



# The Fairhaven Neighbors Urban Tree Canopy and Biodiversity Analysis and Report

■ Project Sponsors: Fairhaven Neighbors and the City of Bellingham



# Contents

<b>1. Introductions</b>	<b>3</b>
1.1 The Fairhaven Neighborhood	3
1.2 40% Urban Tree Canopy by 2040 Project	5
1.3 Benefits of Urban Street Trees and Biodiversity	6
<b>2. Neighborhood Site Analysis</b>	<b>8</b>
2.1 Right of Way Street Trees and Biodiversity Inventory	8
2.1 Right of Way Street Trees and Biodiversity Recommendations	10
2.2 Fairhaven Residential Street Typologies Planting Examples and Species Recommendations	11
<b>3. Conclusion</b>	<b>12</b>
3.1 Bibliography	12
3.2 Additional Resources	12
3.3 About the Author	13
<b>4. Appendix</b>	<b>14</b>
4.1 Neighborhood Inventory Maps	14

# 1. Introductions

## The Fairhaven Neighborhood

The Fairhaven Neighborhood sits on the Bellingham Bay waterfront, south of Bellingham's downtown, and is within the Bellingham Bay and Padden Creek watersheds. This area was first occupied by the Coast Salish Lhaq'temish people for nearly 12,000 years. The Coast Salish people were sustained by the coastal bounty of shellfish harvesting, salmon fishing, villages, and abundant natural resources near the water's edge. In 1855, Fairhaven was one of three original pioneer settlements that merged to become the City of Bellingham in 1904.

In 2023, the Fairhaven Neighborhood is considered a City of Bellingham Urban Village with 362 single-family residents and 1,215 multi-family residents (City of Bellingham Estimated Population and Housing Unit Model). The commercial center of Fairhaven is registered as a National Register Historic District, with 17 historic and infill buildings with commercial space and residential housing. An industrial base owned and leased by the Port of Bellingham lies within the neighborhood along with several

large-scale businesses: the Fairhaven Waterfront Transportation Center, which includes the Alaskan Ferry and Amtrak terminals, and a bus station on the western edge.

Padden Creek flows through Fairhaven, surrounded by a greenway and a multimodal trail that follows the creek through Fairhaven to Bellingham Bay, providing an important connection for the community and a critical habitat for salmon and other urban wildlife. The original coastline of this neighborhood was much higher and included estuary tidelands spanning out from Padden Creek and the Post Point Estuaries. The tidelands were used to farm shellfish; the bay was used to fish for salmon and other native species. Some remaining coastal waterfront maritime plant communities and lowland coastal forests can be seen in various restoration planting along the Padden Creek estuary.



Photo by J. Wayland Clark, c. 1905. Whatcom Museum no. 1971.93.7 Lummi canoes on the beach at the foot of McKenzie Avenue, Fairhaven. Photo taken from the Great Northern trestle looking east. O. E. Garland's building at left with sign "Boats To Let."



"View of 'Bellingham' [the village just across the water] from Fairhaven in 1884. Fairhaven consisted / of Dan Harris, his story & a half, square-front building, a flagpole and a small dock. / Only Dan is visible in the picture having beached his boat a few / rods east of the dock. Whatcom in the distance." "For Edith (Sis) / Christmas 1915." Whatcom Museum no. X.5284



The earliest known photograph of Fairhaven, this view appeared on the front page of the First Holiday Edition of the Fairhaven Herald, December 29, 1890, with the caption "Fairhaven, September 1889 — population 150." To show Fairhaven's phenomenal growth, this photo was to be compared to a similar photo taken in September 1890, when the city boasted a population of 7,000. Whatcom Museum no. 1996.10.5644

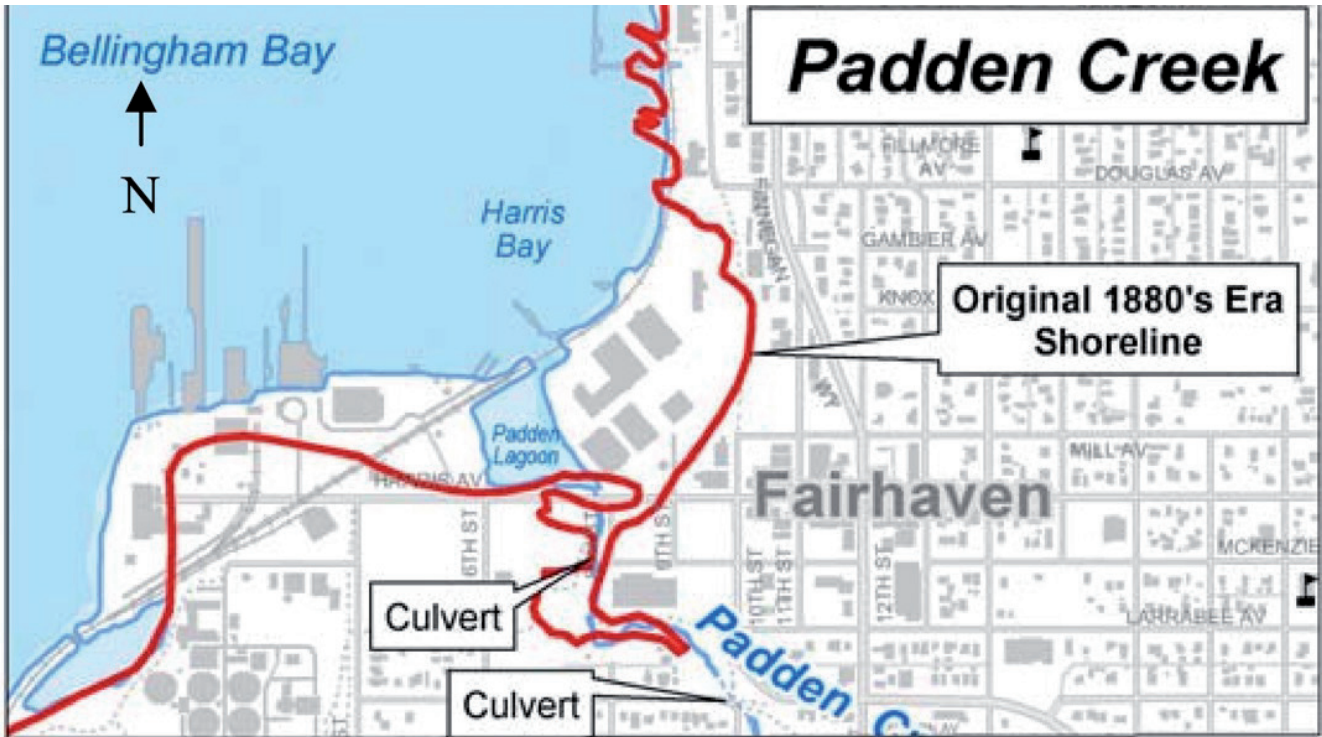


Image Credit: Port of Bellingham Comprehensive Improvement Plan

## 40% Urban Tree Canopy by 2040 Project

The '40% Urban Tree Canopy by 2040' effort is led by the Fairhaven Neighbors to increase the tree canopy in the residential areas of Fairhaven.

The Fairhaven Neighbors would like this project to meet the following goals:

- **Protect Padden Creek & other vital water resources by reducing stormwater runoff**
- **Promote carbon sequestration – removal of carbon dioxide from the atmosphere and storage in solid or liquid form**
- **Produce healthier, more erosion-resistant, fertile soils (by planting 'nitrogen fixers')**
- **Provide a nurturing habitat for pollinators**

The project team includes key neighborhood leaders from the Fairhaven Neighbors, volunteer residents, and COurban, the lead consultant of this study. With the City of Bellingham Small and Simple grant funding, the COurban and the Fairhaven Neighbors led a workshop to educate the neighborhood community members about the project and educate volunteers about how to take inventory of existing vegetation and street trees in the Public Right of Way Residential Areas.

A primary goal of the volunteer urban tree and biodiversity inventory is to establish locations for future planting given the neighborhood geography, habitats, transportation patterns, and where space is available in the City's Right of Way (ROW). Some areas were found to be better equipped for adding biodiversity and urban tree planting.

This data provides a base level of information that must be incorporated with other factors such as the City of Bellingham permitting, residents' and property owners' needs, and site conditions to increase biodiversity and tree canopy in the Fairhaven Neighborhood.

# Benefits of Urban Street Trees and Biodiversity

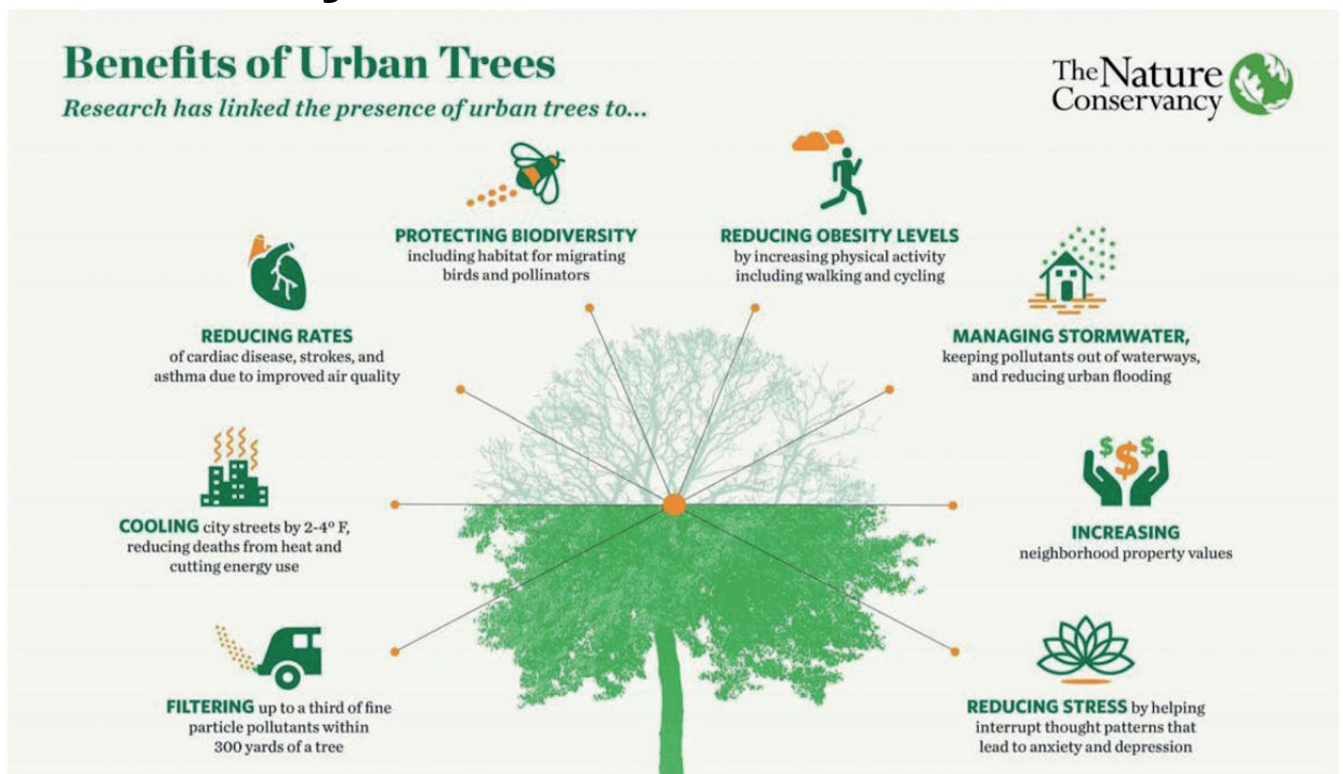
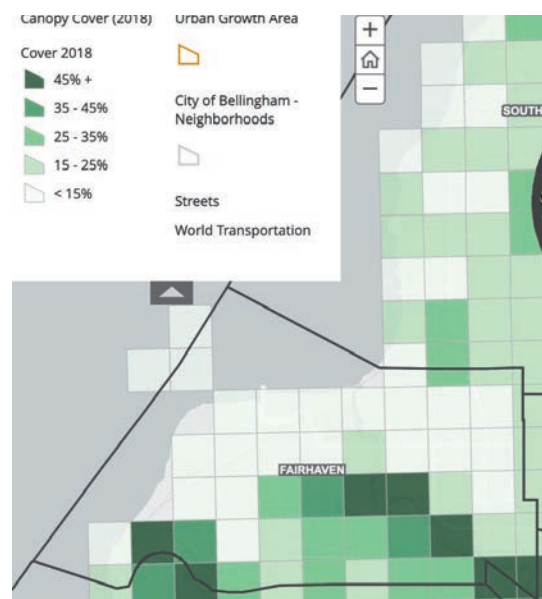


Diagram Credit: The Nature Conservancy

Urban street trees and biodiverse planting can help support habitat for pollinators, birds, and our community. Each habitat-friendly native garden and planting project can symbiotically strengthen existing/future landscapes, building habitats and connecting habitat corridors.

A 2013 tree canopy study by the City of Bellingham shows that the Fairhaven neighborhood includes a semi-connected patchwork of urban habitat. The areas along the greenways have more than 45% canopy coverage and 15-35% canopy coverage in the residential areas and around the waterfront. Connecting these habitats through planting corridors and increasing canopy coverage with street trees and pollinator-friendly understory will encourage the growth of Fairhaven’s urban biodiversity and habitat.



Fairhaven Neighborhood Existing Tree Canopy Map, 2018 Source: City of Bellingham

A recently published study by the Yale School of the Environment found that a projected urban expansion (worldwide) of up to 1.53 million square kilometers over the next three decades threatens the survival of more than 800 plant and animal species. The study suggests that focusing on urban planning that protects habitats and biodiversity can mitigate the impact, especially if prioritized and done widely.

Another study found that urban land expansion is a significant driver of habitat loss for about one-third of these species (Rhoan et. Al 2022). The authors of these studies suggest that “Cities are part of the solution...” and “We can build cities differently than we have in the past. They can be good for the planet; they can save species; they can be biodiversity hubs and save land for nature.”

## Carbon Sequestration and Public Health

Prioritizing urban trees and increasing the municipal tree canopy are proven ways to manifest a healthy environment, air quality, temperature regulation, and community. Trees act as a sink for carbon dioxide by fixing carbon during photosynthesis and storing carbon as biomass (Nowak et al., 2013). According to the Environmental Protection Agency, forests in the United States remove about 800 million tons of climate-warming carbon dioxide from the atmosphere every year, including close to 45 million tons specifically from “urban forests” — a term that encompasses a wide variety of configurations of trees ranging from individual street trees to large parks and nature preserves (“Inventory of US Greenhouse Gas Emissions and Sinks” 2023). As global temperatures increase, the need for shade commensurately increases along with the natural filtering effect foliage provides for smokey, exhaust-affected air quality.

Furthermore, a Toronto study found lower incidences of cardiovascular disease in neighborhoods with higher tree density (Kardan et al. 2015), along with several other qualitative studies showing that residents in communities with more trees feel a greater sense of connectedness, belonging, and trust.

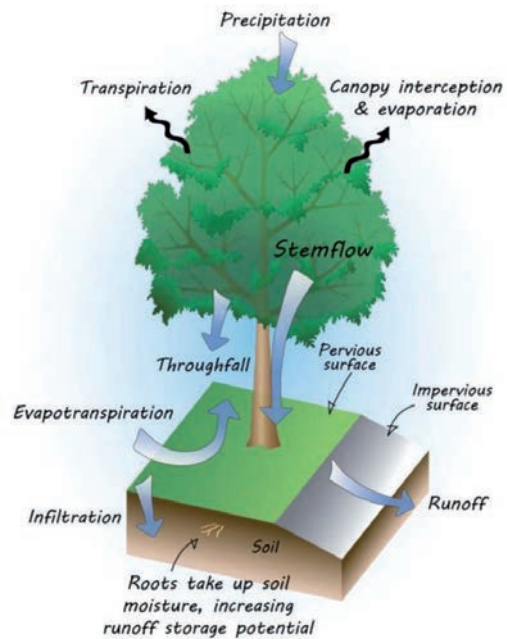


Diagram credit: (Environmental Protection Agency, 2013)

## Stormwater and Rainwater Filtration

Trees play a critical role in stormwater/rainwater management by controlling the amount of runoff that enters stormwater systems and drains to our local waterways, having a filtering effect that acts to separate aggregates and pollutants. Street trees and native planting can, in turn, decrease the amount of runoff, helping to reduce local flooding and stormwater overflow. The Environmental Protection Agency’s diagram below helps explain trees’ critical role in our wilderness and urban environments. In the Fairhaven Neighborhood, the street trees and the understory can help filter pollutants from our vehicles and roadways, improve water quality, and diminish flooding in Padden Creek and the Bellingham Bay estuary.

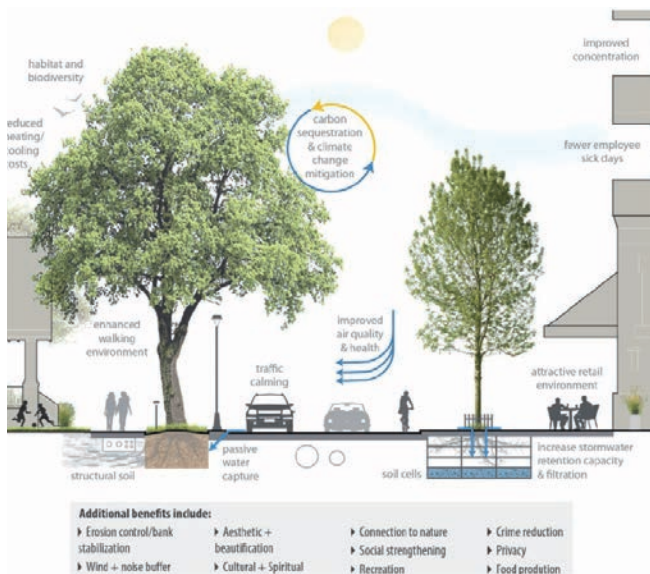


Diagram credit: A4Arch

# 2. Neighborhood Site Analysis

## Right of Way Street Trees and Biodiversity Inventory

In Fall 2023, the Fairhaven Neighborhood biodiversity and tree canopy patches were identified by volunteer-led inventory and the COurban's data collection. Sites for potential understory and canopy planting were identified. All potential sites are outlined in the table labeled site 'Street Tree and Biodiversity Planting Locations' and the corresponding map.

An additional priority site was identified for planting trees and adding biodiversity along 4th Avenue above the City's sewage treatment plant and dog park, providing an essential habitat edge to the Bellingham Bay estuary, heron rookery, and waterfront habitat below the residents.

### Right of Way Street Tree and Biodiversity Planting Locations

Locations	Site Notes
<b>RT-1</b> Knox Ave ROW (Between 12 <sup>th</sup> St & Finnegan Way) 13 <sup>th</sup> Street & Mill Ave	Potential Pollinator Corridor Site for Understory and Street Tree Planting Pollinator Understory and Residential Street Trees
<b>RT-2</b> 4 <sup>th</sup> Street Condominiums SW 8 <sup>th</sup> Ave & Donovan Ave Corner	Pollinator Understory and Multi-family Residential Street Trees Pollinator Understory and Multi-family and Residential Street Trees
<b>RT-3</b> SW Corner of Wilson Ave & 6 <sup>th</sup> Ave 440 & 444 Donovan Ave 905, 907, & 911 Wilson Ave 1714 12 <sup>th</sup> St	Pollinator Understory Planting and Multi-family Street Trees Pollinator Understory and Residential Street Trees Pollinator Understory and Residential Street Trees Residential Corner Lot with Pollinator Understory Planting and Street Trees
<b>RT-4</b> 1308 Larrabee Ave 1309 & 1315 Old Fairhaven Parkway	Pollinator Understory and Residential Street Trees Pollinator Understory and Residential Street Trees

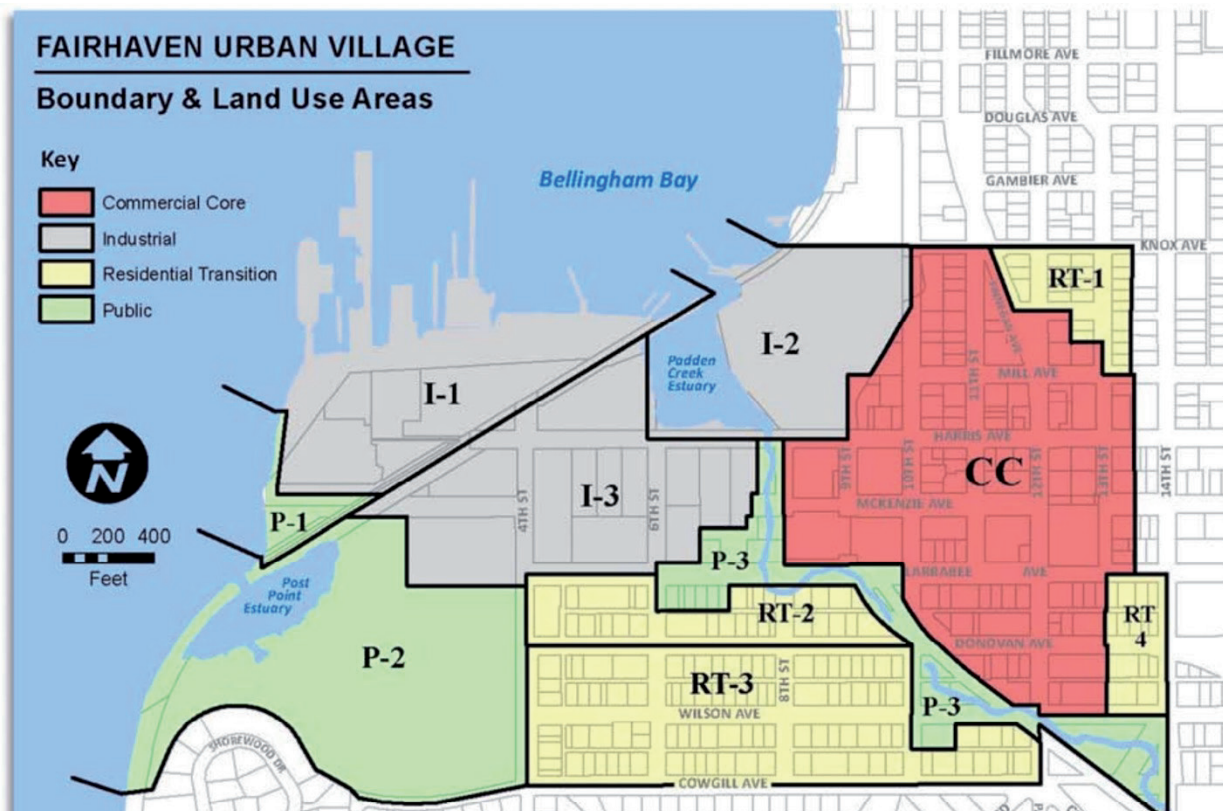


Image credit: The Fairhaven Urban Village Boundary and Land Use Areas Map, the Fairhaven Neighborhood Comprehensive Plan, City of Bellingham

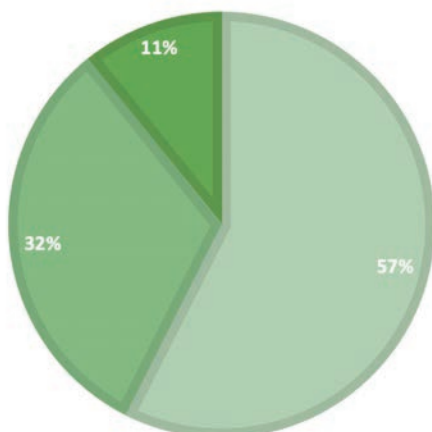




## Right of Way Street Tree and Biodiversity Planting Location Map

### Right of Way Existing Tree Species

■ Deciduous Trees   
 ■ Coniferous Trees   
 ■ Broadleaf Evergreen Trees

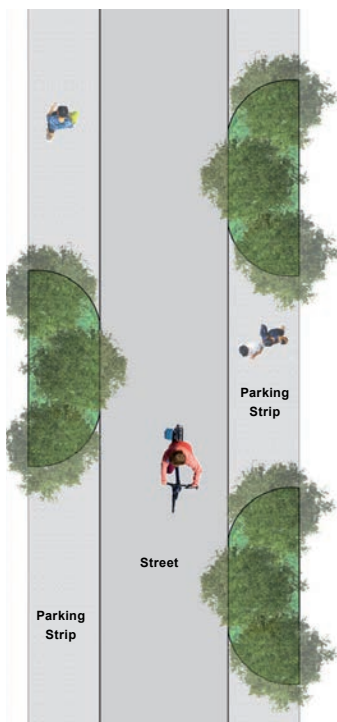


The inventory analysis found that most of the trees in the ROW are deciduous. This could be because most approved COB street trees are deciduous on the approved street tree list. The approved COB street tree list includes site constraints and required tree size information. The utilities underground or surrounding streetscape site lines can also inform the tree species' permit decision. The tree recommendations chart in this report suggests some deciduous and understory trees to plant, and most plants will fit in areas identified as potential planting sites. Each site planting will need to be specifically designed with the site conditions and COB approval is needed for tree species not listed on the approved street tree list.

# Fairhaven Neighborhood Right of Way Street Tree and Biodiversity Recommendations

## Fairhaven Residential Street Typologies Planting Examples

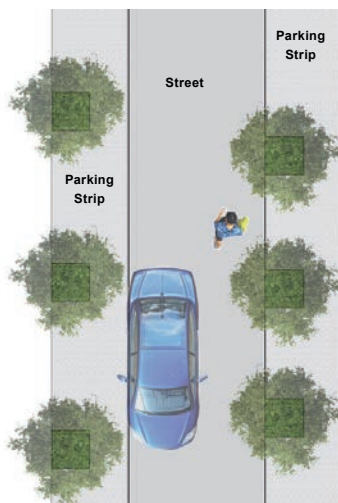
**Street Tree and Pollinator Understory Cluster Planting**



**Sidewalk Planting Strip Street Tree and Pollinator Understory Corridor Planting**



**Single Street Tree and Pollinator Understory Planting**



# Street Tree Species Recommendations

## Light - Full Sun Tree Species



Serviceberry spp., Amelanchier x grandiflora "Autumn Brilliance" or Amelanchier canadensis

## Light - Full Shade Tree Species



Garry Oak, Quercus garryana



Eddies White Wonder Dogwood, Cornus 'Eddies White Wonder'

# Native Understory Shrub and Groundcover Pollinator Species

## Light - Full Sun Pollinator Species



Sea Thift, Armeria maritima

Oregon sunshine, Eriophyllum lanatum

Sea Shore Lupin, Lupinus littoralis

Great Camas, Camassia leichtlinii

Indian Paintbrush, Castilleja

Goldenrod, Solidago

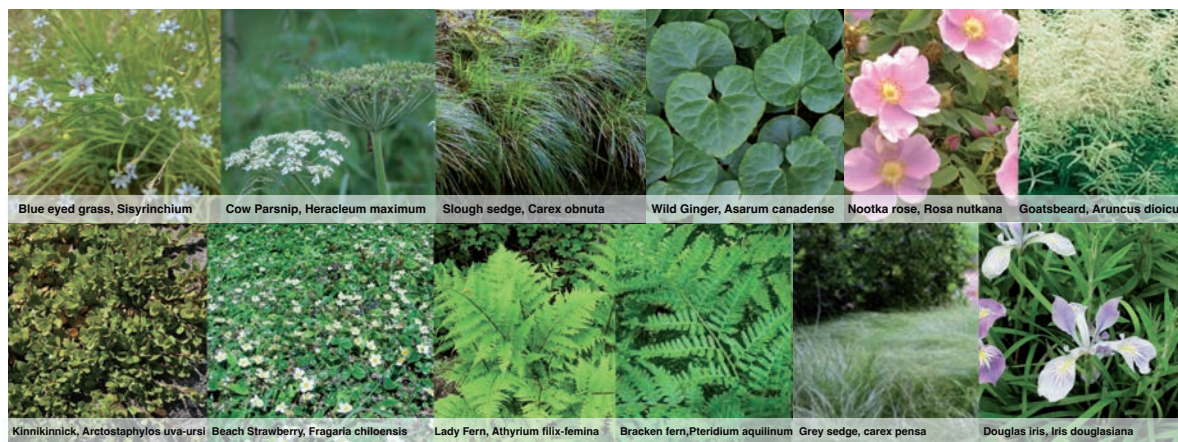
Cow Parsnip, Fritillaria biflora

Douglas aster, Symphyotrichum subspicatum Nodding onion, Allium cernuum

Yarrow, Achillea millefolium

Showy fleabane, Erigeron speciosus

## Light - Full Shade Pollinator Species



Blue eyed grass, Sisyrrinchium

Cow Parsnip, Heracleum maximum

Slough sedge, Carex obtusa

Wild Ginger, Asarum canadense

Nootka rose, Rosa nutkana

Goatsbeard, Aruncus dioicus

Kinnikinnick, Arctostaphylos uva-ursi

Beach Strawberry, Fragaria chiloensis

Lady Fern, Athyrium filix-femina

Bracken fern, Pteridium aquilinum

Grey sedge, Carex pensa

Douglas Iris, Iris douglasiana

# 3. Conclusion

This report outlines the many environmental and public health benefits of increasing tree canopy and biodiversity in the Fairhaven Neighborhood, especially with street trees in urban areas. Healthier communities have higher percentages of tree canopies (often described as leafy neighborhoods). With assistance from the community members, the Fairhaven Neighborhood can now strategically decide where to add more tree canopy and wildlife habitat and how to grow their program.

## Bibliography

Environmental Protection Agency, E. (2013) Stormwater to street trees: Engineering Urban Forests for ... - US EPA, EPA.gov. Available at: <https://www.epa.gov/sites/default/files/2015-11/documents/stormwater2streettrees.pdf> (Accessed: 2 December 2023).

“Inventory of US Greenhouse Gas Emissions and Sinks.” 2023. Epa.gov. Environmental Protection Agency. <https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf>.

Kardan, Omid, Peter Gozdyra, Bratislav Misic, Faisal Moola, Lyle J. Palmer, Tomáš Paus, and Marc G. Berman. 2015. “Neighborhood Greenspace and Health in a Large Urban Center.” *Scientific Reports* 5 (1). <https://doi.org/10.1038/srep11610>.

Nowak, D.J. et al. (2013) ‘Carbon Storage and sequestration by trees in urban and community areas of the United States,’ *Environmental Pollution*, 178, pp. 229–236. doi:10.1016/j.envpol.2013.03.019.

Rohan D. Simkin, Karen C. Seto, Robert I. McDonald, Walter Jetz. Biodiversity impacts and conservation implications of urban land expansion projected to 2050. *Proceedings of the National Academy of Sciences*, 2022; 119 (12) DOI: 10.1073/pnas.2117297119

Simkin, Rohan D., Karen C. Seto, Robert I. McDonald, and Walter Jetz. 2022. “Biodiversity Impacts and Conservation Implications of Urban Land Expansion Projected to 2050.” *Proceedings of the National Academy of Sciences of the United States of America* 119 (12): e2117297119. <https://doi.org/10.1073/pnas.2117297119>.

Yale University. “Cities can be part of the solution in sustaining species.” *ScienceDaily*. [www.sciencedaily.com/releases/2022/03/220314154353.htm](http://www.sciencedaily.com/releases/2022/03/220314154353.htm) (accessed December 2, 2023).

## Additional Resources

City of Bellingham Street Tree Permit Information

<https://cob.org/services/recreation/parks-trails/parks-guide/trees>

## About the author:

Katy Scherrer, is a landscape architect and community planner whose work focuses on connecting landscape architecture to community and environmental health. As a co-founder of the COurban Design Collective and owner of Katy Scherrer Landscape Design, Katy has gained regional and international design experience working with a variety of stakeholders, including land trusts, NGOs, municipalities, as well as public and private developers.

With her organization COurban, she has led groups of officials from city, state, and tribal agencies and NGOs to Scandinavia with the objective of studying public spaces and life, multi-modal design and planning, and urban livability. As a landscape architect, Katy has developed landscape plans for public parks, community centers, retreat centers, and multi-family developments while also conducting public outreach and community placemaking through participatory design forums in northwest Washington communities. As a collaborator, Katy seeks to facilitate the design process for each project and works with groups to give voice to all members in the development of thriving, diverse communities.

Katy currently volunteers as a Commission Member on the City of Bellingham Transportation Commission. Her most current COurban research project has centered around urban design, air quality, and children's health. She loves immersing herself in new cultures and exploring the outdoors. You can spot her riding her bike around town, playing tennis, or out exploring the Pacific Northwest.

Credentials: Masters in Landscape Architecture, University of Washington | B.A. Environmental Design, The Evergreen State College

Katy Scherrer Landscape Design

Website: [katyscherrerlandscapedesign.com](http://katyscherrerlandscapedesign.com)

Email: [scherrerkaty@gmail.com](mailto:scherrerkaty@gmail.com)

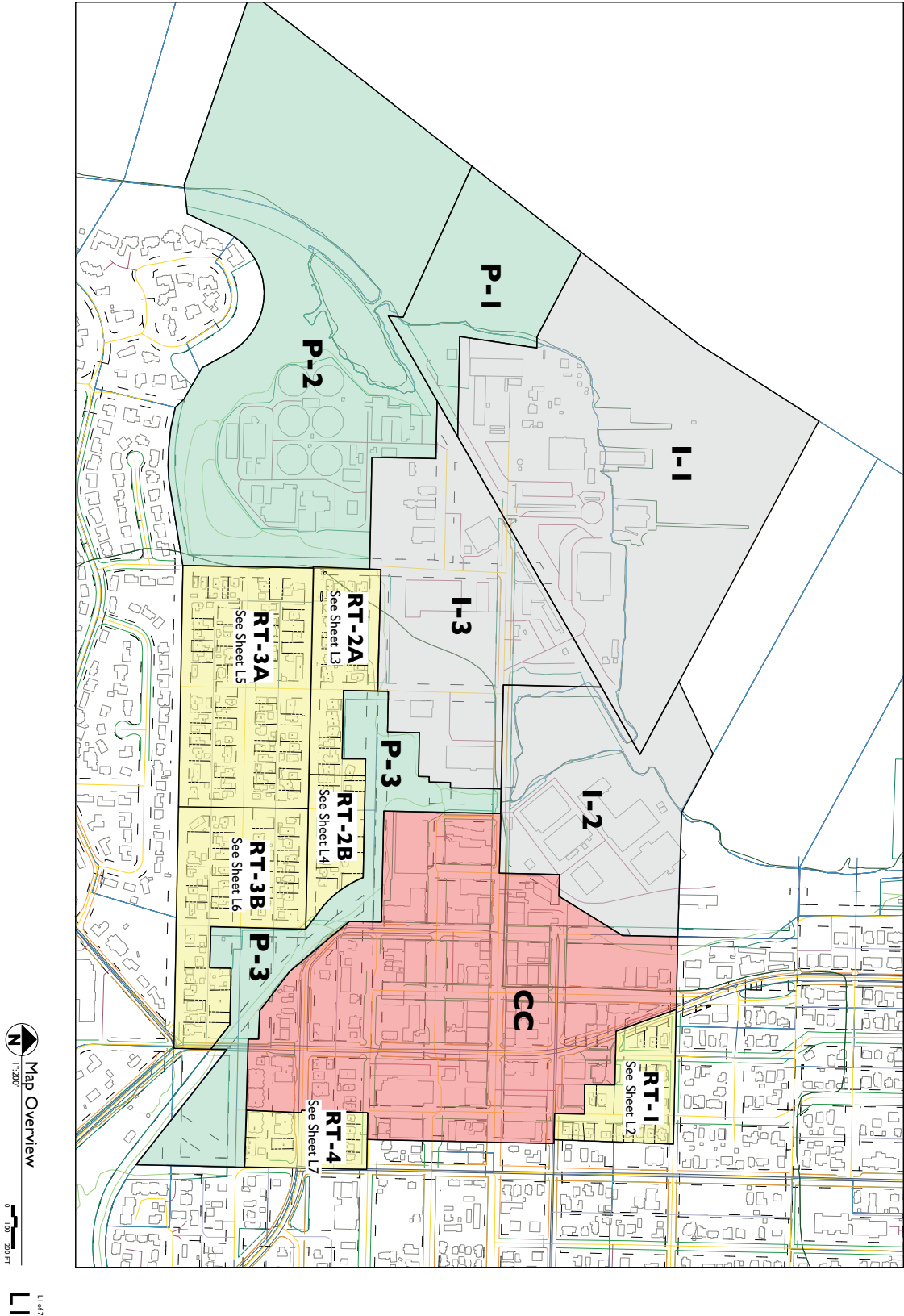
COurban Design Collective

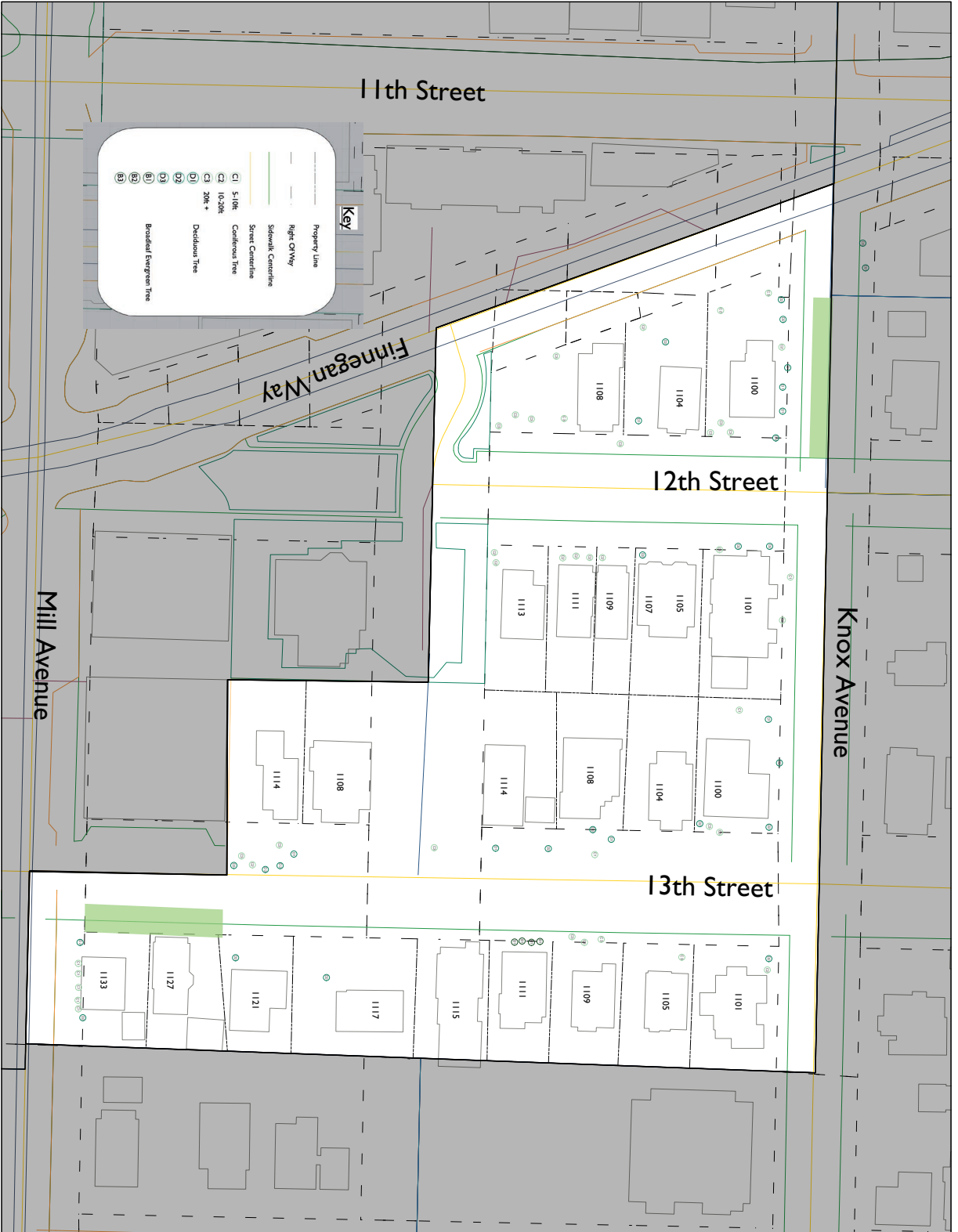
Website: [www.courban.co](http://www.courban.co)

Email: [katy@courban.co](mailto:katy@courban.co)

# 4. Appendix

## Neighborhood Inventory Maps

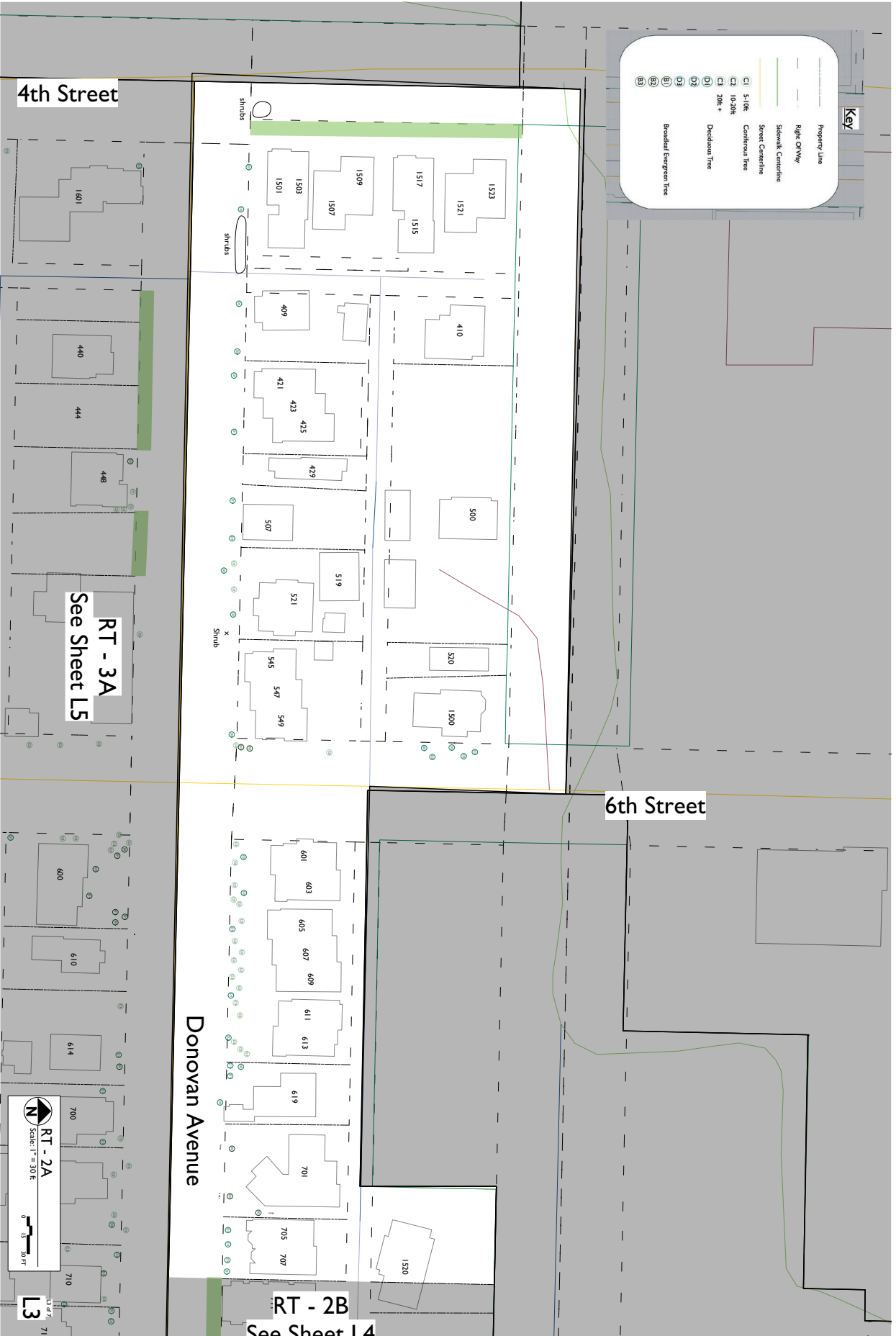




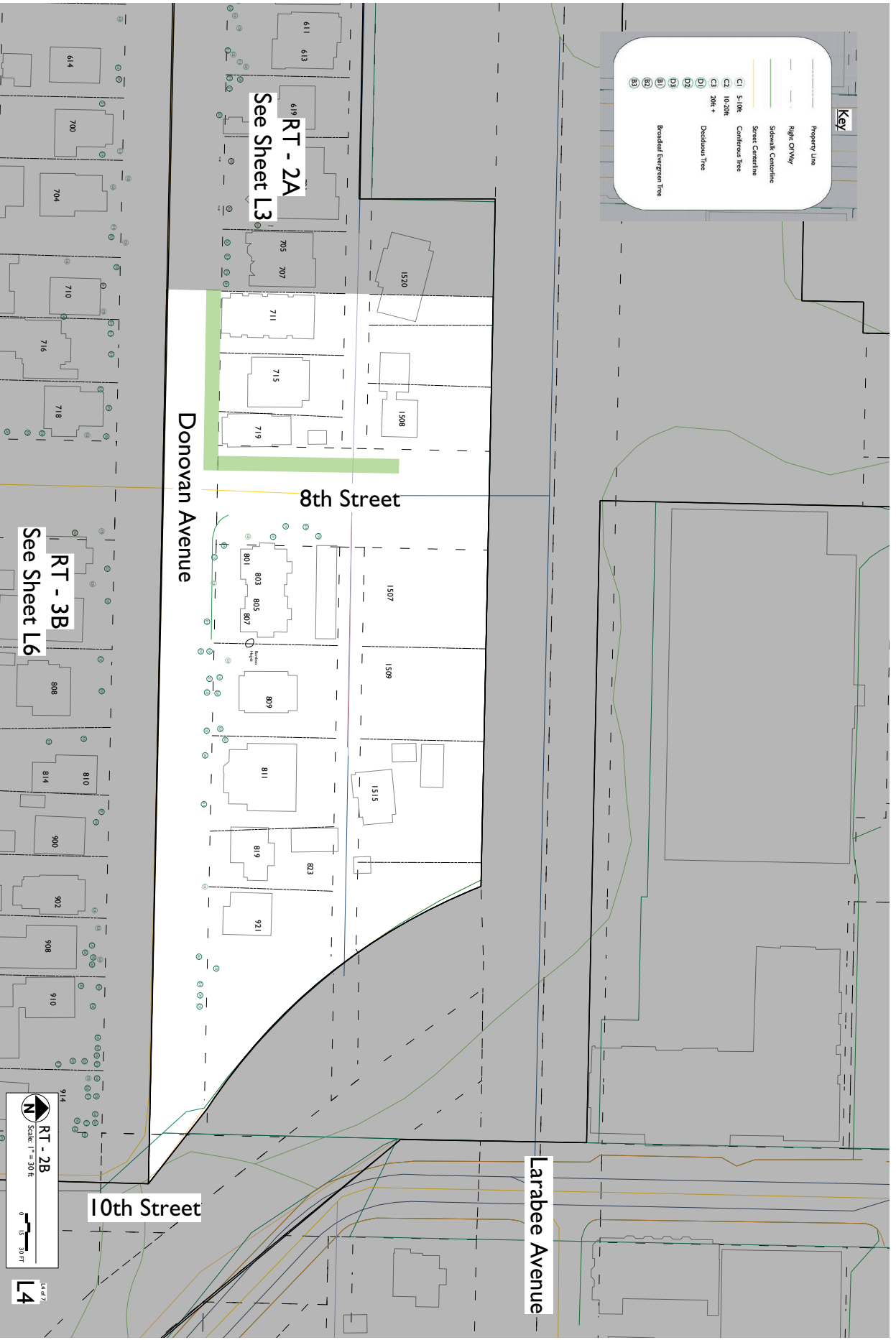
RT - 1  
Scale: 1" = 30' ±

0' 15' 30' FT

L2  
12.d/7







**Key**

- Property Line
- Right of Way
- Sidewalk Centerline
- Street Centerline
- C1 5-10ft Coniferous Tree
- C2 10-20ft Coniferous Tree
- C3 20ft+ Coniferous Tree
- D1 Deciduous Tree
- D2 Deciduous Tree
- D3 Deciduous Tree
- B1 Broadleaf Evergreen Tree
- B2 Broadleaf Evergreen Tree
- B3 Broadleaf Evergreen Tree

RT - 2B  
 Scale: 1" = 30' 0"  
 0 15 30 FT

L4 of 7  
 L4

RT - 2A  
 See Sheet L3

RT - 3B  
 See Sheet L6



RT - 2A  
See Sheet L3

RT - 3A  
Scale: 1" = 30 ft  
0 15 30 ft

RT - 3B - See Sheet L6

RT - 2B - See Sheet L4

Donovan Avenue

RT - 3A - See Sheet L5

8th Street

Wilson Avenue

Cowgill Avenue

10th Street

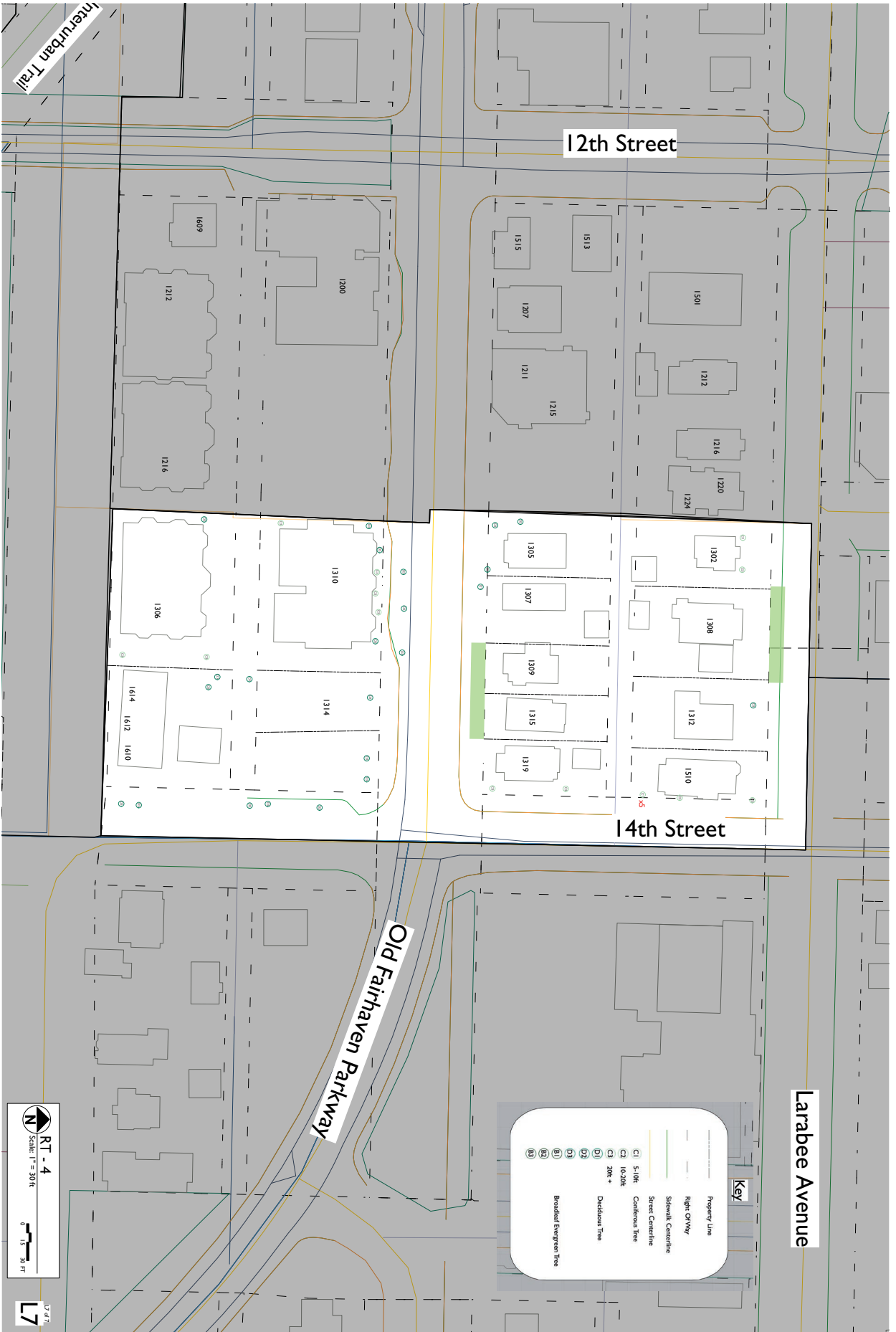
Interurban Trail

**Key**

- Property Line
- Right-of-Way
- Sidewalk Centerline
- Street Centerline
- 5-10ft Callout Tree
- 10-20ft Callout Tree
- 20ft+ Callout Tree
- Deciduous Tree
- Broadleaf Evergreen Tree

RT - 3B  
Scale: 1" = 30 ft

L6



Larabee Avenue

12th Street

14th Street

Old Fairhaven Parkway

Interurban Trail