



PBOT
PORTLAND BUREAU OF TRANSPORTATION

Trees in the Curb Zone

External Briefing



Grant Award

- The Bureau of Environmental Services (BES) recently awarded the Portland Bureau of Transportation (PBOT) \$500,000 from its "Percent for Green" program.
- The Percent for Green program collects a percent of development charges and uses that money to fund large-scale green infrastructure projects that provide broad benefits for watershed health and the community.

Project Goal:

The goal of this project is to develop a framework for tree planting in the curb zone, in collaboration with Portland Parks & Recreation's Urban Forestry team, Bureau of Environmental Services, and others, with the end goal of constructing tree space in the curb/parking zone.

Why Tree Planting in the Curb Zone

Street trees:

- Provide green stormwater management
- Can mitigate urban heat island effect, urban air pollution
- Can be used as a traffic calming enhancement
- Can extend street's livability (slower pavement deterioration)
- **We often don't have enough right of way behind the curb, so going into the parking zone may be our only option**



Why Tree Planting in the Curb Zone

- **PedPDX**
 - **Action 8.6** - Given limited space in the right-of-way, this may include increasing the size of the furnishing zone, **providing trees within the curb zone intermittent with on-street parking**, providing soil cells and/or continuous planting strips (rather than tree pits) to allow roots space to grow without disturbing infrastructure above.
- **Pedestrian Design Guide**
 - **B.5.3 Extending the Furnishing Zone into the Curb Zone** - Where Furnishing Zone widths prescribed in Table B-3 cannot be met, frontage improvement applications and capital projects are required to evaluate the feasibility of extending the Furnishing Zone into the curb zone to provide the required width.

Strategy 8

Construct and maintain obstruction-free sidewalks

ACTION 8.6

PEDPDX OBJECTIVES ADDRESSED

Update right-of-way design standards to provide sufficient room for trees.

In addition to their many environmental benefits, Portland's urban forest contributes to a more comfortable and pleasant walking and rolling experience. Trees provide shade and a physical buffer from traffic, and noise and contribute to Portland's quality of place.

Given the mobility, accessibility, environmental, and place-making demands on PBOT's streets and limited space to accommodate all of these needs, tradeoffs about how to design and allocate space within rights-of-way must be made. PBOT's Streets 2035 effort will establish decision-making frameworks for various street types to help clarify priorities when various demands on the right-of-way compete for space, including pedestrian and bicycle facilities, transit needs, vehicular mobility, on-street parking, stormwater infrastructure, and street trees.

Given limited space in the right-of-way, this may include increasing the size of the furnishing zone, providing trees within the curb zone intermittent with on-street parking, providing soil cells and/or continuous planting strips (rather than tree pits) to allow roots space to grow without disturbing infrastructure above.

Considerations

Urban Forestry will work closely with the Streets 2035 project manager in clarifying right-of-way needs and tradeoffs regarding street trees, including reconciling against competing needs in the right-of-way. The location of underground utilities may impact the feasibility of locating street trees within on-street parking zones.

Providing street trees within the curb zone intermittent with on-street parking can help maximize space within narrow rights-of-way.

B.5.3 Extending the Furnishing Zone into the Curb Zone

Where Furnishing Zone widths prescribed in Table B-3 cannot be met, frontage improvement applications and capital projects are required to evaluate the feasibility of extending the Furnishing Zone into the curb zone to provide the required width. This approach may also be used optionally in areas that meet minimum Furnishing Zone width requirements but where larger soil volumes are desired, or where additional "placemaking" is desired.

This strategy may be approved by PBOT if all the following site conditions are present (at a minimum):

- Streets with a Street Design Classification of Local Street, Neighborhood Main Street, or Civic Main Street are preferred, though other street types may be considered.
- There is existing on-street parking or other curb zone uses that allow for the expansion of the curb.
- There is not sufficient room within the sidewalk corridor for a full width Furnishing Zone, per Table B-3 or additional soil volume for trees or stormwater facilities is desired.

- Underground utilities (e.g., water, gas, etc.) are not located within prohibitive distances from where a tree would be planted or stormwater facility within the extension. Refer to the [City Tree Planting Standards](#) and the [Stormwater Management Manual](#) for more details.

- Movement of emergency response vehicles is not negatively impacted, and curb extensions into the curb zone do not create traffic circulation impacts associated with modifying curb-to-curb pavement widths.

- The street is not identified in the City's Curb Extension Policy Exemption Map referenced in [Tibb, L. 2018. Curb Extensions for Building and Planning Actions](#).

Where extending the Furnishing Zone into the curb zone is being considered as part of PBOT capital project or as part of a frontage improvement application, PBOT staff will evaluate each of the factors above with Portland Parks and Recreation Urban Forestry and Bureau of Environmental Services staff and make a determination based on these non-exhaustive criteria to determine if curb extensions for trees and stormwater facilities are appropriate. In addition, implications for extending the Furnishing Zone for

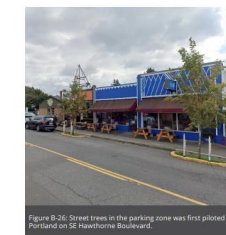


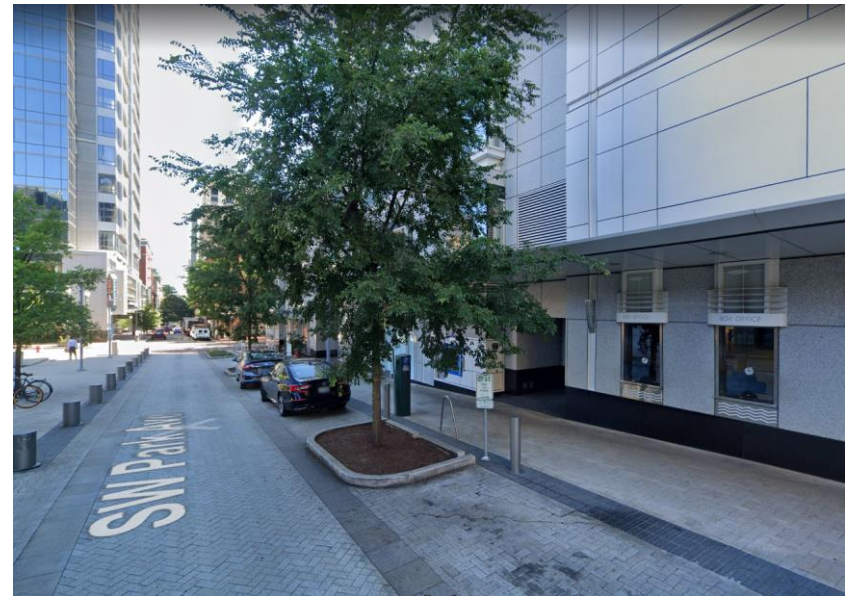
Figure B-26: Street trees on the parking zone as first planned in Portland on SE Hawthorne Boulevard.



Figure B-27: The curb zone can serve as a location for stormwater facilities if a full frontage zone is not available.

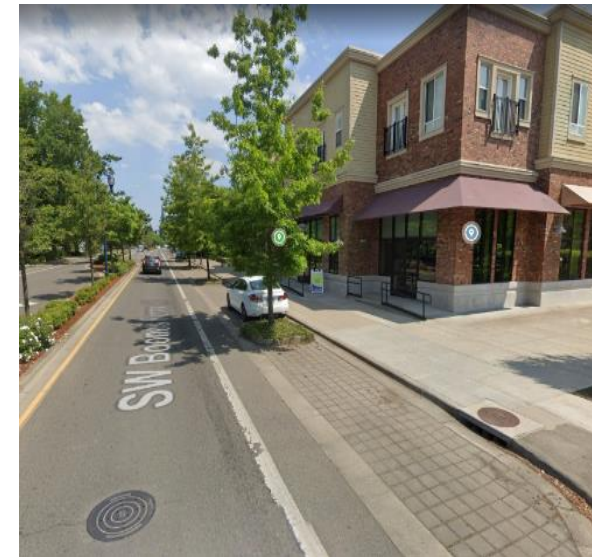
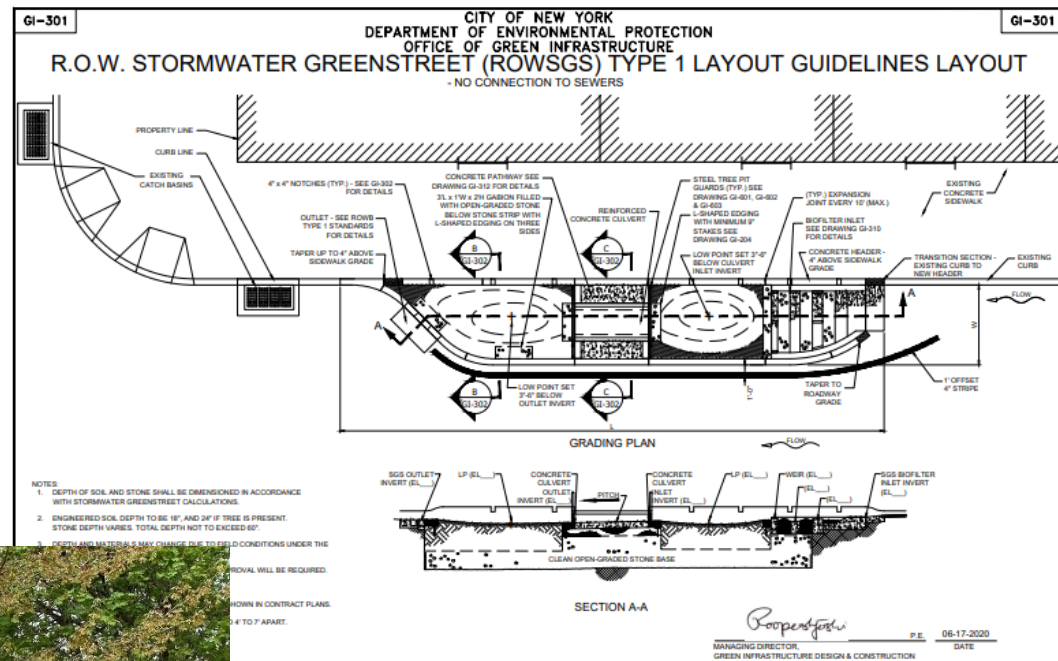
Examples in Portland

- SE Hawthorne & 46th
 - One off installation that PBOT/BES worked on
- Directors Park
 - Full block redesign with the park
- Both designed without any intent to replicate



Peer City Review for Trees in the Parking Zone

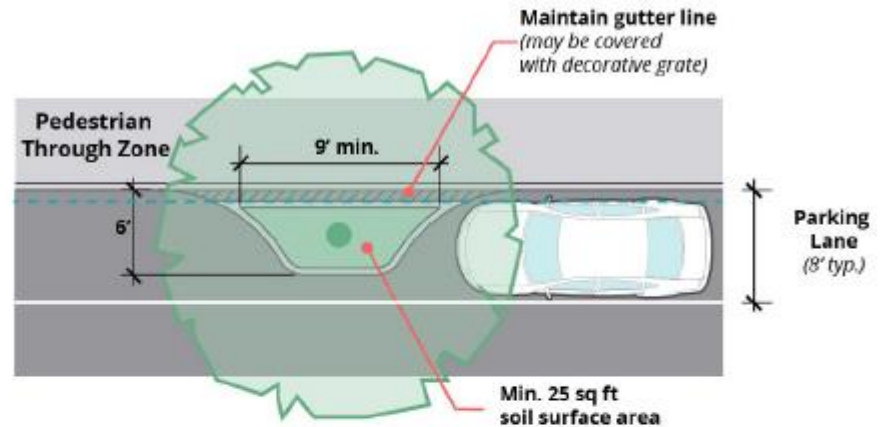
- Seattle, WA
- Frenchtown, NJ
- New York, NY
- Wilsonville, OR
- Oakland, CA
- Reno, NV
- Las Vegas, NV



Criteria for Tree Planting in the Curb Zone in Pedestrian Design Guide

- Existing on-street parking
- Curb tight sidewalk or narrow Furnishing Zone with no existing street trees
- Lack of underground utilities along curb line:
[Portland, Oregon Pressurized Mains | GIS Map Data | City of Portland, Oregon | Koordinates](#)
- Movement of emergency response vehicles is not negatively impacted
- Not on curb extension policy exemption map:
[739562 \(portlandoregon.gov\)](#)
 - Wonky way of saying streets we've said we won't build curb extensions on
- Urban Forestry Street Tree Planting Standards

Option A



Option B

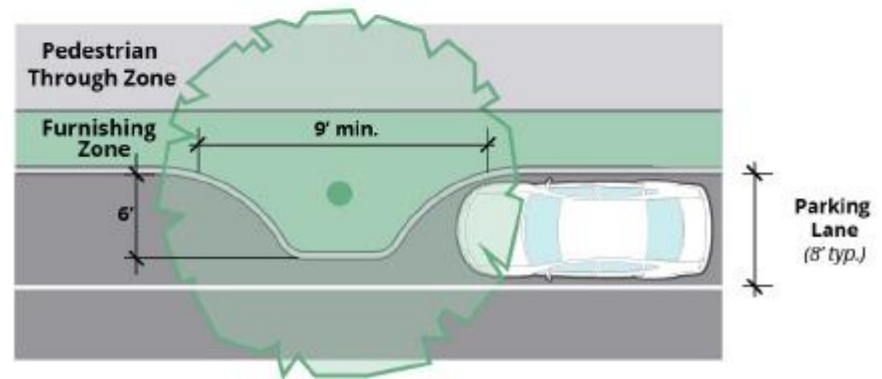


Figure B-29: Options for extending tree wells into the curb zone

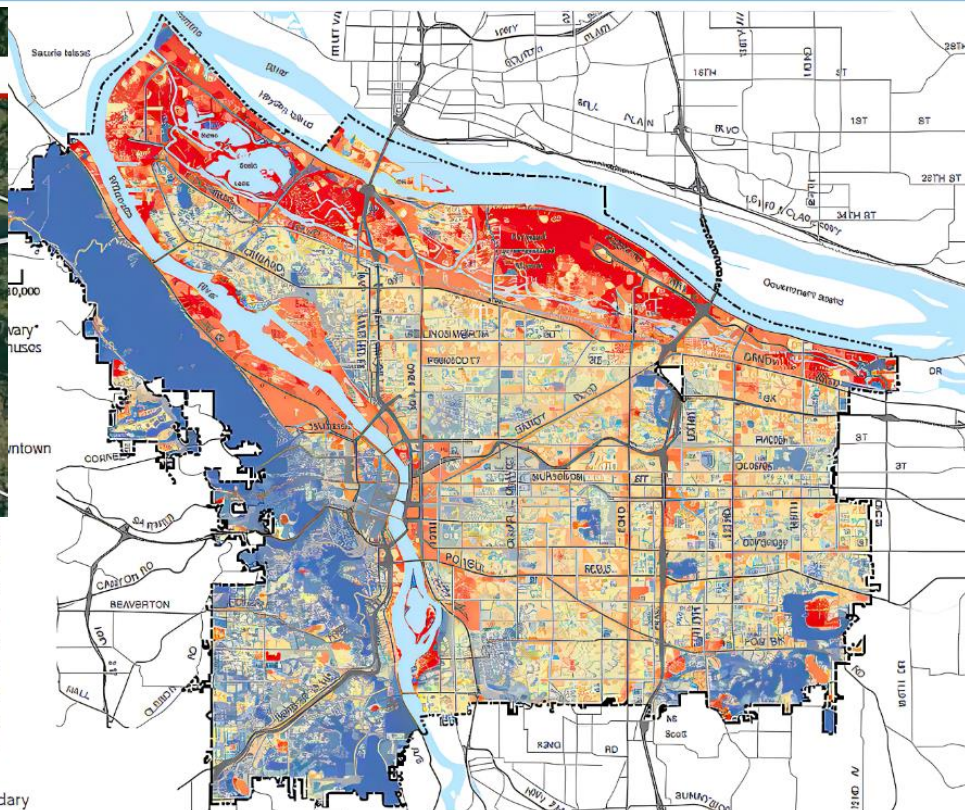
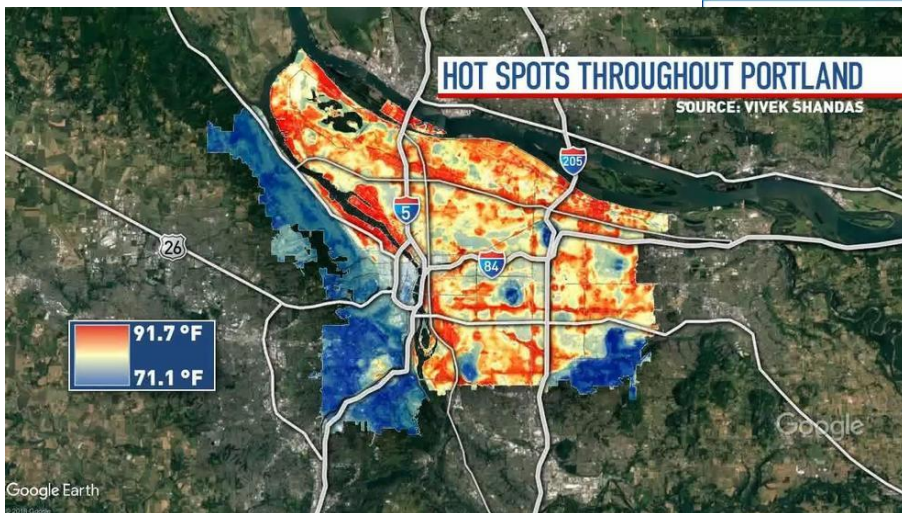
Urban Forestry Tree Planting Standards

Trees shall be spaced no less than the following distances from existing infrastructure:

- i. Fire hydrants: 10' from fire hydrants.
- ii. Water meters: 10' from water meters and water quality sampling stations for large planting sites; 5' for medium and small planting sites.
- iii. Underground utilities: 5' from underground utilities, e.g. water pipes.
- iv. Gas lines: 5' from gas lines for large and medium planting sites, 3' for small planting sites.
- v. Intersections: 25' from a street intersection, measured from the streetside edge of the curb; street trees located at intersections should follow American Association of State Highway and Transportation Officials (AASHTO) requirements for clear site triangles.
- vi. Driveways, walkways, curb cuts, and alleyways: 5' from driveways, walkways, curb cuts, alleyways, and paved paths.
- vii. Stormwater management facilities: for trees outside of stormwater management facilities, 5' from the outside edge of the stormwater management facility; locations of trees planted within stormwater management facilities shall be determined by the Bureau of Environmental Services and the City Forester.
- viii. Property lines: 2' from property lines.
- ix. Building entrances: Trees should not be planted in front of building entrances.
- x. Traffic signals: 25' from traffic signals.
- xi. Street lights: 25' from street lights for large and medium planting sites; 15' for small planting sites; 15' if a narrow-growing tree species or variety of tree is selected.
- xii. Traffic signs: 20' from the front of stop signs; 20' from the front and 5' from the back of other directional and safety signs, such as yield, pedestrian crossing, school, speed limit, etc. Curvy roads may require additional spacing.
- xiii. Other signs: 10' from the front of other signs such as parking, street name, bus stop signs, etc. and 5' from the back of these signs. Curvy roads may require additional spacing.
- xiv. Bus benches and shelters: 5' from bus stop benches and shelters.
- xv. Utility poles: 5' from non-streetlight utility poles.
- xvi. Guy wires: Trees shall be planted outside of guy wires for large planting sites without overhead, high-voltage wires. Trees may be planted inside of guy wires for medium and small planting sites and large planting sites with overhead, high-voltage wires if the tree is at least 10' from the anchor and 5' from the pole and provided there is room for the tree to grow around the wire.
- xvii. Existing trees: 25' from adjacent trees, measured trunk center point to trunk center point.
- xviii. Overhanging canopy: Street trees should not be planted under existing tree canopy if there will be a conflict as the tree matures. Tree size at maturity should be considered.
- xix. Existing landscaping: Existing shrubs, raised beds, pavers, and other landscaping may be considered when locating a street tree for planting. These items should not prevent a street tree from being planted when required.

Additional Criteria for this Project

- East of 82nd Ave and/or lower SE
 - Known deficiency in tree canopy; urban heat island issues
- Higher Urban Heat Index



June 11, 2015
Source: Sustaining Urban Places Research Lab, Portland State University, 2015.

SE Holgate at I-205



SE Woodstock at 86th



SE Duke at 75th

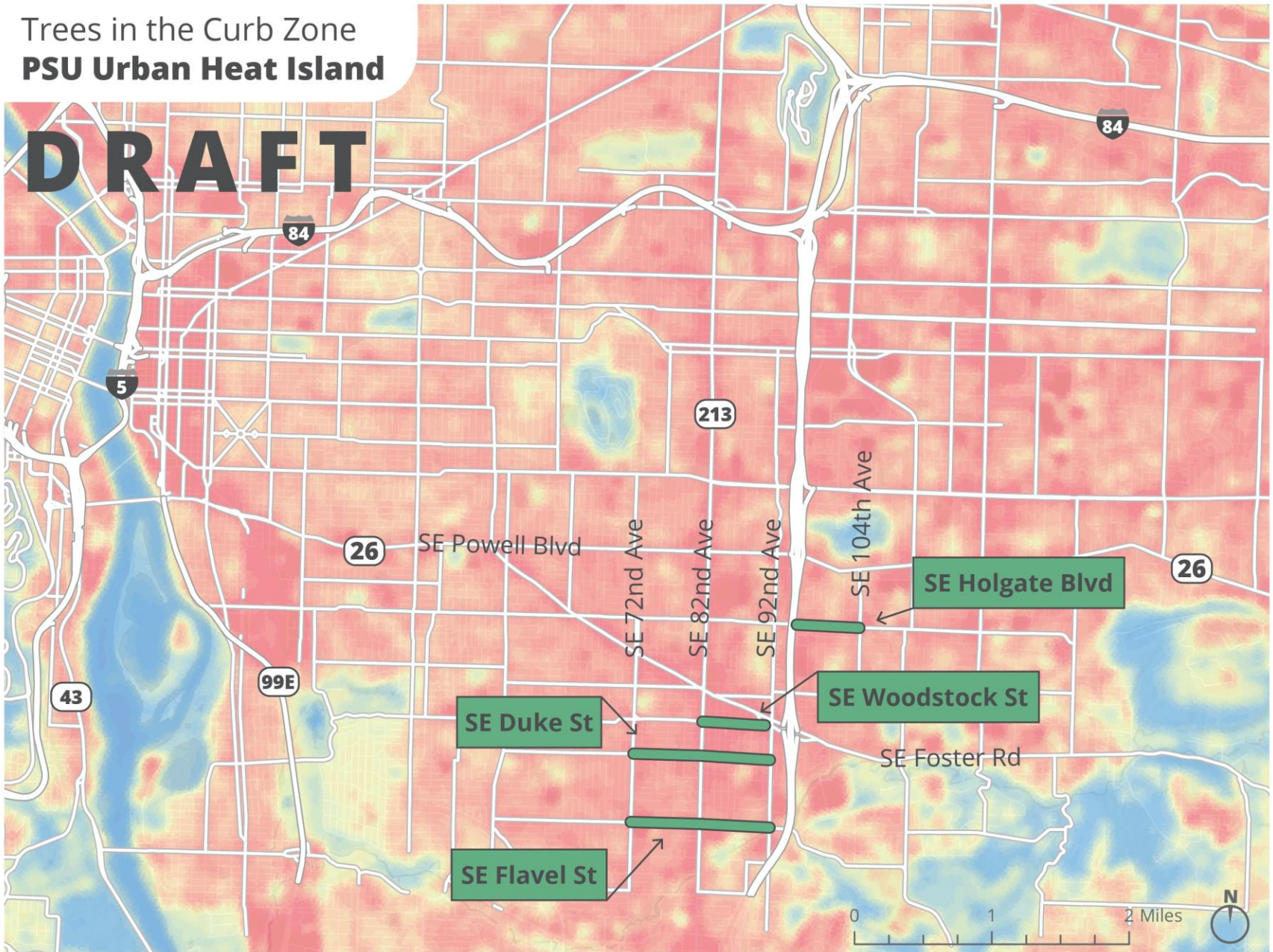


SE Flavel at 75th



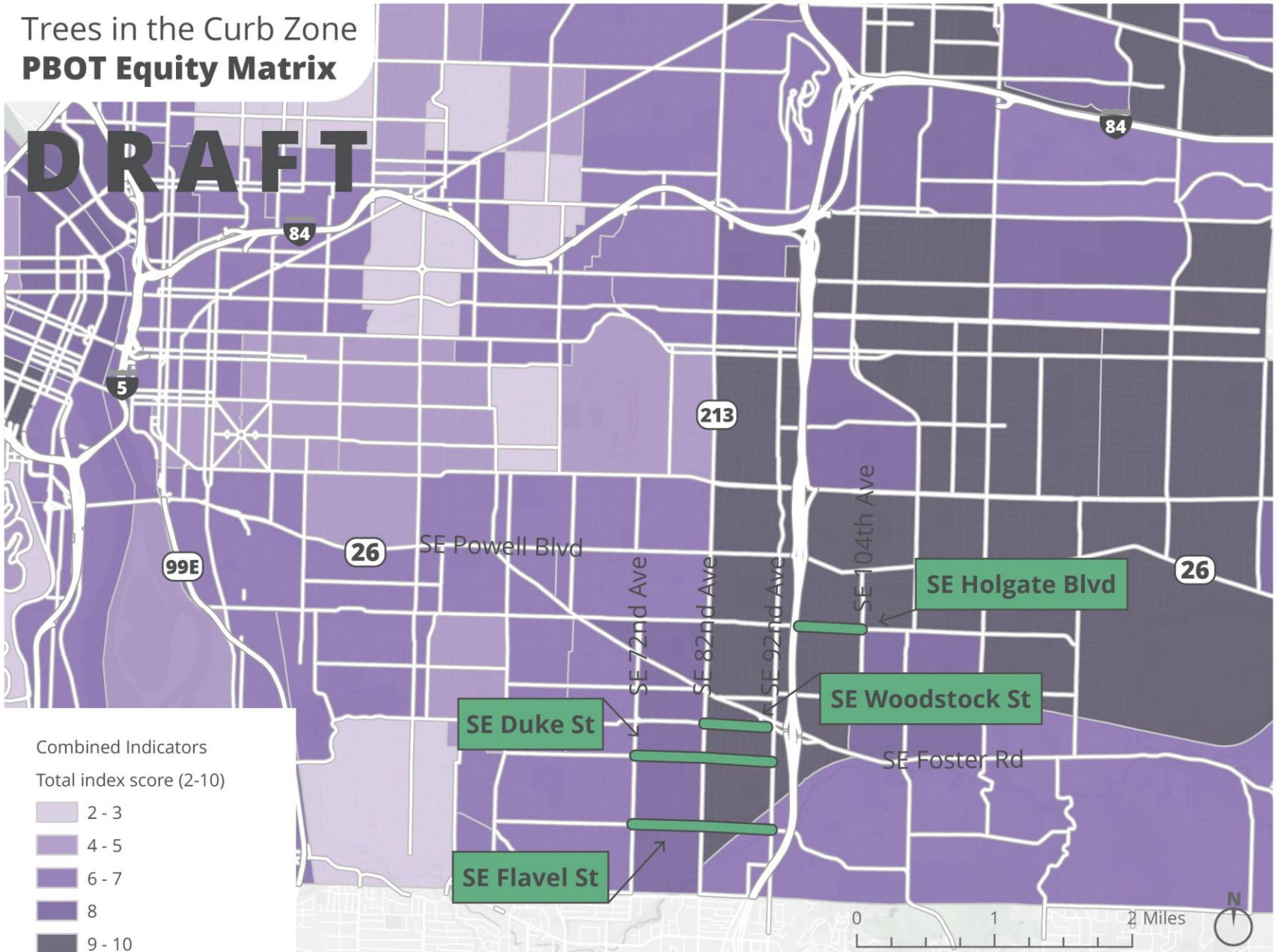
Trees in the Curb Zone
PSU Urban Heat Island

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Trees in the Curb Zone
PBOT Equity Matrix

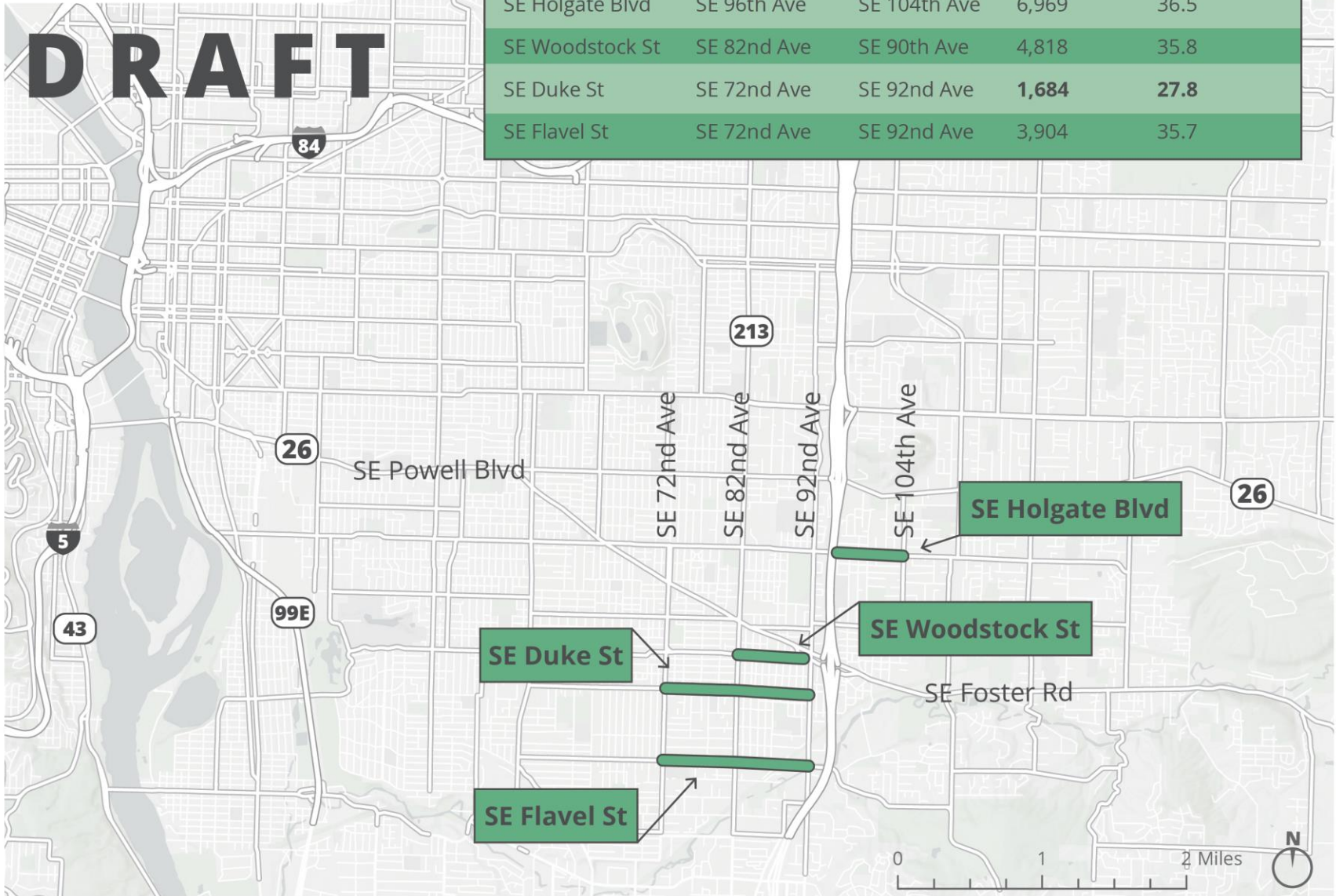
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Trees in the Curb Zone Context Map

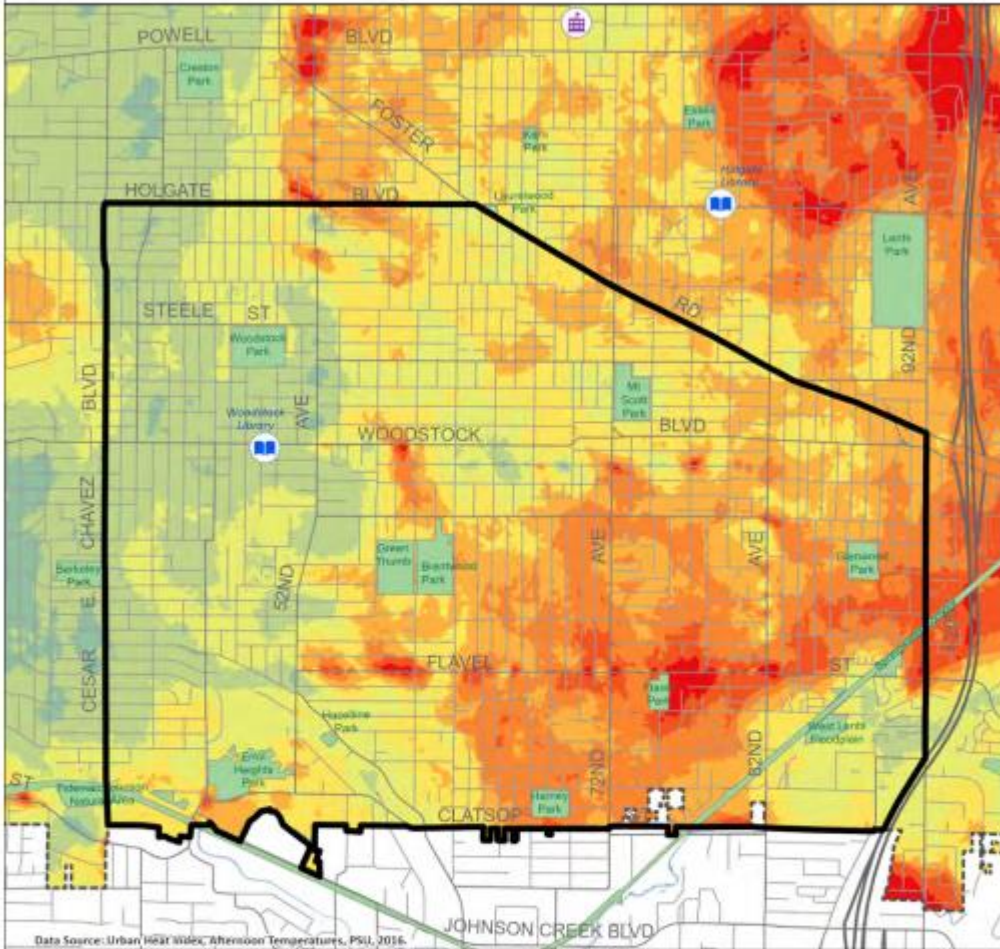
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Corridor	From	To	Avg ADT	Avg 85th Perc. Speed
SE Holgate Blvd	SE 96th Ave	SE 104th Ave	6,969	36.5
SE Woodstock St	SE 82nd Ave	SE 90th Ave	4,818	35.8
SE Duke St	SE 72nd Ave	SE 92nd Ave	1,684	27.8
SE Flavel St	SE 72nd Ave	SE 92nd Ave	3,904	35.7



Urban Heat Index and Cooling Centers

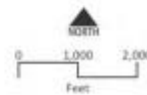
Lower Southeast Rising



Data Source: Urban Heat Index, Afternoon Temperatures, PSU, 2016.

Legend

Lower Southeast Project Area	Afternoon Temperature Range (Fahrenheit)	88.8 - 89
City of Portland Boundary	77.4 - 82.4	89.1 - 89.2
City of Portland Parks	82.5 - 85.9	89.3 - 89.5
Library	86 - 87.8	89.6 - 89.9
Cooling Center (Kellogg Middle School)	87.9 - 88.3	90 - 94.7
	88.4 - 88.7	



August 18, 2021
City of Portland, Oregon | Bureau of Planning and Sustainability | Geographic Information Systems

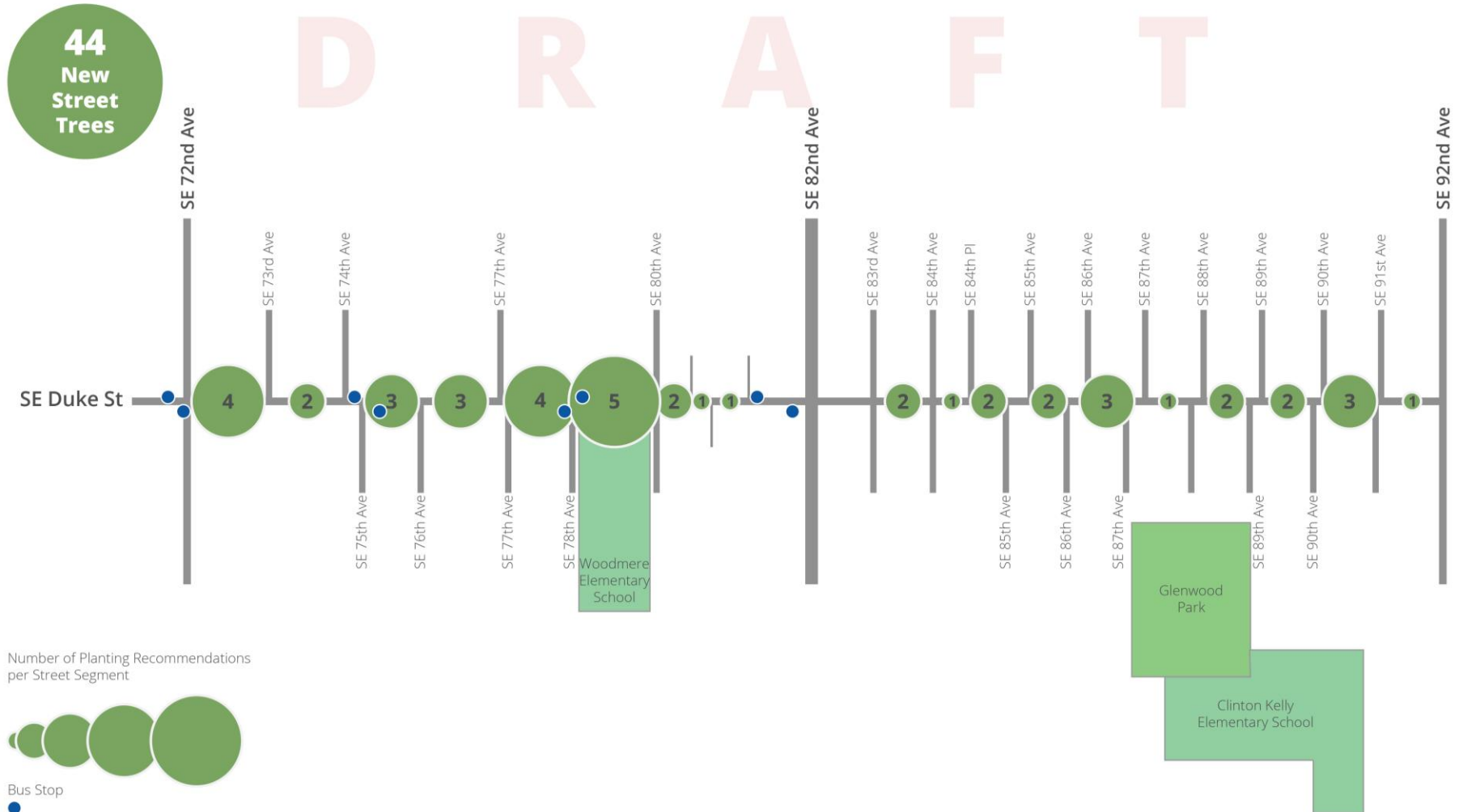
Lower SE Rising Planning Study

- PBOT/BPS joint project
- Bryan Poole, PBOT PM

Potential Corridor

Street Tree Planting in the Curb Zone

Conceptual Recommendations - SE Duke St Corridor (SE 72nd Ave to SE 92nd Ave)



Project Info

What is this project doing?

- Site refinement, design, and construction of tree curb bump outs (+ tree maintenance)
- Outreach to adjacent property owners
- Offering to plant yard trees for neighbors on opposite side of street
- Create standards and guidance so that this treatment can be applied broadly

Project Timeline

Month/Year	Tasks to be Completed	Parties Responsible
September-December 2022	Site selection refined; coordination with internal stakeholders (PBOT, BES, UF)	PBOT
January-August 2023	Technical design refinement Outreach with communities in the chosen project area	PBOT, UF
August-November 2023	Construction of tree wells Continued community outreach	PBOT with contractors PBOT, UF, BES
November 2023-March 2024	Tree planting	PBOT, UF
March-July 2024	Project Completion and Wrap up Reporting	PBOT

Next Steps

- Finalize corridor selection
- Begin community engagement
- Refine engineering drawings
- Refine individual planting locations

Next Steps

- [Project Website](#)
 - [Trees in the Curb Zone Pilot Project | Portland.gov](#)
 - www.Portland.gov/transportation/planning/trees-curb-zone
- PBOT PM
 - Gena Gastaldi
 - Gena.Gastaldi@portlandoregon.gov