation, restoration, and design of open space, plant selection, and interpretive elements.

((~~Incorporate Indigenous ecological knowledge and culture in open space design, plant selection, and interpretive elements.~~))"

Recreation, Activation, and Programming

As an organization that organizes outdoor recreation and wildlife watching, we support responsible and respectful recreation, activation, and programming in Seattle's green and open spaces. Our green spaces are home to thousands of species of plants, animals, and fungi, we need to be respectful of their needs as well. We would advise against promoting activities that could degrade habitat quality, especially near our limited natural area spaces.

- We recommend adding a new policy under Goal P G2 to read: "Consider the needs of biodiversity in Seattle's parks and open spaces while developing recreation, activation, and programming, so that impacts may be minimized."

Climate Resilient Open Space

Our public open spaces will serve a key role in our city's climate adaptation. Their relatively high tree canopy cover will reduce heat island impacts, manage stormwater, and improve air quality. They will serve as social spaces to build community cohesion. And they will provide respite and refuge from urban stressors. Our parks and green spaces may also serve as refugia for wildlife species in ways that we may not foresee (McDonnell 2013). Creating climate resilient open spaces is indeed an important goal.

- As Goal P G5 is written, it is unclear to us what is meant by "healthy environment", why only shorelines are to be resilient, and how public spaces are meant to do the big job of mitigating the impacts of climate change. **We therefore recommend revising Goal P G5 to read:** "Public spaces meet community needs, maintain ecosystem functions and support healthy levels of biodiversity, and are resilient to and help ((~~support a healthy environment and resilient shorelines and~~)) mitigate the impacts of climate change."
- **We recommend adding a new policy to under Goal P G5 (p. 162) to read**: "Promote removal of shoreline armoring, coastal restoration, and managed retreat of structures away from areas at high risk of erosion, flooding or submersion due to sea-level rise."
- **We recommend adding a new policy under Goal P G5 to read:** "Assess vulnerability of Seattle parks—including park access, facilities, habitats, and wildlife—to climate change and develop proactive plans to manage for resilience."

Observation 3: Sustainable Design and Construction discussions do not reflect current understanding of the hazards to wildlife posed by built environment. Buildings that maximize use of natural light often incorporate large areas of reflective or transparent glass, which can have the unintended consequence of increasing risk of bird-window collisions unless the surface of the glass has been treated to be visible to birds. Birds Connect Seattle estimates that at least 40,000

wild birds die each year in Seattle due to bird window collisions (Birds Connect Seattle, 2024). Artificial light at night is also a serious environmental and public health concern.

RECOMMENDATION 3: Expand conception and expectations of sustainable buildings and City operations to include wildlife safety.

LAND USE ELEMENT

Urban Design

- **We recommend revising LU 2.3 (p. 37) to read: "**Encourage design that recognizes natural systems, ((~~and~~)) integrates ecological functions such as stormwater filtration or retention, increases the wildlife supporting capacity of our city by improving habitat resources, and that reduces hazards to wildlife from the built environment."
- **We recommend revising LU 2.14 (p. 38) to read: "**Consider the value of designing buildings and public spaces that maximize use of natural light and provide protection from inclement weather while also considering how to mitigate potential hazards to wildlife from such designs."

General Development Standards

- **We recommend revising Goal LU G4 (p. 40) to read:** "Development standards effectively guide building design to serve each zone's function; produce the scale and building forms desired; protect public health, safety, and welfare; minimize hazards to wildlife and the environment; and address the need for new housing and commercial space.
- **We recommend revising policy LU 4.18 (p. 42) to read:** "Seek excellence in new development through a design review process that encourages multiple perspectives on design issues and that complements development regulations, allowing for flexibility in the application of development standards to achieve quality design that:
    - enhances the design quality of the city;
    - responds to the surrounding neighborhood context, including historic resources;
    - enhances and protects wildlife and the natural environment;
    - allows for variety and creativity in building design and site planning;
    - furthers community design objectives;
    - achieves desired intensities of development; and
    - responds to the increasingly diverse social and cultural character of the city."

Telecommunication Facilities

Collisions with telecommunication towers kill millions of wild birds each year in the US (Loss et al. 2015). The risk can be substantially reduced by swapping steady-burning lights on towers for flashing lights (Gehring 2009).

- We recommend adding a new policy under goal LU G7 (p. 45) to read: "Require communication utilities to be developed and operated in ways that minimize hazards to wildlife and limit impacts on the environment."

Capital Facilities

- **We recommend including "wildlife safety" in goal CF G2 (p. 111) so that it reads:** "Capital facility projects are designed to achieve resiliency, sustainability, wildlife safety, high levels of environmental performance, zero carbon pollution, and minimal environmental impacts consistent with principles of environmental justice."
- **We recommend adding a new policy under goal CF G2 to read:** "Support City of Seattle biodiversity stewardship goals by employing design and operational strategies that reduce the risk of bird-window collisions."

Public School Facilities

Educational buildings often have many design characteristics that increase the risk of bird-window collisions, such as large surface area of reflective / transparent glass, and proximity to quality habitat. We encourage the city to consider how it can reduce this risk at public schools.

- We recommend revising policy CF 6.8 (p. 118) to read: "Encourage SPS to preserve and improve open space and to reduce hazards to wildlife when redeveloping school sites."

PARKS AND OPEN SPACE ELEMENT

Operations and Maintenance

We appreciate Goal P G3 (p. 160) and would like to see it maintained in the final draft. However, we notice that hazards to wildlife from public space operations are not considered.

- **We recommend adding a new policy under P G3 to read:** "Evaluate and adjust open space operations and management practices to reduce hazards to wildlife."

Birds Connect Seattle submits the following critiques and recommendations on the draft Environmental Impact Statement:

CRITIQUE 1

On page 3.3-2, the DEIS establishes the following threshold of significance for plants and animals:

- Impacts that would reduce the likelihood of survival or recovery of a plant or animal species in the wild, compared to the No Action alternative;

This threshold of significance is vague, not ecologically meaningful, and not set at appropriate scale to reasonably evaluate impacts.

RECOMMENDATION, RATIONALE, & SUPPORTING EVIDENCE 1

We recommend establishing the threshold of significance for plants and animals as

- **Impacts that would reduce the likelihood that locally occurring populations of native or naturalized species would persist compared to the No Action alternative.**

The impacts of Seattle's growth strategy will be most acutely experienced by the plant and animal communities within Seattle's boundaries. A regional or global unit of analysis, as proposed in the

DEIS, is inappropriately large and does not serve as a meaningful threshold of significance against which to evaluate alternative growth strategies.

At such a scale, impacts on many, but not all, of our plants and animals may indeed appear negligible. (There are more rare, sensitive, and imperiled species within city boundaries than described in the DEIS; see later section.) However, it is likely, as has occurred many times in Seattle's history already, that species that currently maintain natural populations in Seattle will be locally extirpated without consideration and mitigation for the impacts of the city's growth.

For example, the Northwestern Pond Turtle's historic range extended from California into British Columbia. They are now rare or absent around the entire Puget Sound region, there have been no observations in Seattle for decades (Washington Herp Atlas 2009; iNaturalist Community 2024). Similar stories could be told for dozens of other organisms.

There are several species still present but on the cusp of local extirpation in Seattle. For example, Western Screech-owls, once relatively common year-round residents in Seattle, are almost gone (Figure 1). Marbled Murrelets still visit Elliott Bay and other marine habitats off the coast of Seattle, but their numbers have dropped so precipitously (Figure 2) over the last few decades they are now Endangered in the State of Washington.

Figure 1: Number of Western Screech-owls counted each winter in Seattle, Washington, as part of the National Audubon Society's Christmas Bird Count. Counts are standardized by observer effort, which varies annually, by dividing the total number of birds counted by total observation time (party hours). Christmas Bird County observations of Western Screech-owls have been declining since the 1980s. A simple linear model of Birds/party hour around scaled year is statistically significant ($p < 0.001$) with a regression coefficient of -0.016.

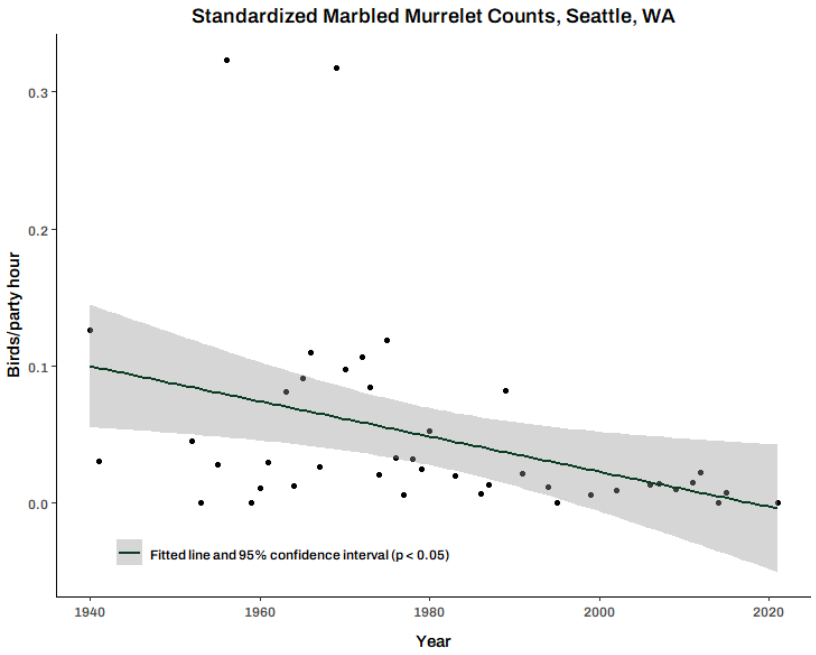

Figure 2: Number of Marbled Murrelets counted each winter in Seattle, Washington, as part of the National Audubon Society's Christmas Bird Count. Counts are standardized by observer effort, which varies annually, by dividing the total number of birds counted by total observation time (party hours). Christmas Bird Count observations of Marbled Murrelets have been declining for decades. A simple linear model of Birds/party hour around scaled year is statistically significant (p = 0.01) with a regression coefficient of -0.027.

Many more species that occur in Seattle have populations in overall population decline. **We recommend the final DEIS incorporate analyses of impacts to species in decline. Supplemental data from Rosenburg et al. 2019 may be useful for estimates of North American bird species population trends.**

Urban biodiversity provides foundational services and benefits to people, so potential significant losses of local populations—those occurring within city boundaries—must be evaluated and mitigated. The final EIS analysis should include the consideration of developing and adopting a biodiversity conservation strategy as a form of mitigation as some other cities already have done (see Toronto City Planning and Parks 2019).

This improved threshold of significance and expanded scope of analysis would allow a more meaningful examination of urbanization's impacts within city limits and species and habitats that are still considered common but whose global or local populations are in decline.

CRITIQUE 2

On page 3.3-3, the DEIS states, "The plant and animal species found in Seattle are widespread in the region; some are globally abundant. Areas in the city limits represent a very small proportion of the total amount of habitat for any given species. The only ESA-listed or state-listed species are fish (steelhead and Chinook salmon).

This broad generalization is not factual. It fails to acknowledge two additional listed species (Southern Resident Orca and Marbled Murrelet) that use the waters adjacent to Seattle and over which it has jurisdiction and one candidate species for listing (Sunflower Sea Star). The

statement also fails to consider the range of rare, sensitive, and imperiled species and habitat types that occur in Seattle and its adjacent waters and how species populations are trending.

RECOMMENDATION, RATIONALE & SUPPORTING EVIDENCE 2

We recommend updating the DEIS discussion and analyses to reflect true occurrence information about rare, sensitive, and imperiled species and habitat types.

Common Name	Federal Conservation Status	Washington State Conservation Status	Occurs in Seattle
Southern Resident Orca	Endangered		Yes
Marbled Murrelet	Threatened		Yes
Sunflower Sea Star	Candidate		Yes
Oregon White Oak Woodland		Critically Imperiled	Yes
Old-growth Lowland Conifer Forest		Imperiled	Yes

RCW 35.21.160 establishes Seattle's jurisdiction over its adjacent waters:

> **Jurisdiction over adjacent waters.**
>
> The powers and jurisdiction of all incorporated cities and towns of the state having their boundaries or any part thereof adjacent to or fronting on any bay or bays, lake or lakes, sound or sounds, river or rivers, or other navigable waters are hereby extended into and over such waters and over any tidelands intervening between any such boundary and any such waters to the middle of such bays, sounds, lakes, rivers, or other waters in every manner and for every purpose that such powers and jurisdiction could be exercised if the waters were within the city or town limits. In calculating the area of any town for the purpose of determining compliance with the limitation on the area of a town prescribed by RCW **35.21.010**, the area over which jurisdiction is conferred by this section shall not be included.

Given the jurisdiction of adjacent waters established by RCW 35.21.160, Seattle is responsible for analyzing impacts of its growth on adjacent marine and aquatic species and habitats in Puget Sound and Lake Washington.

The Southern Resident Orca population is federally protected as Endangered under the Endangered Species Act. The municipal waters of Puget Sound to the west of Seattle are a hotspot for the endangered Southern Resident Orca (Olson et al. 2018, Figure 3). The DEIS should include analysis of impacts on this protected population.

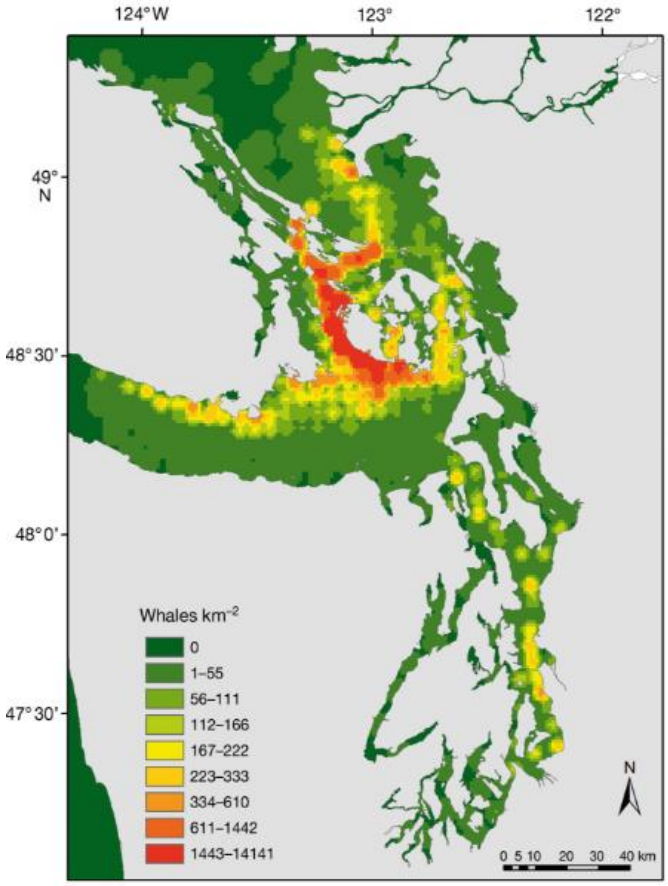

Figure 3: Southern Resident Orca density (number of whales km^{-2}) based on effort-corrected data in the Salish Sea from 1976-2014. Note that waters adjacent to Seattle are a hotspot of Orca sightings. Map from Olson et al. 2018.

Marbled Murrelets (*Brachyramphus marmoratus*) are federally protected as a Threatened species under the Endangered Species Act and state protected as an Endangered Species under the Washington State Endangered Species Act. They occur in Elliott Bay and elsewhere in Puget Sound adjacent to Seattle. As of May 5, 2024, there were at least five locations along the Seattle coast from which Marbled Murrelets had been observed in the last thirty days (eBird 2024, Figure 4). The DEIS does not mention their occurrence in Seattle's waters. The final EIS should include analysis of impacts on this protected species.

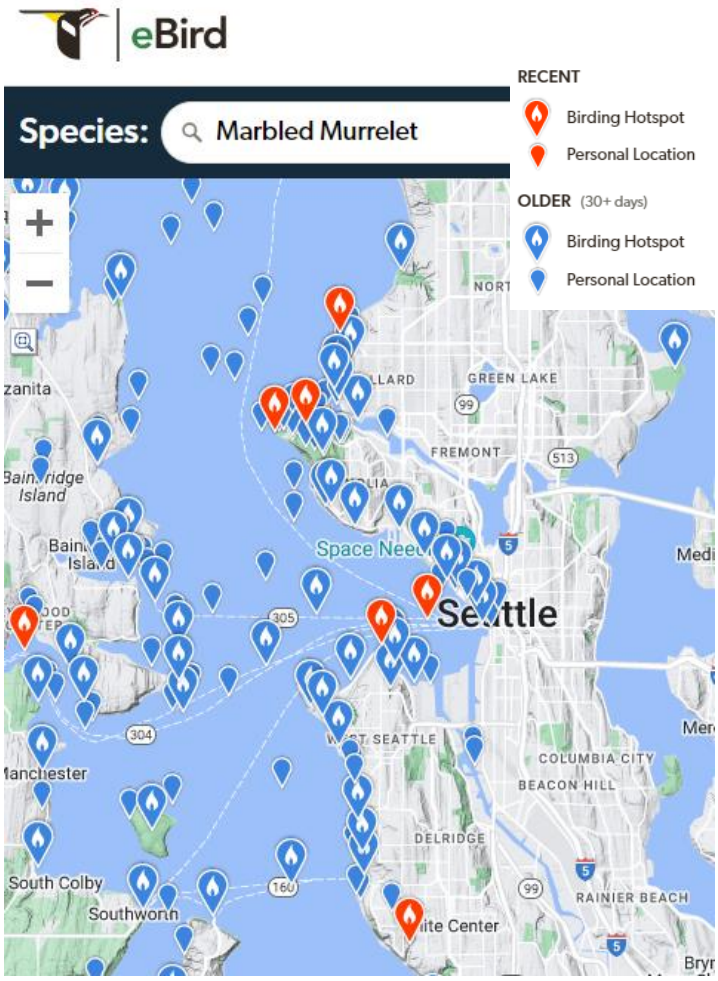

Figure 4: Birding hotspot locations around Seattle from which Marbled Murrelets have been observed. Those in red have observed Marbled Murrelet in the previous 30 days as of May 4, 2024. Visualization from eBird.org.

The Sunflower Sea Star (*Pycnopodia helianthoides*) occurs in Puget Sound, with dozens of observations in intertidal areas around Seattle (Figure 5). Its population was devastated by sea star wasting syndrome. The National Atmospheric and Oceanic Administration proposed the species for protection as a Threatened species under the Endangered Species Act in 2023 (NOAA 2023). The DEIS does not mention this candidate species. This should be addressed in the final EIS.

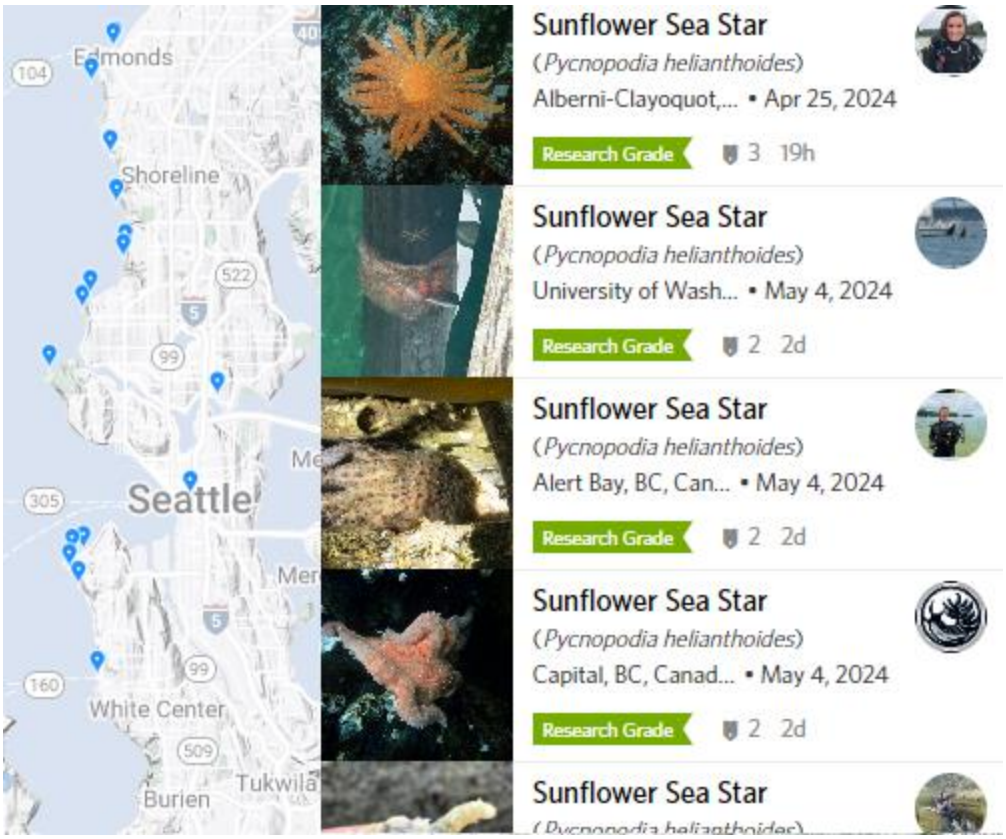

Figure 5: Map showing locations of observations of Sunflower Sea Star along Seattle coast. Visualization from iNaturalist.org.

RARE SPECIES

Lincoln Park supports a population of native Phantom Orchids (*Cephalanthera austiniae).* It is the only such population known in Seattle and one of just a few in all of King County *(Burke Herbarium, 2024; GBIF.org 2024).* Consideration for rare species should be given in the final EIS.

RARE, SENSITIVE, AND IMPERILED HABITATS

Seattle harbors patches of relatively rare, declining, even imperiled, habitat types. These include

- Old-growth lowland conifer forest, notably at Schmitz Creek Preserve and Seward Park. These ancient forests once covered vast areas of the Pacific Northwest. Most has been lost. Old-growth forests are identified by Washington Department of Fish and Wildlife (2015) as **imperiled and declining**.
- Oregon White Oak Woodlands at Martha Washington Park. Oregon White Oak Woodlands have been identified as **critically imperiled** and declining by Washington Department of Fish and Wildlife (2015).

The final EIS should provide consideration for rare, sensitive, and imperiled habitats in Seattle.

CRITIQUE 3

On pages 3.3-14 through 3.3-15, the DEIS provides a qualitative analysis of impacts to tree canopy based on the expectation that a "higher value in the "New place types" row in Exhibit 3.3.4 indicates a higher potential for development-related impacts to vegetation." The DEIS concludes, then, that Alternative 5 is likely to have the greatest potential for development-related impacts, followed by Alternatives 3, 4, 2, and 1.

RECOMMENDATION, **RATIONALE AND SUPPORTING EVIDENCE 3**

We recommend improving the rigor of analysis and re-examining assumptions to avoid overly optimistic projections of tree retention during development.

The city and public have access to recent, high-resolution spatial datasets for tree canopy as well as urban planning datasets like development capacity, land use, and equity categories. It is straightforward to overlay these datasets to quantify how many acres of tree canopy lie within private, redevelopable parcels in different place types and to compare those across alternatives.

For example, with easily available datasets, we identified and quantified the acreage of tree canopy on private property on lots that have been classified as "Redevelopable" through development capacity analysis. We could also quantify the amount of tree canopy on each place type under the different alternatives and by equity categories.

Because the development capacity data is the same for all alternatives, the total amount of canopy in private, redevelopable parcels remains the same (Tables 1 and 2). However, Alternative 5 would change the place type on parcels on which more than **700 acres of tree canopy would be at elevated risk of removal due to land use changes. About thirty of these acres are from high-risk equity categories. It would unreasonable to claim, as the DEIS currently does, that increased likelihood of 700 acres of tree canopy loss is not a significant impact that needs to be mitigated for.**

This type of analysis will be critical to see in the final EIS.

We have included a write-up of a similar canopy analysis. We recommend some type of similar, quantitative and spatial approach like that described in Exhibit A at the end of this document in the final EIS.

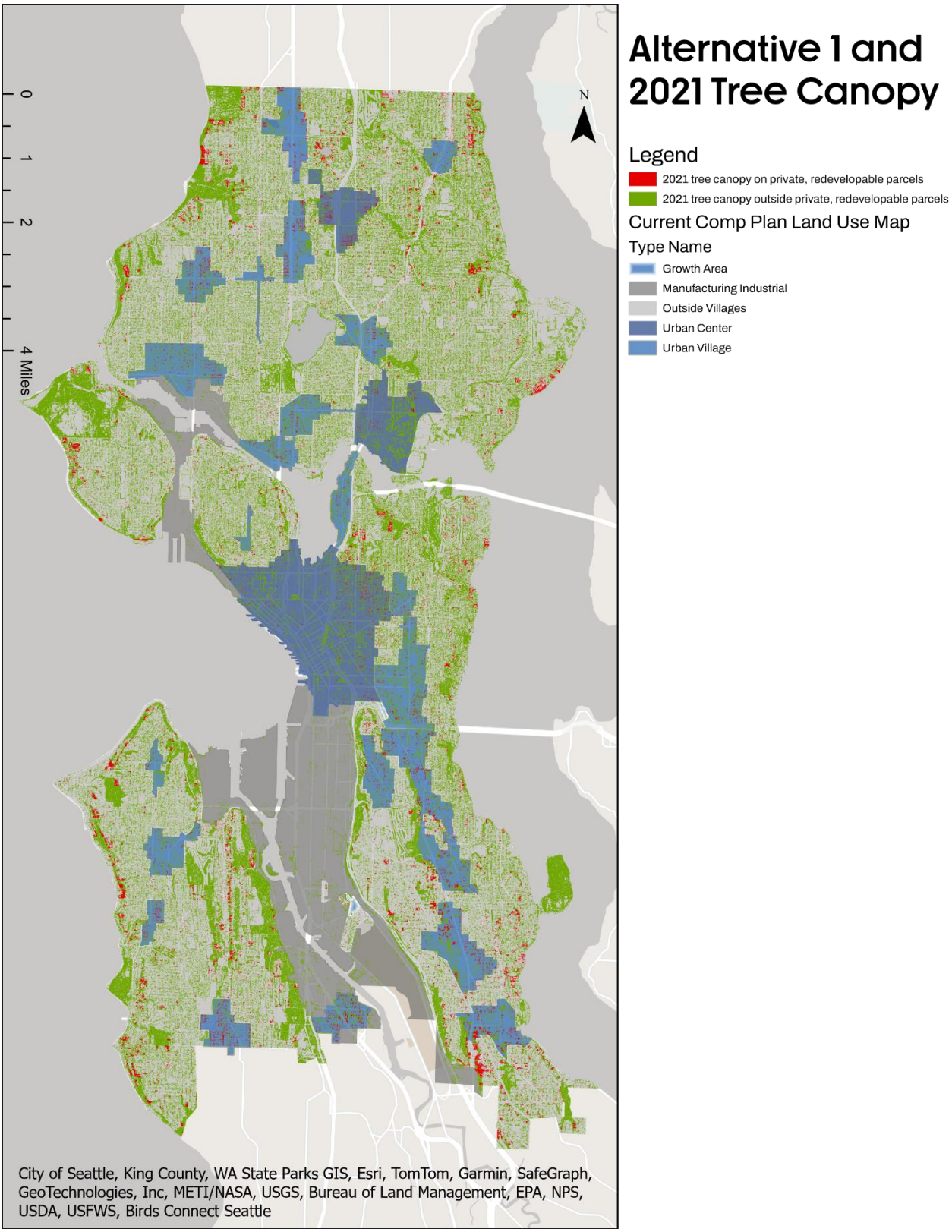

Figure 6: Tree canopy and land use (current Comprehensive Plan)

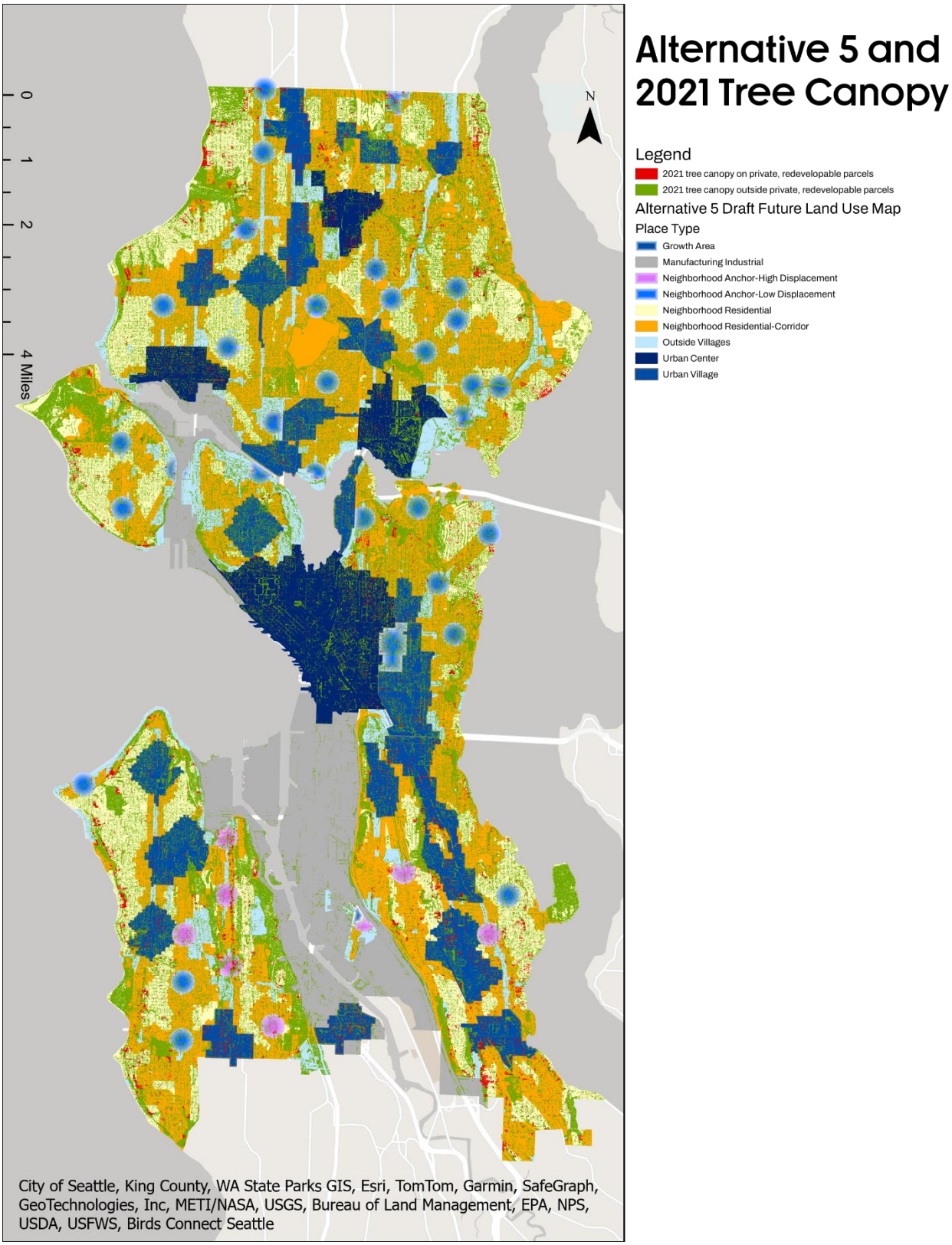

Figure 7: Tree canopy and land use under Alternative 5

Table 1: Comparison of area in acres of tree canopy by place type and equity category between Alternatives 1 and 5. Alternative 1 does not have four of the same place types as Alternative 5; values in those cases are NA.

Place type	Equity Category / Alternative					
	High Risk		Low Risk		NA	
	Alt 5	Alt 1	Alt 5	Alt 1	Alt 5	Alt 1
Manufacturing Industrial	0	0	2.05	2.05	0	0
Neighborhood Anchor-High Displacement	21.00	NA	0	NA	0	NA
Neighborhood Anchor-Low Displacement	0	NA	32.32	NA	0	NA
Neighborhood Residential	0	NA	0	NA	336.18	NA
Neighborhood Residential-Corridor	0	NA	0	NA	290.81	NA
Outside Villages	0	0	0	0	76.53	771.90
Urban Center	45.14	45.14	19.20	5.21	0	
Urban Village	185.00	177.94	86.63	92.63	0	

Table 2 Showing the difference in tree canopy area in acres between Alternatives 5 and 1 by equity category and in total. All told, more than 700 acres of tree canopy would change place types between Alternative 1 and Alternative 5, with a corresponding increased risk of removal.

	Delta High Risk (Alt 5-Alt 1)	Delta Low Risk (Alt 5-Alt1)	Delta NA (Alt 5-Alt 1)	Total Delta
Manufacturing Industrial	**0**	**0**	**0**	**0**
Neighborhood Anchor-High Displacement	**21**	**0**	**0**	**21**
Neighborhood Anchor-Low Displacement	**0**	**32.32**	**0**	**32.32**
Neighborhood Residential	**0**	**0**	**336.18**	**336.18**
Neighborhood Residential-Corridor	**0**	**0**	**290.81**	**290.81**
Outside Villages	**0**	**0**	**-695.38**	**-695.38**
Urban Center	**0**	**13.99**	**0**	**13.99**
Urban Village	**7.06**	**-6.0**	**0**	**1.06**

CRITIQUE 4

Page 3.3-5 states "Notably, most canopy loss was not associated with development activities; only 15% of the canopy loss occurred on parcels that underwent development during that period."

The analysis cited is insufficient to support the claim and may lead to false conclusion about the development's impact on tree canopy.

RECOMMENDATION, RATIONALE AND SUPPORTING EVIDENCE 4

The authors of the 2021 Tree Canopy Assessment defined "redeveloped parcels" as sites that began and completed construction of new buildings that added residential units or new commercial buildings within the identified timeframes."

This restricted definition of development-associated tree loss does not capture the full impact from development, including tree loss from development activities that started within but ended after the identified timeframe, or that started before but ended in the identified timeframe. This limited analysis has supported a misleading narrative that development is an insignificant driver of canopy decline in Seattle.

Even with the restricted definition, the 2021 tree canopy assessment found that development activity on the 1% of parcels that met the criteria to be defined as "redeveloped" accounted for 14% of canopy loss. That is a disproportionate impact, and the true impact from all development activities is certainly higher.

A more complete assessment of all development activities' impacts on tree canopy needs to be incorporated in the final EIS to avoid making overly optimistic projections about the impact of development.

REFERENCES

Birds Connect Seattle. (2024). Seattle Bird Collision Monitoring Project [unpublished data]. Birds Connect Seattle, Seattle, Washington, USA.

Browning, M. H. E. M., Locke, D. H., Konijnendijk, C., Labib, S. M., Rigolon, A., Yeager, R., ... & Nieuwenhuijsen, M. (2023). Measuring the 3-30-300 rule to help cities meet nature access thresholds. *Science of The Total Environment*, 167739.

Burke Museum Herbarium (n.d.). *Cephalanthera Austiniae* - Phantom Orchid. Burke Herbarium Image Collection. University of Washington. Accessed 4 May 2024 from https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Cephalanthera+austiniae

De Groot, K. L., Porter, A. N., Norris, A. R., Huang, A. C., & Joy, R. (2021). Year-round monitoring at a Pacific coastal campus reveals similar winter and spring collision mortality and high vulnerability of the Varied Thrush. *The Condor*, *123*(3), duab027.

Dertien, J. S., Larson, C. L., & Reed, S. E. (2021). Recreation effects on wildlife: a review of potential quantitative thresholds. *Nature Conservation*, *44*, 51-68.

eBird. (2024). eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Accessed 5 May 2024 from http://www.ebird.org

GBIF.org (05 May 2024) GBIF Occurrence Download https://doi.org/10.15468/dl.j3wrq7

Gehring, J., Kerlinger, P., & Manville, A. M. (2009). Communication towers, lights, and birds: successful methods of reducing the frequency of avian collisions. *Ecological Applications*, *19*(2), 505-514.

Hammoud, R., Tognin, S., Smythe, M., Gibbons, J., Davidson, N., Bakolis, I., & Mechelli, A. (2024). Smartphone-based ecological momentary assessment reveals an incremental association between natural diversity and mental wellbeing. *Scientific Reports*, 14(1), 7051.

iNaturalist community. (2024). Verifiable, research-grade observations from Seattle, USA, observed between 1 January 2015 to 6 May 2024. Accessed from https://www.inaturalist.org on 6 May 2024.

Jacobson, Arthur Lee. (2006). Trees of Seattle (second edition). Arthur Lee Jacobson, Seattle, Washington, USA.

Loss, S. R., Will, T., & Marra, P. P. (2015). Direct mortality of birds from anthropogenic causes. *Annual Review of Ecology, Evolution, and Systematics*, *46*, 99-120.

Marzluff, J. and Rodewald, A., 2008. Conserving biodiversity in urbanizing areas: nontraditional views from a bird's perspective. *Cities and the Environment* (CATE), 1(2), p.6.

McDonnell, Mark. (2013). Cities as Refugia for Threatened Species. The Nature of Cities, New York, New York, USA. https://www.thenatureofcities.com/2013/10/02/cities-as-refugia-for-threatened-species/

National Audubon Society. (2024). The Christmas Bird Count Historical Results [Online] for Western Screech-owl and Count Circle "WASE" (Seattle, Washington). Accessed 5 May 2024 from https://netapp.audubon.org/CBCObservation/Historical/ResultsBySpecies.aspx?1

NOAA. (2023). NOAA Fisheries Proposes Listing Sunflower Sea Star as Threatened under Endangered Species Act. https://www.fisheries.noaa.gov/feature-story/noaa-fisheries-proposes-listing-sunflower-sea-star-threatened-under-endangered-species

Oke, C., Bekessy, S.A., Frantzeskaki, N., Bush, J., Fitzsimons, J.A., Garrard, G.E., Grenfell, M., Harrison, L., Hartigan, M., Callow, D. and Cotter, B. (2021). Cities should respond to the biodiversity extinction crisis. *Npj Urban Sustainability*, 1(1), pp.1–4.

Olson, Jennifer K., et al. "Sightings of southern resident killer whales in the Salish Sea 1976–2014: the importance of a long-term opportunistic dataset." *Endangered Species Research* 37 (2018): 105-118.

Pettorelli, N., Graham, N. A., Seddon, N., Maria da Cunha Bustamante, M., Lowton, M. J., Sutherland, W. J., ... & Barlow, J. (2021). Time to integrate global climate change and biodiversity science- policy agendas. *Journal of Applied Ecology*, *58*(11), 2384-2393.

Pörtner, H.O., Scholes, R.J., Agard, J., Archer, E., Arneth, A., Bai, X., Barnes, D., Burrows, M.,...& Ngo, H.T. (2021). IPBES-IPCC co-sponsored workshop report on biodiversity and climate change; IPBES and IPCC, DOI:10.5281/zenodo.4782538

Rosenberg, K. V., Dokter, A. M., Blancher, P. J., Sauer, J. R., Smith, A. C., Smith, P. A., ... & Marra, P. P. (2019). Decline of the North American avifauna. *Science*, *366*(6461), 120-124.

Seattle Office of Sustainability and Environment. (2023). 2021 City of Seattle Tree Canopy Assessment Final Report. Seattle Office of Sustainability and Environment, Seattle, Washington, USA.

Secretariat of the Convention on Biological Diversity. (2020). Zero Draft of the Post-2020 Global Biodiversity Framework. https://www.cbd.int/article/2020-01-10-19-02-38

Shin, Y. J., Midgley, G. F., Archer, E. R., Arneth, A., Barnes, D. K., Chan, L., ... & Smith, P. (2022). Actions to halt biodiversity loss generally benefit the climate. *Global change biology*, *28*(9), 2846-2874.

Toronto City Planning and Parks.(2019). Wild, Connected, and Diverse: A Biodiversity Strategy for Toronto. Toronto City Planning and Parks, Toronto, Ontario, Canada. https://www.toronto.ca/legdocs/mmis/2019/ie/bgrd/backgroundfile-136906.pdf

RCW 35.21.161. Jurisdiction over adjacent waters.

United Nations Environment Programme. (2021). "States have these 13 duties when it comes to biodiversity and human rights." Accessed August 22, 2022 from https://www.unep.org/news-and-stories/story/states-have-these-13-duties-when-ithttps://www.unep.org/news-and-stories/story/states-have-these-13-duties-when-it-comes-biodiversity-and-human-rightscomes-biodiversity-and-human-rights

Washington Department of Fish and Wildlife. (2015). Washington's State Wildlife Action Plan: 2015 Update. Washington Department of Fish and Wildlife, Olympia, Washington, US

EXHIBIT A

Identifying Potentially Development-Threatened Tree Canopy in Environmental Justice Priority Areas

Draft April 8, 2024

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INTRO

Environmental Justice priority areas in Seattle are census tracts with Racial and Social Equity Index scores that fall within the two highest quintiles.

These communities tend to have lower overall tree canopy cover than whiter and wealthier neighborhoods (2016 Seattle Tree Canopy Assessment) and have experienced higher rates of tree canopy loss in recent years (2021 Seattle Tree Canopy Assessment). Given the important role trees play in community and climate resilience and the benefits they provide to mental and physical health, working with EJ communities to preserve and enhance tree canopy should be a priority for the City.

At the same time, increased demand for housing is driving land use changes and infill development. Parcels on which development occur experience significant canopy loss, 40% on average according to the 2021 Seattle Tree Canopy Cover Assessment.

The City uses Zoned Development Capacity models to identify parcels where redevelopment could occur to increase housing density. These parcels have fewer housing units than would be allowed under their current zoning class. These parcels also often support a significant number of established trees.

In Lowrise, Midrise, Commercial, and Seattle Mixed Zones, development footprint may occupy 85-100% of the lot area, and tree removal in downtown and industrial zones is not regulated under the tree protection ordinance. Trees in these zones on revdevelopable lots, then, are potentially highly threatened by future development.

Understanding the distribution of development-threatened trees and planning to maximize their retention during development is important if the City is to meet its canopy equity goals.

METHODS

Analysis objective: Find tree canopy in Environmental Justice Priority Areas and on private property on underdeveloped parcels in Lowrise, Midrise, Commercial, and Seattle Mixed zones, where 85-100 lot coverage allowed under the new tree protection ordinance, or on Downtown and Industrial zones which are “silent zones” not regulated by the tree protection ordinance.

Datasets

Dataset	Source	Last Updated

Seattle_Tree_Canopy_2016_2021_RSE_Census_Tracts	https://data-seattlecitygis.opendata.arcgis.com/datasets/SeattleCityGIS::environmental-justice-priority-areas/about	Jan 26, 2024
Tree_Canopy_2021_Seattle	https://data-seattlecitygis.opendata.arcgis.com/datasets/SeattleCityGIS::seattle-tree-canopy-2021/about	Jan 26, 2024
Zoned Development Capacity by Development Site Current	https://data-seattlecitygis.opendata.arcgis.com/datasets/SeattleCityGIS::zoned-development-capacity-by-development-site-current/about	Jan 27, 2024
Unofficial neighborhood boundaries	https://www.arcgis.com/home/item.html?id=8adffd6b8fba4a84966fa7471afd0d6c	Nov 29, 2023

Defining and mapping development-threatened tree canopy procedure:

1. Set definition query on Zoned Development Capacity Layer:
   PUB_OWN_TY = 'PRIVATE' And (REDEVSTATU = 'REDEV' Or REDEVSTATU = 'VACANT') And (CLASS = 'MR' Or CLASS = 'C' Or CLASS = 'L' Or CLASS = 'NC' Or CLASS = 'SM' Or CLASS = 'D' Or CLASS = 'I')"
   Intersect tree canopy, EJ priority areas, and zoned development capacity layers called "Development Threatened Tree Canopy 2021 in EJ Priority Areas"
2. Add new field to "Development Threatened Tree Canopy 2021 in EJ Priority Areas" called "DTTC_Acres" (double).
3. Calculate geometry of DTTC_Acres
   Property = Area (geodesic)
   Area Unit = Acres
   Coordinate system = default
4. Intersect Development Threatened Tree Canopy 2021 in EJ Priority Areas with Neighborhoods layer. Call it DTTC_Neighborhoods_Intersect
5. Add new field to "DTTC_Neighborhoods_Intersect" called "DTTC_Hood_Acres" (double).
6. Calculate geometry of DTTC_Hood_Acres
   Property = Area (geodesic)
   Area Unit = Acres
   Coordinate system = default

Estimating street tree canopy contribution to DTTC

1. Dissolve DTTC_Neighborhoods_Intersect on “gridcode” field (=1 for all records). Default settings (create multipart features). Output aggregates the many thousands of DTTC canopy polygons into a single, multipart feature. Call it DTTC_Dissolve
2. Create new point feature class using Create Random Points tool. Constrain the output to DTTC_Dissolve, create 500 points. Output is 500 random points distributed within the boundaries of DTTC_Dissolve. Call new feature class “Random_Point_Assessment”
3. Create new field in Random_Point_Assessment called “Street_Tree” (short, numeric).
4. Set basemap to satellite imagery.
5. Zoom to each random point to determine if the canopy it is associated with is from a tree planted in the public right of way or is rooted on private property. If street tree, assign value “1”, else “0”
6. Where determination cannot be made from satellite imagery, use Google Street View.
7. Where determination is uncertain, assume street tree and assign value “1”.

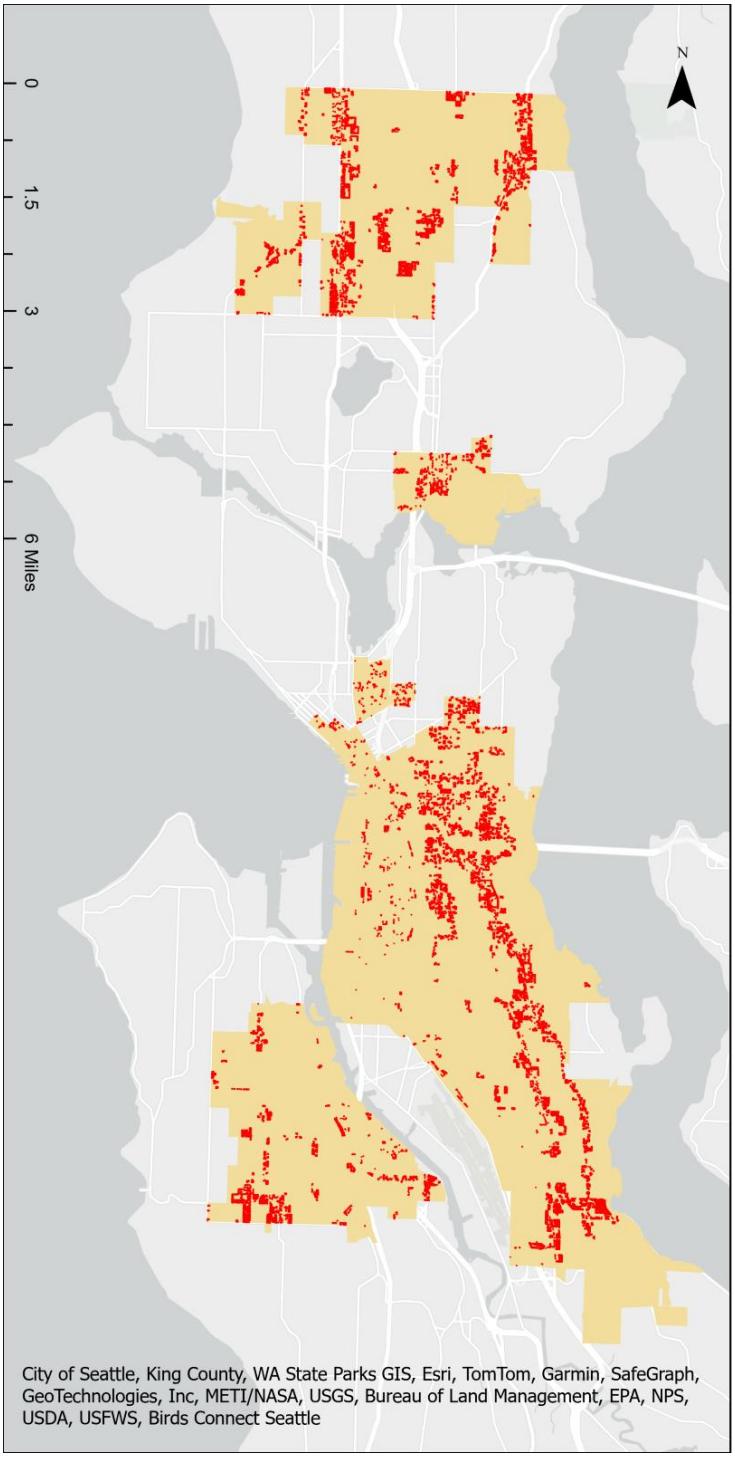
RESULTS

There is a total of 226.7 acres of tree canopy overhanging redevelopable parcels in EJ priority areas. Some of this tree canopy is contributed by street tree canopy spreading from the right of way over private property. Street trees are governed by different regulations than trees on private property and are not the focus of this analysis.

Of a random assessment of 500 points within tree canopy on redevelopable parcels in EJ priority areas, 33 were determined to fall within tree canopy contributed by street trees. I estimate the mean canopy contribution from street trees to be 6.6% (95% Confidence Interval 4.4% to 8.8%).

Therefore, I estimate there are between 207 to 217 acres of development-threatened tree canopy on private property in Environmental Justice Priority Areas.

Map of distribution of development-threatened tree canopy in EJ Priority Census Tracts



Results by neighborhood

Neighborhood	Acres of Development-threatened Tree Canopy in EJ Priority Areas

	Mean Estimate	Lower 95% CI Estimate	Upper 95% CI Estimate
North Beacon Hill	15.60	15.24	15.97
Atlantic	13.92	13.59	14.25
Columbia City	13.86	13.53	14.18
Dunlap	13.79	13.46	14.11
Haller Lake	11.36	11.10	11.63
Rainier Beach	11.13	10.87	11.39
North College Park	9.00	8.79	9.21
South Delridge	8.80	8.59	9.01
Greenwood	7.79	7.60	7.97
Brighton	7.74	7.56	7.92
Minor	7.47	7.29	7.65
South Beacon Hill	7.42	7.24	7.59
Highland Park	7.23	7.06	7.40
Olympic Hills	6.44	6.28	6.59
Mid-Beacon Hill	6.18	6.03	6.32
Maple Leaf	5.91	5.77	6.05
Pinehurst	5.46	5.33	5.58
University District	5.41	5.28	5.54
Cedar Park	5.14	5.02	5.26
Mount Baker	4.97	4.85	5.08
High Point	4.20	4.10	4.30
South Park	3.65	3.56	3.73
Industrial District	3.06	2.99	3.13
Meadowbrook	2.88	2.81	2.94
Bitter Lake	2.69	2.63	2.75
Riverview	2.66	2.60	2.72
International District	2.40	2.35	2.46

Roxhill	2.06	2.01	2.11
Crown Hill	1.68	1.64	1.72
Yesler Terrace	1.53	1.49	1.56
Victory Heights	1.34	1.31	1.37
Leschi	1.29	1.26	1.32
Stevens	1.26	1.23	1.29
Broadway	0.94	0.92	0.96
Holly Park	0.91	0.89	0.93
Mann	0.83	0.81	0.84
Broadview	0.80	0.78	0.82
Wallingford	0.73	0.71	0.75
South Lake Union	0.56	0.55	0.57
North Delridge	0.48	0.47	0.49
Belltown	0.41	0.40	0.42
Pioneer Square	0.22	0.21	0.22
Madrona	0.18	0.17	0.18
Seward Park	0.10	0.10	0.10
Central Business District	0.08	0.07	0.08
First Hill	0.06	0.05	0.06
Ravenna	0.05	0.05	0.05
Pike-Market	0.03	0.03	0.03
TOTAL	**211.65**	**206.66**	**216.63**

Results by zone class

Zone Class	**Acres of Development Threatened Canopy in EJ Priority Areas**		
	Mean Estimate	**Lower 95% CI Estimate**	**Upper 95% Estimate**
Lowrise	100.23	97.87	102.59

Neighborhood Commercial	47.33	46.21	48.44
Commercial	26.46	25.84	27.08
Industrial	14.04	13.71	14.37
Midrise	11.20	10.94	11.46
Seattle Mixed	8.78	8.58	8.99
Downtown	3.60	3.52	3.68
TOTAL	211.65	206.66	216.63